

USA ABSOLUTE POVERTY LINES PRACTICES

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I. ABSOLUTE POVERTY LINES: Official U.S. Poverty Measure

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CANADA'S CURRENT DEVELOPMENTS ON LOW-INCOME MEASURES

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Canada, like most industrialised countries, does not have an official measure of poverty. One of the main reasons for this is the absence of consensus on the meaning of poverty. At one pole are those who see poverty as a subsistence standard of living with an income that is not sufficient to purchase the bare necessities. At the other pole are those who see poverty as being unable to fully participate in the life of the community, using levels closer to median or average income or spending. This is often referred to as a social inclusion definition.

There is also a lack of consensus on how to measure income poverty. The approach can be relative, usually based on a percentage of average or median income, adjusted to take household size into account. Or alternatively, an absolute measure can be used where a specific standard of living is represented by the cost of a basket of goods and services.

While there is no official measure of poverty in Canada, Statistics Canada has been producing a number of low-income measures. First, Low Income Cutoffs (LICOs) have been produced since the late 1960s. LICO's fall in the relative measure and they convey the income level at which a family may be in straitened circumstances because it has to spend 20% more of its income on food shelter and clothing than the average family of similar size. There are separate cut-offs for seven sizes of family – from unattached individuals to families of seven or more persons – and for five community sizes – from rural areas to urban areas with a population of more than 500,000.

Although the LICOs have been employed by Statistics Canada for three decades to determine low income prevalence for various socio-economic groups, some critics have indicated that the LICO methodology is difficult to understand intuitively. Others have argued that the LICOs do not provide an appropriate base for inter-provincial comparisons, because they are calculated at the national level and do not properly adjust for provincial variations in the spatial distribution of the population. With this debate as a backdrop, a Federal/Provincial/Territorial Working Group on Social Development Research and Information has been created to define a measure to complement the LICOs in order to assess the effectiveness of the Child Tax Benefit program.

The committee recommended an absolute measure of low income called the Market Basket Measure (MBM). In summary, the MBM attempts to measure a standard of living that is a compromise between subsistence and social inclusion that reflects differences in living costs across the country. Reports of the Working Group can be found in HRDC reference. The MBM represents the cost of a basket that includes: a nutritious diet, clothing and footwear, shelter transportation, and other necessary goods and services (such as personal care items or household supplies). The cost of the basket is compared to a family's disposable income to determine low income rates. The MBM is still being developed and MBM lines or rates are not officially released by Statistics Canada.

0. Relative measures of low-income : Canada's Low Income cut-off

The low-income cut-offs are not poverty thresholds. They convey the income level at which a family may be in straitened circumstances because it has to spend a greater proportion of its income on necessities (food, shelter and clothing) than the average family of similar size. Specifically, the threshold is defined as the income below which a family is likely to spend 20 percentage points more of its income on food, shelter and clothing than the average family. There are separate cut-offs for seven family sizes and for five community sizes.

1. Standards. Expenditures

The threshold level is defined as the income level below which a family is likely to spend 20 percentage points more of its income on food, shelter and clothing than the average family.

The percentage spent on necessities is calculated at the Canada level. Then, 20 percentage points are added to that percentage point. The final step is to look at the distribution of income by expenditure and determine, using a regression line, the level of income at which a family tends to spend 20 percentage more than the average on necessities. The model controls for various family sizes and geographical areas.

2. Standards. Unit of measurement

a. monetary income

The income thresholds are calculated on two different income concepts; income before taxes and after transfers, and income after taxes and after transfers. The two series of thresholds have been published since the early 1980's, but SC recommends the use of the thresholds based on the income after taxes and after transfers for two reasons. First, this represents the full impact of the mechanisms of income redistribution in Canada; taxes and transfers. Secondly, purchases of necessities is done with "after tax-dollars".

b. Imputed monetary value of service of own occupied dwelling.

Not applicable.

c. Imputed monetary value of freely received public service.

Not applicable.

d. Imputed monetary value of service derived from durable consumer goods.

Not applicable.

- e. Budget standards.

Not applicable.

3. Standards. Sources of information

- a. household surveys of income and expenditures

The low income cut-offs (LICO) are established using the data from the family expenditure survey. The survey used to be run every four years until 1992. Since 1996, the expenditure survey has been redesigned and it is now conducted on an annual basis. Currently, the proportion of income spent on necessities is based on the 1992 family expenditure surveys. Thresholds are annually updated using the CPI. It has been proposed to use the annual survey to calculate expenditure levels and this is currently examined.

The rates are produced using the Survey of Labour and Income Dynamics which is the official source of income statistics. The survey has a sample size that is roughly twice as big as the sample of the expenditure survey.

- b. population and housing census

Not applicable

- c. National accounts household income and public expenditure

Not applicable

- d. Other administrative information

Not applicable.

Other.

Equivalence scales

There is no explicit equivalence scale in the LICO. However, the thresholds are calculated based for various family sizes, and there is an implicit equivalence scale, that is slightly lower the LIM equivalence scale.

Family unit

LICO's are calculated based on the income of all the people in the same economic family. An economic family is defined as all persons related by blood, marriage or adoption that have the same dwelling as their usual place of residence.

Geography

LICO's are calculated for five different size of areas. Those sizes of area do not represent provinces.

I. ABSOLUTE POVERTY LINES :Canada's Market basket measure

A. Introduction. Conceptual guidelines to define limits of the content of this section

The concept underlying the Market Basket Measure (MBM), as specified by a federal/provincial/territorial working group on social development research attempts to identify a standard of living lying between the poles of subsistence and social inclusion. It goes beyond a subsistence standard of living, allowing for the acquisition of resources necessary for taking part in the life of the community. At the same time, it is intended to fall short of an income level that could purchase a high percentage of average or median levels of consumption and would enable full social inclusion.

The MBM threshold is defined as the cost of a basket of goods defined as necessities. This is different from other measures of poverty that tend to examine spending on similar categories. The basket is defined for a family of four, with two children, in each province and size of area. An equivalence scale determines threshold levels for other family sizes. The cost of the basket is compared to a family's disposable income to determine low income rates. Disposable income corresponds to the income, once taxes, mandatory payroll deductions, child care, child support and alimony payments made to other households.

The MBM is still an experimental measure and it is not currently released by SC. The MBM is not official poverty measure. HRDC describes it as another low-income measure to complement the current low-income measures.

1. Standards. Expenditures.

a. Food or nourishment

The food basket is described by the 1998 version of Health's Canada's nutritious basket. The basket specifies purchase unit and weekly quantities.

The prices of the items are collected on a monthly basis for the purposes of the Consumer Prices Index (CPI). Prices are collected in 40 cities in Canada. There are no prices collected in rural areas.

The suggested purchase unit price is converted into a weekly expenditure according to the quantities specified. For each month and each city, the cost of a weekly basket is calculated using this approach. The weekly estimates of the cost of the basket of food are averaged over 12 months and multiplied by 52 to get an annual cost.

b. Clothing

The clothing basket has been defined using the Acceptable Living Level (A.L.L. 2000) clothing list, prepared by the Social Planning Council of Winnipeg. The ALL is formulated to provide a complete wardrobe of essential clothing, with pro-rating for items that normally last for more than one year.

The ALL identifies quantities and dollar costs. As with food, the intention was to apply prices (collected for CPI purposes) in order to derive the cost of the clothing basket. However, some problems arose. Prices, because prices are not collected for some items on the list, and some of the description of the items are not detailed enough to allow adequate measurement.

So a temporary measure uses the prices of the items, when they are available, and A.L.L. prices for the remaining items. Collection of prices has started on items that were not previously collected.

c. Shelter

The basket of shelter consists of rental accommodation for the MBM reference family, including utilities (electricity, heat and water) and some amenities (refrigerator, stove, washer and dryer).

The rental unit is based on the average of the median of a two bedroom unit and a three bedroom unit. Subsidised rents are included in the calculation, but those paying no rents are excluded.

There is no single source of data that could provide rent information. The shelter cost is based on the Canadian Census of Population, the Labour Force Survey rent supplement and the Survey of Household Spending.

d. Transportation

The MBM includes a component to meet the basic transportation needs of the reference family members for work, school, shopping and participation in community activities. So the transportation component has been defined by the working group as following:

- in urban areas served by public transit : 2 monthly transit passes and 12 round-taxi trips per year
- in areas not served by public transit: the cost of operating a vehicle and of purchasing a five-year old Chevy Cavalier, once every five years.

To public transportation cost is applied to all urban areas of 30,000 people or more, except Charlottetown. The private transportation is applied to Charlottetown, urban areas with less than 30,000 people and rural areas.

The prices of public transportation fares is collected in 58 cities. When a monthly pass is not available, the cost of 40 adult tickets substitute for one monthly adult pass in the calculation. The taxi fares are assumed to be \$16 each.

The annual private transportation component includes :

1. 20% of the cost of a 5 year old, four door, four cylinder Chevrolet Cavalier
2. annual driver's licence fee
3. annual vehicle registration fee
4. annual mandatory vehicle insurance
5. cost of 1,500 litres of gasoline
6. cost of two oil changes and one tune-up

The cost of the car is based on the monthly publication Canadian Red Book – Official Used Car Valuations.

The price of the other elements of the private component of transportation are collected for CPI purposes, but prices are available only in cities (the price of gasoline is available in 41 cities, the vehicle maintenance in 21 centres). It is assumed that the prices in the cities applies to the private transportation component.

e. Education

While there are fees that can be important and that are associated with university education, the reference family of four assumes two children under the age of twelve, one boy and one girl. The public school system is free, but there are costs associated with going to school (related to the purchase of books, supplies, school activities and so on). The cost of all those components is not listed separately. Rather, there is an “other expense” category in the MBM. Expenditures for education are covered through that category.

Health

Canada has a universal health care system. However, other costs can occur outside of the health care system (for some prescription drugs, some dental work,...). Some of the basic health items (for personal needs, or other drugs or pharmaceutical products) are covered through the other expenses, similarly to what is done for education.

Out-of-pocket medically-recommended expenditures are not included in the MBM threshold. They are deducted from the disposable income.

f. Energy or heating

Included in the shelter component

g. Rest of expenditure after any or a group of previous items

The other component is intended to cover all other good and services that would be considered necessities according to the current societal norms. The methodology for pricing all other items could be quite expensive. To balance effort spent and benefits returned, the survey of household spending is used to determine the relationship between spending on other items and spending on food and clothing (the other expense multiplier is the proportion of spending on other items over the proportion of spending on food, clothing and footwear). This is the only component that can be viewed as a relative component, based on spending rather than the cost of a theoretical basket.

The other expense multiplier is based on the spending of a family of four in the second lowest decile of income. Because of the small sample of the expenditure survey for such a population, the proportion varies a lot between years. The average of the previous three years has been used in the development of the test measure.

2. Standards. Units of Measurement.

a. Market monetary values

The CPI is used to annually update each of the components in the MBM. For shelter, Census is the main source of data. A census of population is collected every five year. The basic shelter component uses the closest census year available. Between census, the shelter component of the CPI adjusts to market values.

b. Imputed monetary value of freely provided governmental services
Not applicable.

c. Imputed monetary value of dwelling services of self owned house
Not applicable.

d. Equivalence scales

The equivalence scale used is the low income measure equivalence scale.

The oldest person in the family receives factor of 1,
the second oldest a factor of 0.4,
all other family members 16 and over receive a factor of 0.4,
all other family members under 16 receive a factor of 0.3.

3. Standards. Sources of information.

a. Income and expenditure household surveys

The income survey is used to determine the disposable income.
The expenditure survey is used to calculate the other component. It is also used to impute an amount for the cost of appliances, in the rent component, and to impute out-of-pocket medical expenditures, used in the definition of disposable income.

b. Physical technical requirements

The MBM is still an experimental measure. It is based on two baskets; a nutritious food basket and a clothing basket. The current baskets that have been used for the preliminary measure have been referenced in the previous section. The clothing basket is still under revision, and at the moment, there are questions trying to assess if one basket (whether it is food or clothing) can be used for all regions.

c. Market prices

Prices of food items, clothing, transportation and rent are calculated periodically as a part of the regular Consumer Price Index (CPI) estimation. The average price of the most popular brand has been used for the food component. For clothing items, it was a concern that some high-end retailers, required for CPI purposes, would have a large impact on average prices. Geometric means of the prices from the various outlets have been used to deflate the importance of some of the large values.

d. Administrative or National Accounts information on public expenditure: Global and by purpose (monetary transfers or freely provided services) (national and local level)
Not applicable.

4. Standards. Geographic disaggregation and time series.

a. Conceptual challenges. Rural and urban poverty lines. Other geographic openings of poverty lines

The MBM calculates 47 thresholds, based on province in size of areas. However, not every component of the MBM is available at that level. In many instances, prices are calculated in urban areas, but applied to rural components.

b. Demands for information in space and time

When the basket will be final, the items of the basket of food, clothing and transportation should be priced annually. The rent component of the CPI will be applied between census years.

5. Resources for satisfying standards.

a. Household income: income components. Canberra Group

Habitually, household incomes constitute the primary resource available for households to satisfy their necessities and increase their welfare. A poverty line represents the income required to reach a minimum welfare standard.

Disposable income is total income minus some non discretionary expenses. Total income refers to income from all sources, including government transfers. Income taxes paid, social contributions (such as employment insurance or contributions to registered pension plans), child and spousal support payments, work related child care expenses, out of pocket medical expenditures are deducted from the total income to produce an MBM disposable income.

Income is calculated at the economic family level (people related by marriage, blood or adoption).

An imputed value for free public goods and services have not been incorporated into the income concept. Expenditure level as an alternative approach for poverty measurement has not been used.

b. Public expenditure.

Monetary transfers from public sources are not considered among the sources of income available to households.

c. Imputed income for own house occupiers.

The monetary value of the service provided by the dwelling to its owner is not considered as a component of household incomes.

d. Household expenditure: expenditure components.

Not applicable.

6. Resources for satisfying standards. Sources of information.

a. Household surveys that include income.

In Canada, the survey of Labour and Income Dynamics is the official source of income statistics. The survey is conducted annually and has a sample of approximately 30,000 households. The survey is not conducted in the territories, on the Indian reserves, the institutions or the military barracks. MBM rates can not be produced in these areas that are not covered through the income survey at the moment. Work is examining the use of administrative data as a potential source of income data for covering the north.

b. Household surveys that include expenditure.

Canada has an annual survey of household expenditure. The survey is now done annually and has a sample of roughly 16,000 households. Every second year, a sample of households is collected in the north (roughly 1,000 households).

c. National accounts household income and expenditure information.

Not applicable.

d. Public expenditure: national accounts and administrative sources.

e. Other surveys

As mentioned before, prices are collected monthly on a variety of items for the purpose of the CPI. Some of the components of the MBM come from there.

ECLAC PRACTICE ON ABSOLUTE POVERTY LINES MEASUREMENT

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I. ABSOLUTE POVERTY LINES

A. Introduction. Conceptual guidelines to define limits of the content of this section

B. Standards and Resources

1. Standards. Expenditures.

The value of the poverty line employed by ECLAC is the cost of a basket that contains a set of food and non-food items considered essential. The food basket is built as to meet minimum nutritional requirements while being representative of the population's consumption pattern. The cost of essential non-food items is added by multiplying the value of the food basket by a constant number. This poverty line is expressed in per-capita terms, so it has to be multiplied by the number of household members before comparing it to the household income.

a. Food or nourishment

Nutritional requirements: International standards on nutritional requirements are available according to sex, age and physical activity. These standards are weighted according to the structure of the population in the country under analysis, in order to obtain the average caloric requirement per person.

Construction and valuation of the food basket:

i) In some cases, quantities of food items consumed by households are directly reported by Income and Expenditure Surveys. If not, the same source provides information on expenditure on food, which is converted into quantities consumed per household dividing it by market prices. Then, these quantities are translated into their caloric content, so that the total caloric per capita consumption of each household can be calculated.

b) With this information, a reference group is selected. The reference group is usually made up of the lowest quintile of households (sorted by per capita household incomes) that satisfies on average the caloric requirements.

c) The food basket is assembled by selecting the most representative items for each food category included in the Income and Expenditure Survey, and then choosing their quantities according to the structure of consumption of the reference group. Food categories normally contain: cereals, tubers, sugar, legumes, vegetables, fruits, meats, fish and seafood, milk and dairy, eggs, beverages, and oils and fats. Items that are rarely consumed or extremely costly are usually substituted by more common and lower priced items within the same category. When enough information is available, the expenditure on "out-of-household" food is normally incorporated. Quantities are adjusted in order to meet not only the per-capita requirements in terms of kilocalories but also other

internationally recommended parameters of nutritional quality (concerning the sources of calories, a reasonable intake of cereals and vegetables, and the content of proteins, calcium, iron, vitamin A, thiamine, riboflavin, niacin and vitamin C). These quantities are kept constant for the period between two Income and Expenditure Surveys.

d) The cost of the food basket is estimated according to the average market prices for the period under analysis. Market prices come from the Income and Expenditure Survey, when available, or else from the Consumer Price Index, whose structure is also based on an Income and Expenditure Survey. When the CPI basket has no information for specific items contained in the food-basket, prices are deduced on the basis of complementary information.

Due to limitations of the sources of information for expenditure and prices, the described procedure is usually performed for metropolitan or urban areas only. The cost of the food basket for rural areas is obtained by multiplying the cost of the urban food basket by specific factors, derived from other sporadic information.

b. Clothing

Under the poverty line method employed by ECLAC, no specific considerations are made about clothing or any other non-food item. The cost of the non-food basket was originally calculated as the inverse of the Engel coefficient (proportion of household expenditure allocated to food) of the reference group. According to estimations based on information from the 70's and early 80's, this value (also known as Orshansky-multiplier) was around 2 for urban areas and 1.75 for rural areas. These estimations considered only private consumption, therefore excluding any good or service provided free of charge by governments. In subsequent applications of this method, the values for the Orshansky-multipliers have become regional standards and have been applied consistently for almost every poverty line (some exceptions are described below).

c. Shelter

Not explicitly considered. See under "clothing".

d. Transportation

Not explicitly considered. See under "clothing".

e. Education

Not explicitly considered. See under "clothing".

f. Health

Not explicitly considered. See under "clothing".

g. Energy or heating

Not explicitly considered. See under "clothing".

- h. Rest of expenditure after any or a group of previous items
Not explicitly considered. See under “clothing”.

2. Standards. Units of Measurement.

This section concentrates basically on three topics associated to the definition of the value of the poverty line: use of current or constant prices, what to do when certain market prices for goods and services consumed by households are unavailable, and the unit of analysis of the poverty line (average household, average person or persons according to age and number of members in the household).

- a. Market monetary values

Current market prices are used to transform expenditures into quantities of food items, when quantities themselves are not available. Changes in market prices are used to update the poverty line.

- b. Imputed monetary value of freely provided governmental services
Not applicable.

- c. Imputed monetary value of dwelling services of self owned house
Not applicable.

- d. Equivalence scales

No explicit equivalence scale is applied in the construction of the basket. Nonetheless, the population structure by sex, age and activity is taken into account in the average of nutritional requirements, resulting in an implicit equivalence scale. Therefore, the basket is expressed in per-capita terms and not in terms of a “representative adult”.

3. Standards. Sources of information.

- a. Income and expenditure household surveys

The data needed to build the food and non-food baskets comes mainly from Expenditure and Income Surveys, which contain information on the structure of income and the expenditure on items consumed by household members. These surveys are carried out approximately every ten years in most countries, with some exceptions where frequency is higher.

- b. Physical technical requirements

- i) Current international standards of energy and protein needs for specific groups defined on the basis of age, sex and physical activity stem from the recommendations provided by a group of experts in 1981 (see FAO/WHO/UNU, 1985, *Energy and protein requirements. Report of a*

FAO/WHO/UNU Expert Consultation. Technical Report Series N.724, World Health Organization, Geneva).

ii) Weights employed to average these needs according to the structure of the countries' population come either from Population Censuses or Household Surveys.

iii) Conversion tables produced by each country are the source of information for the nutritional content of each food item.

c. Market prices

Prices of food items are calculated periodically by National Statistical Offices, as a part of their regular Consumer Price Index (CPI) estimation. Usually, three types of prices are available for each item: lowest, average and highest, from which the second option is preferred. Additional information from national sources is often employed to calculate prices for items not included in the CPI basket.

Information of the CPI for food is also employed for updating the cost of the basket in years different to its original date of reference.

d. Administrative or National Accounts information on public expenditure: Global and by purpose (monetary transfers or freely provided services) (national and local level)

Not applicable.

4. Standards. Geographic disaggregation and time series.

a. Conceptual challenges. Rural and urban poverty lines. Other geographic openings of poverty lines

Poverty lines are usually calculated for metropolitan, urban and rural areas (with only three exceptions where only urban information is available). In certain circumstances, a greater geographical detail has been considered, as in the case of Brazil, where poverty lines are calculated for 24 sub regions.

b. Demands for information in space and time

To update the value of the poverty line for periods not covered by an Income and Expenditure Survey, changes in the Consumer Price Index (CPI) for food are employed. Exceptionally, when changes of the CPI for food have been significantly lower than the general inflation, the cost of the non-food basket has been updated according to the variation in the CPI for non-food items; as a result, the fixed coefficient that links food and non-food baskets is abandoned.

The construction of poverty lines for sub regional contexts is extremely demanding in terms of expenditure and price information, and therefore rarely performed beyond the metropolitan, urban and rural level mentioned above.

5. Resources for satisfying standards.

a. Household income: income components. Canberra Group

Habitually, household incomes constitute the primary resource available for households to satisfy their necessities and increase their welfare. A poverty line represents the income required to reach a minimum welfare standard. Therefore, defining and calculating household incomes is essential for this method. Household income is defined according to the concept from National Accounts (the Canberra Group on Household Income Statistics has produced a Report with recommendations on this matter), which mainly includes monetary incomes derived from current account transactions, including transfers in cash. Imputed income for owner-occupied dwellings is also included (see below). An imputed value for free public goods and services have not been incorporated into the income concept.

Expenditure level as an alternative approach for poverty measurement has not been used.

b. Public expenditure.

Monetary transfers from public sources are considered among the sources of income available to households.

c. Imputed income for own house occupiers.

The monetary value of the service provided by the dwelling to its owner is considered as a component of household incomes. In some cases, this amount is reported as an income source in the household survey. Otherwise, it is calculated using the proportion that imputed income represents among home owners' total household income from National Accounts.

d. Household expenditure: expenditure components.

Not applicable.

6. Resources for satisfying standards. Sources of information.

a. Household surveys that include income.

In Latin America, there are two main types of surveys that collect information on household income: Multi-purpose Household Surveys and Income and Expenditure Surveys. While the latter are more precise, they are carried out approximately every ten years, and therefore unsuitable for medium- or short-term poverty monitoring. Therefore, different kinds of multi-purpose surveys are usually employed in the measurement of poverty.

The concept of income measured in these surveys varies, but most concentrate on monetary figures. Labour income is common to all of them, but there are clear differences in the measurement of certain components, such as contributions to social security, or revenues from family-type businesses. The public and private monetary transfers are captured in very heterogeneous degrees. Income originated on capital

ownership is one of the weakest measured components in most countries. Nonetheless, its importance for poor households is not significant in most cases. Specific questions designed to estimate imputed income from owner-occupied dwellings are not frequent.

b. Household surveys that include expenditure.

Not applicable.

c. National accounts household income and expenditure information.

The household account of National Accounts is a fundamental element in ECLAC's poverty measurement method, not only because it provides the conceptual framework for the notion of income, but also because it is used to verify and adjust totals of the different sources of income from household surveys. Therefore, its quality is essential for good poverty estimates. The categories this account includes vary appreciably among countries; nevertheless, information is usually available for the following items: labour incomes, property incomes, income taxes and contributions and monetary transfers.

d. Public expenditure: national accounts and administrative sources.

When household surveys provide data about the recipients and amount of public monetary transfers, they are used as the preferred source of information. When this information is lacking, administrative sources are used.

C. Availability of regular established calculations.

1. World or regional level. World Bank, ECLAC.
2. USA, Canada.
3. Latin American countries with systematic official measurements.
4. Escap region
5. Escwa region
6. Eca region

D. Technical characteristics: Similarity and differences among estimates.

1. Experience in time, frequency, updating techniques
2. Official status. Alternatives.
3. Objectives, uses, dissemination.
4. Monetary and non monetary (estimated) components
5. Geographical coverage and disaggregation of results.

E. Challenges, options, and shortcomings.

1. Continuity in time

2. Spatial measurement in countries with heterogeneous regions.
3. Standards in items with intrinsic difficulties such as health.
4. Income or expenditure measurements
5. Public goods and services.
6. Equivalence scales
7. Intrafamily situation

**ABSOLUTE POVERTY LINES: THE NATIONAL
ACADEMY OF SCIENCES (NAS) PROPOSED
MEASURE**

**Charles Nelson
U.S. Bureau of the Census**

ABSOLUTE POVERTY LINES: The National Academy of Sciences (NAS) Proposed Measure

A. Introduction

The official U.S. poverty measure was developed in 1963-1964 and has changed little since its inception. In 1995, a National Academy of Sciences panel recommended sweeping changes to the way in which poverty is measured in the U.S. (Citro and Michael, 1995). In doing so, the panel addressed many of the recognized weaknesses of the official U.S. measure. These weaknesses include:

- its very limited definition of resources (before-tax monetary income)
- the lack of sub-national variation in poverty thresholds
- its reliance on an implicit equivalence scale that does not adequately reflect differences in living costs by family size and type
- the lack of a system for updating thresholds over time other than changing thresholds annually to reflect changes in the cost of living

The panel's recommendations and subsequent research formed the basis for a set of alternative poverty measures that have been included in the Census Bureau's annual report on poverty in the U.S. for the last several years.

B. Standards and Resources

1. Standards. Expenditures.

The core for the poverty threshold calculation in the measure recommended by the NAS is data from the U.S. Consumer Expenditure Survey (CES) on the median spending in the U.S. (for a four-person, two-child reference family) on food, shelter, and clothing. The panel recommended that poverty thresholds should be calculated as a percentage of median spending on these necessities, plus a small multiplier to cover other needs. While the NAS did not specify a specific percentage, they recommended that a reasonable threshold for such a percentage would be 78-83 percent. For a multiplier (to cover the costs of needs other than food, shelter, and clothing), again the panel did not recommend a specific figure. Instead, they recommended that a reasonable range for a multiplier was between 15 percent and 25 percent. Most of the research based on the panel's recommendations has used the midpoint of the panel's recommended ranges.

a. Food or nourishment

As noted above, thresholds under the NAS panel's recommendations are based on median spending for food, shelter, and clothing. Thus, food expenditures are explicitly included in the panel's threshold calculation.

- b. Clothing
Explicitly included. See under “Food or nourishment”.
- c. Shelter
Explicitly included. Also includes cost of utilities such as electricity, natural gas, and water. See under “Food or nourishment”.
- d. Transportation
Transportation expenses other than work-related transportation expenses are implicitly included in the multiplier described above. Work-related transportation expenses are excluded (and to be consistent, all work-related expenses, including transportation expenses, are excluded from the resource definition).
- e. Education
Not explicitly considered.
- f. Health
Health expenditures are excluded from the threshold definition (and out-of-pocket medical expenses are excluded from the resource definition). There has also been research into the effect of using variations of the panel’s recommended approach that include medical expenditures in the poverty threshold definitions (Short and Garner, 2002).
- g. Energy and heating
Would be included in the “shelter” component, and thus would be explicitly included.
- h. Rest of expenditures after any or a group of previous items
Not explicitly considered.

2. Standards. Units of Measurement.

- a. Market monetary values
Current market prices are used to transform expenditures into thresholds. The panel recommended that thresholds should be updated annually to reflect changes in median expenditures on food, clothing, and shelter. Subsequent research has used this method as well as an alternative method that used changes in the Consumer Price Index to update thresholds.
- b. Imputed monetary value of freely provided government services
Not applicable.
- c. Imputed monetary value of dwelling services of self-owned house
Not applicable, though there has been research conducted that explores the effect of

this value to homeowners using an NAS-based poverty measure (Garner and Rozaklis, 2001).

d. Equivalence scales

The panel recommended that a threshold should be calculated for a “reference” family of two adults and two children and that an explicit equivalence scale should be used to adjust this scale for other families (or individuals not living in families). The panel recommended a scale that 1) reflects differences in consumption between adults and children and 2) reflects the economies of scale in a reasonable fashion. For a scale that met these criteria, they recommended a scale computed by taking the number of “adult equivalents” in a family (the number of adults plus 0.7 times the number of children) and raising that sum to a power of 0.65-0.75.

More research has used a modified version of this scale (Short, 2001). This scale fixes the ratio of the scale for two adult/one adult ratio at a fixed value, 1.41. For single parents, the scale adds the number of adults to 0.8 for the first child plus 0.5 times all other children, raised to the power of 0.7. For all other families the scale adds the number of adults to 0.5 times the number of children, raised to the power of 0.7.

3. Standards. Sources of information.

a. Income and expenditure household surveys

The basis for computing poverty thresholds under the NAS panel recommendations is the Consumer Expenditure Survey (CES), which is sponsored by the U.S. Bureau of Labor Statistics and conducted by the U.S. Census Bureau.

b. Physical technical requirements

Not applicable.

c. Market prices

For research that updates poverty thresholds based on price changes, the Consumer Price Index (CPI) is used.

d. Administrative or National Accounts information on public expenditure: Global and by purpose (monetary transfers or freely provided services) (national and local level)

Not applicable.

4. Standards. Geographic disaggregation and time series.

a. Conceptual challenges. Rural and urban poverty lines. Other geographic openings of poverty lines.

The NAS panel recommended that poverty lines should reflect differences in the cost of living throughout the U.S. In the absence of official U.S. inter-area

comprehensive price indexes, the panel recommended that poverty thresholds should be adjusted for differences in the cost of rental housing across geographic areas of the country. They recommended that data from the U.S. decennial census, in which approximately one-sixth of U.S. households are asked a series of housing-related questions including rental expenses, would be a reasonable vehicle for developing geographic housing indexes that could then be applied to the housing portion of the poverty thresholds.

b. Demands for information in space and time

As noted above, the NAS panel recommended that poverty thresholds should be updated each year to reflect changes in expenditures for the basic good and services contained in the poverty budget. To smooth out year-to-year fluctuations and to lag the adjustment somewhat, they also recommended that the calculations should be based on the most recent 3-year average. Finally, for evaluation purposes, the panel also recommended, for the first few years of implementation, that alternative poverty thresholds should also be updated based on price changes. Census Bureau research into the effect of using the NAS measures has generally used both approaches for updating thresholds.

5. Resources for satisfying standards.

a. Household income: income components. Canberra Group

The NAS panel recommended a much more comprehensive definition of resources than the official U.S. poverty measure (total pre-tax monetary income). The NAS recommended a definition of resources that includes all sources of monetary income together with the value of noncash benefits (such as food stamps, free school lunches, and subsidized rent)

b. Public expenditures

Monetary transfers from public sources are considered among the sources of income available to households, as are noncash direct transfers from public sources (such as food stamps).

c. Imputed income for own home occupiers

The addition of the monetary value of the services provided by a dwelling to its owner was not among the NAS panel's recommendations, though there has been research into the effect of adding this component into the resource definition (Garner and Rozaklis, 2001).

d. Household expenditure: expenditure components

The NAS panel recommended that necessary expenses should be excluded from the resource definition. These expenses include: income and payroll taxes, child care and other work-related expenses, child support payments paid to another household, and out-of-pocket medical costs, including health insurance premiums (this last

exclusion is consistent with their recommendation to exclude the value of public health care programs).

6. Resources for satisfying standards. Sources of information.

a. Household surveys that include income

Most of the research subsequent to the publication of the NAS panel recommendations has used the Current Population Survey (CPS), which is the source of the official U.S. poverty estimates. This survey asks about all sources of monetary income, and also collects the information on the receipt of noncash public transfers, which are components of resources under the NAS panel recommendations. The NAS panel recommended that another survey, the Survey of Income and Program Participation (SIPP) should become the official source poverty statistics in the U.S. However, under the current design of this survey, which is a longitudinal survey, it is not possible to produce reliable year-to-year data on changes in the number of people in poverty.

b. Household surveys that include expenditures

As noted above, the NAS recommended a definition of resources that excluded necessary expenses from the resource definition. However, since the CPS contains no information on expenditures, generally this information is imputed to CPS households through models or calculations based on other surveys. For example, in the most recent comprehensive report on NAS-based alternative poverty measures (Short, 2001), SIPP data were used to impute child care and other work-related expenses, and data from the Consumer Expenditures Survey were used to impute out-of-pocket medical expenses.

c. National accounts: household income and expenditure information

Not applicable.

d. Public expenditures: national accounts and administrative sources

Not applicable.

C. Availability of regular established calculations.

As alternative estimates that do not constitute the official U.S. poverty measure, the emphasis thus far has been on methodological issues and improvements. As a result, there is no long-term time series of estimates comparable to the official U.S. poverty measure. The first series of experimental estimates covered the 1990-1997 period; the current series covers 1999-2002.

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ACCESS TO BASIC SERVICES AND BASIC CAPITAL POSSESSION ECLAC'S PRACTICE

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The Unmet Basic Needs (UBN) methodology was first introduced in Latin America in the early eighties in order to take advantage of the population and housing censuses in the analysis of living conditions. It consists in evaluating if households have access to specific basic services or possess basic capital; therefore, it is a “direct method”, “non-monetary method” which measures the actual satisfaction of needs rather than the possibility of satisfying them, as income-based measures do.

Deprivation dimensions considered under the standard version of the UBN methodology are related to the availability of information in censuses. Typically, the following basic needs are included: access to a decent dwelling, access to safe water and sanitation facilities, access to basic education and economic capacity to attain minimum consumption levels. The first and the latter are discussed under the item “possession of basic capital”, while the others are treated as “access to basic services”.

Each dimension under analysis requires defining at least one indicator and the threshold under which a necessity is considered unsatisfied. It has been common practice to select deprivation indicators that are significantly correlated with a general state of deprivation, proxied by very low incomes (to test correlation with low incomes, household surveys are employed). Therefore in many occasions they were used in Latin America to determine population or households under extreme poverty.

In the original version of the UBN method, results are summarized in a single index by adding households with at least one unmet basic, in a similar fashion to the headcount index for income poverty. This practice has several drawbacks, which are not necessarily overcome by more complex indexes –for example, assigning scores to each level of satisfaction of the needs–; in consequence, the aggregation process remains the weakest part of the UBN method.

1. Standards. Access to basic services.

a. Levels of education.

Basic education is considered an essential requirement for the adequate integration of people into a productive and social life, and the attendance to an educational establishment has been chosen as the main UBN indicator for this need. Attendance does not automatically guarantee that the need of education is being fulfilled; quality of education and repetition rates, for example, should also be pondered. Nevertheless, information on these aspects is usually not available in censuses or household surveys. Other indicators may be employed, such as the educational level of adults or literacy rate.

b. Levels and types of health services.

Not considered due to unavailability in the source of information.

c. Safe water.

Access to safe water in sufficient amounts is very important as it is closely related to the health condition of people. Access is determined not only by the availability of a water source in or near the dwelling but also by the means in which water is brought into the dwelling. When available, the distance from the water source to the dwelling is also taken into account.

d. Sanitation facilities.

To evaluate the adequateness of sanitation facilities two aspects have to be considered. One is the availability of a toilet and the other is the mechanism for evacuating residues. In choosing minimum thresholds for these needs, important differences may arise between urban and rural areas, as sewage systems are usually not available in the latter.

e. Unemployment benefits.

Not considered due to unavailability in the source of information.

2. Standards. Access to basic services. Units of measurement.

a. Administrative levels of education or health services.

The need for education in a household is considered unsatisfied if at least one child in the pertinent age range is not regularly attending primary school. Primary education (first six years of formal education in most countries) is regarded as the minimum acceptable level of education, both in urban and rural areas.

b. Types and distances of access to safe water.

Access to safe water is measured through location of the water source, its distance from the dwelling, the means of transport of the water into the dwelling, or a combination of these. For example, this need may be considered unsatisfied if water does not come from a piping system, or if it is located further than 100 meters away from the dwelling.

c. Types and inside-outside dwelling sanitation facilities.

Needs in this category are usually considered unsatisfied in the case of households that lack sanitary service, and households without any kind of sewage system. More demanding thresholds can be set by taking into account, for example, the number of household members that share sanitary service.

d. Administrative defined benefits for unemployed.

Not considered.

e. Use of composite indexes.

Not considered under this category.

3. Standards. Access to basic services. Sources of information.

a. Population and housing censuses.

The UBN method was originally devised to make use of the information from population and housing censuses, and almost every application of the method uses

this source. The strongest advantage of censuses is their high level of coverage, which allows making characterizations of unsatisfied basic needs for almost every human group or area in a country, typically in the form of “poverty maps”. The main drawbacks of this source are its low periodicity and reduced amount of information.

b. Household surveys.

Household surveys are sometimes used in the selection of indicators of unsatisfied basic needs, to evaluate their correlation with low incomes. As it was mentioned, indicators chosen in the UBN method should be representative of a general state of deprivation, of which low or very low incomes are a good proxy.

In addition, the UBN method can be applied entirely using household survey data. This source usually contains more information than censuses, making it possible to employ additional indicators of basic needs. Nevertheless, this source lacks the coverage of censuses, and “poverty maps” drawn are excessively general.

c. Administrative information.

Not used.

4. Standards. Possession of Basic capital.

a. Dwellings minimum characteristics.

Standard UBN method applications typically consider three dwelling’s characteristics: type of dwelling, construction materials and number of people per room. The first one is usually a weak indicator, because categories contained in censuses and surveys tend to be too general. Regarding construction materials, separate categories are established for roofs, walls and floors of the dwelling. Number of people per room (“overcrowding”) is also considered an indicator of the adequacy of a dwelling, and it is strongly linked to health status of the members of a household.

b. Neighborhood infrastructure.

Not considered

c. Land and water in the rural area. Extension and quality.

Not considered

d. Human capital.

Not considered

e. Social capital.

Not considered

f. Economic capacity

It is common to include in the UBN method an indicator of the economic ability of household members to satisfy their material needs. It takes into account the

educational level of the head of the household together with the ratio of non-income earners to income earners in the household. This indicator tries to capture the opportunity of the head of the household to be employed and have an adequate income.

5. Standards. Possession of Basic capital. Units of measurement.

a. Physical units or classification of materials.

Types of dwelling considered unacceptable may include mobile houses or tents. Nevertheless, few countries use this indicator, as categories available are not clearly linked to living conditions.

Construction materials tend to vary among countries and urban and rural areas, though there exist certain characteristics that are always associated to an unsatisfied need, such as soil floors or roofs made of straw or waste materials.

In most countries, households with more than three individuals per room are considered overcrowded, and therefore, with an unmet basic need. The definition of room usually excludes only kitchen and bathroom.

b. Urbanization items by administrative classifications.

c. Security by specialized indexes.

d. Minimum requirements of land by regional and quality indexes.

e. Levels of education by administrative classifications or specialized indexes (UNESCO).

f. Levels of health (nutrition included) by physical or medical measurements.

g. Social capital (to be defined).

h. Economic capacity

The indicator of economic capacity is typically a little more complex than the rest, as it combines various elements simultaneously. For example, a household may be classified as in economic need if the ratio of non-income earners to income earners is equal to or greater than 4 and, at the same time, the head of household is less than 45 years of age and has less than six years of education.

6. Standards. Possession of Basic capital. Sources of information.

Same as 3, no other source of information is used.

a. Technical information on dwellings, physical infrastructure, land, education and health.

b. Population and housing census.

c. Household surveys including special modules on housing and health.

d. Administrative information.

7. Access and capital Standards. Geographic disaggregation and time series. Conceptual and operational challenges.

a. Rural and urban, and regional indexes.

Differences between urban and rural areas are taken into account when choosing minimum thresholds of satisfaction. For example, in the case of access to safe water, a

source located more than 100 meters away from the dwelling may be considered satisfactory in rural areas but not in urban areas.

- b. Time series.
Not considered.

8. Resources to satisfy standards of access to basic services.

Considerations about resources available to satisfy basic needs are not different than the ones discussed above, regarding the selection of thresholds for each indicator of need. The process of selecting a threshold is simultaneous to the evaluation of the resources available in the household.

9. Resources to satisfy possession of basic capital. Capital available before current expenditure to increase it.

- a. Financial Equities, bonds, deposits, etc.
- b. Physical.
 - i. Dwellings
 - ii. Physical capital of self employed
 - iii. Land
 - iv. Durable consumer goods
- c. Human.
 - i. Education
 - ii. Health
 - iii. Labor force of households
- d. Social.

10. The MDG s as non monetary standards.

**Experimental Poverty Measures
Under Alternate Treatments of Medical Out-of-Pocket Expenditures:
An Application of the Consumer Expenditure Survey¹**

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Abstract

This paper presents experimental poverty measures that update those presented in Current Population Report, P60-216, “Experimental Poverty Measures: 1999”. Estimates for 2000 are presented and compared with the official measure. In this paper we emphasize the difference in two of the measures that use Consumer Expenditure (CE) data to estimate medical out-of-pocket expenses. Poverty rates, poverty gaps, and income-to-poverty-threshold ratios are computed and compared across poverty measures for various subgroups, particularly children and the aged. Results show that alternate methods of measuring medical expenses affect our perception of the relative incidence of poverty, the depth of poverty experienced by these groups, and the number of people who are classified in extreme poverty (those with family income below one-half of the poverty threshold).

Background

The official measure of poverty in the United States has been in place since the 1960s and has served to inform many policy debates. However, this measure itself is often the focus of criticism from scholars and policy makers alike. In her book, *Drawing the Line*², Patricia Ruggles described alternative concepts of poverty and methods for measuring poverty; she also proposed methods to update and revise the current official poverty threshold and resource definitions. In response to this work, the Joint Economic Committee held Congressional hearings in the early 1990s. These hearings lead to the formation of the National Academy of Sciences (NAS) Panel on Poverty and Family

Assistance. The goal of the panel was to examine the current official measure of poverty in the United States. In 1995 this panel of scholars published their findings in a report titled *Measuring Poverty: A New Approach*³.

In general, the NAS panel report proposed eight broad sets of recommendations which focus on the following: (1) adopting a new poverty measure; (2) setting and updating the poverty threshold; (3) adjusting the threshold; (4) defining family resources; (5) identifying needed data; (6) highlighting other issues related to poverty measurement; (7) relating poverty measurement to assistance programs; and (8) linking states' needs to the panel's proposed measure. The panel stated that poverty thresholds should represent a budget for food, clothing, shelter (including utilities) and a small amount for other needs. Family resources would be defined – consistent with the threshold concept – as the sum of money income together with the value of near money benefits minus expenses that cannot be used to buy goods and services in the threshold budget. The panel also stated that,

*The U.S. Office of Management and Budget should adopt a revised poverty measure as the official measure for use by the federal government. Appropriate agencies, including the Bureau of the Census and the Bureau of Labor Statistics, should collaborate to produce the new thresholds each year and to implement the revised definition of family resources.*⁴

The basic criteria for developing the poverty measure, according to this NAS panel, were that it should be understandable and broadly acceptable to the public, statistically defensible, internally consistent, and operationally feasible.

² Ruggles, 1990.

³ Citro and Michael, 1995

⁴ Citro and Michael, p. 5.

In response to the panel's report and recommendations, research was undertaken by staff within the Bureau of Labor Statistics (BLS) and the Census Bureau. Their work has resulted in several papers and conference presentations that reproduced the panel's work and examined underlying assumptions and measurement issues.⁵

Building on this joint research, the Census Bureau released two reports that presented several variations of alternative methods of measuring who is poor based on the recommendations of the NAS panel – July 1999 with results for the years 1990-97 (Short et al., 1999) and October 2001 with results from 1999 (Short, 2001a). The second Census Bureau report included improved methods for measuring individual elements of experimental measures and further refined the concepts outlined in the NAS panel report. In particular, the second report examined two new methods for handling medical out-of-pocket expenses (MOOP): accounting for them in experimental thresholds, or subtracting these expenses from family resources. The treatment of medical out-of-pocket expenses in a poverty measure proved most controversial in the discussion that followed the release of both the panel's and the Census Bureau's first reports⁶.

Since medical spending is the focus of continuing debate over poverty measurement, this study utilizes the same experimental poverty measure as the second Census report, but presents results for the year 2000.⁷ These measures and resulting poverty rates are contrasted with the current official poverty

⁵ Early work includes Johnson, Shipp, Garner, 1997 and Garner et al., 1998. These and other working papers are available on census poverty measurement website <http://www.census.gov/hhes/www/povmeas.html>

⁶ See for example, "Open Letter on Revising the Official Measure of Poverty", 2000.

measure. The official poverty measure indicated that 11.3 percent of all people had income below the official poverty threshold in 2000. The experimental measures result in slightly higher rates overall and indicate differences by socio-demographic subgroups.

Medical out-of-pocket spending (MOOP)

Medical out-of-pocket expenditures include those for health insurance premiums, medical services, drugs, and medical supplies. The method that the NAS panel used to value these expenses in a poverty measure using survey data is somewhat complex. Data from the 1987 National Medical Expenditure Survey (NMES) were used to develop a model that assigned the occurrence of such expenditures and the amount spent. Once these amounts were assigned to families, then the aggregate amount assigned across all families was adjusted to match benchmarks developed from the Health Care Financing Administration's National Health Accounts.⁸ The adjusted amounts of MOOP were then subtracted from income as a necessary expense, before comparing family resources to poverty thresholds. Note that this step introduced some inconsistency in a complete poverty measure in that no other component in the panel's measure was adjusted to match independent aggregate estimates. That is, while other elements in the panel's proposed poverty measure suffer from non-sampling error, such as the underreporting of income or benefits, they are nevertheless unadjusted in the poverty measures reported here, as they are in the official measure. This inconsistent treatment likely resulted in an

⁷ See Short, 2001a, for details of methods.

⁸ See Betson, 1995b.

overstatement of the effect of MOOP on poverty rates in the panel's report and the first Census Bureau report that mimicked the panel's approach.

In light of both the conceptual and practical issues raised by this approach, an alternative was proposed to add out-of-pocket needs to the thresholds and not to subtract MOOP from income.⁹ Thus, the threshold would include medical out-of-pocket spending along with spending on the commodity bundle of food, clothing, shelter, and utilities. Thresholds could be calculated for family types based on health care spending patterns according to size of family, age of family members, and health insurance coverage status.

The NAS panel did not pursue this alternative because it would require a much larger number of thresholds to reflect different levels of medical care need.¹⁰ They argued that medical care needs differ from the need for food or housing in that not every family requires medical care in a given year, but when they do, the associated costs may be extraordinarily large. Assigning an average expenditure to incorporate medical care needs in the thresholds may overestimate the costs for many families and underestimate the cost for a few families due to the distributional properties of these expenditures. The panel concluded that it would be impossible to capture the actual variation of medical needs by variations in the thresholds and that this could lead to what the panel termed "erroneous poverty classification."

The second Census Bureau report (Short 2001a) presented two new methods of accounting for medical needs. The first was an updated model

⁹ See Bavier, 1998, and a summary of Marilyn Moon's proposal in Citro and Michael, p. 236.

¹⁰ Citro and Michael, 1995, pp. 223-237.

following the panel's procedure. This method used the 1996 and 1997 Consumer Expenditure Survey (CE) to assign values of MOOP to different families¹¹. This version of the MOOP model differs in some important ways from the earlier NAS model. These differences were summarized by Betson in a series of recommendations that are made to guide the estimation of this model. The first recommendation is that the MOOP amounts predicted by the model should **not** be calibrated to aggregate totals, as was done in the earlier version. A third order log-logistic model was estimated for each of 42 different family types, based on characteristics such as age, health insurance coverage, family size, race, and income level. Limits were placed on the maximum MOOP amount that could be assigned. No family was assigned a value that exceeds the 99th percentile of the MOOP distribution for their respective family type. Estimates from this model were then used to assign values of MOOP to individual families in the CPS. These amounts were estimated for each family and subtracted from family income before determining poverty status, in the measure referred to as MSI -- *MOOP subtracted from income*. The elements of this approach are outlined below.

The MSI measure. The MSI measure is conceptually similar to the measure described in the NAS panel's report but with some computational differences. More generally, this measure is constructed in the following way:

Thresholds:

- Thresholds are based on expenditures on food, clothing, shelter and utilities – data from 1998, 1999, and 2000 CE¹²
- The equivalence scale is a three-parameter version¹³

¹¹ See Betson, 2001 for complete details.

¹² Garner et al., 1998.

- Geographic indexes are calculated using the Department of Housing and Urban Development (HUD) Fair Market Rents¹⁴

Resources:

- Use cash income from the March 2001 Current Population Survey (CPS)
- Include the value of food assistance programs (food stamps and school lunches)
- Include the value of housing subsidies
- Include the value of energy assistance (only heating assistance)
- Subtract work-related and child care expenses
- Take account of taxes as modeled in the CPS
- Subtract medical out-of-pocket expenses (MOOP) as modeled using CE data.

The threshold for a two-adult two-child reference family is presented in **Table 1**.

This experimental threshold is slightly higher than the official threshold for this family type.

Table 1: Poverty Thresholds for a Reference Family of Two Adults and Two Children: 2000

Official Measure	\$17,463
Experimental without medical	17,884
Experimental with medical	19,549

Source: Authors' calculations of CE data 1998, 1999, and 2000

MOOP in the threshold (MIT measure). The second measure examined in this study computes MOOP differently. This method adds health care out-of-pocket expenditures, as reported in the CE, in the calculation of poverty thresholds for the two-adult two-child reference family. Thus, the thresholds, which typically are based on spending for food, clothing, shelter and utilities, now also include out-of-pocket spending for an additional commodity, health care.

¹³ Johnson et al., 1997.

Once the reference family threshold is estimated from CE data, thresholds for families other than the reference family are produced using what we refer to as a 'medical risk index'. These are based on characteristics associated with variations in medical care utilization and cost. These characteristics include among others, family size, age, and health status of member, and health insurance coverage. In the case of the uninsured, an adjustment is made to reflect the likely underutilization of health care by the uninsured¹⁵. These indexes use median MOOP expenditures from the 1996 Medical Expenditure Panel Survey (MEPS) to compute ratios of MOOP expenditures for different groups varied by the set of characteristics listed to those of the reference family. MEPS data are used since health status data are not collected in the CE.¹⁶ This method is referred to as MIT or *MOOP in the threshold*. Again, unlike the panel's original method, no attempt was made to adjust these dollar amounts to aggregate spending totals. Once MOOP amounts were calculated, they were included in the thresholds, rather than subtracted from income, before determining poverty status. Generally, the MIT measure is calculated as follows;

Thresholds:

- Thresholds are based on estimated expenditures for food, clothing, shelter and utilities, and MOOP from 1998, 1999, and 2000 CE
- The equivalence scale is a three-parameter version and a medical risk index for the MOOP portion of the threshold as estimated from 1996 MEPS
- Geographic indexes are calculated using HUD Fair Market Rents

Resources:

- Cash income from the March 2001 CPS
- Include the value of food assistance programs (food stamps and school lunches)

¹⁴ Short, 2001b.

¹⁵ See Banthin et al., 2001 for more details on this method.

¹⁶ Other options using the CE are presented in Banthin et al. 2001.

- Include the value of housing subsidies
- Include the value of energy assistance (only heating assistance)
- Subtract work-related and child care expenses
- Take account of taxes as modeled in the CPS

The threshold for this measure is also shown in **Table 1** , with the official poverty threshold and experimental threshold without medical expenses. As expected, the threshold that includes MOOP is higher than that without.

Mean values of MOOP assigned by the two different methods are shown in an appendix table for different family types. While the two methods assign different amounts to different families, the key difference between the two methods is that MSI models health expenditures (MOOP) based on individual family characteristics, while MIT fixes the level for all families with certain specific characteristics.

Finally, we note that the second Census Bureau report included a third method. This approach to valuing medical expenses combined the two approaches described above into a single measure. This combined approach included the addition of a MOOP value in the thresholds but also subtracted a *net* MOOP amount from family income. The discussion here focuses only on the two separately estimated methods in order to establish more clearly the differences in the two methods.

Experimental poverty rates

Poverty rates based on these measures are presented in **Table 2** along with the official poverty rate. The estimated poverty rate using the MSI measure was 12.2 percent in 2000. The MIT measure yields a poverty rate of 12.7

percent. While both of the new experimental measures result in similar poverty rates for all people that are slightly higher than the official rates, including MOOP in a poverty measure and the method by which that is done have important effects on the poverty rates of different population subgroups.

Table 2: Poverty Estimates for All People Using Official and Experimental Poverty Measures 2000

	Number (1,000)	Percent
Official Measure	31,054	11.3
MSI	33,739	12.2
MIT	34,960	12.7

Source: March 2001 Current Population Survey

Demographic subgroups. Using the poverty measures described above, this section examines the differential incidence of poverty for various socio-economic and demographic subgroups. **Table 3** shows poverty rates under the official and the two experimental poverty measures for various demographic groups.

Poverty rates by age group show higher rates for adults using the experimental measures, especially for the elderly (see **Figure 1**). Child poverty rates, 16.1 percent under the official measure, are about the same under the MIT measure, 15.9 percent, but considerably lower under the MSI measure, 14.6 percent. The non-elderly adult poverty rate increases modestly from 9.4 with the official measure to 10.4 under the MSI measure and 11.0 percent with the MIT measure. The poverty rate for people 65 years and over is higher, 10.2 under the official measure, compared with 14.2 and 16.6 percent under the MIT and the MSI measures respectively.

Differences in poverty rates between the official and the experimental measures are explained by all of the elements included in an experimental measure. Average family amounts added and subtracted from income to move from the official to the experimental measures are shown in **Figure 2** for selected subgroups. In that figure one sees the higher average benefits received, including tax credits (EITC), and the lower MOOP amounts for children relative to the elderly. The combination of these results in increased poverty rates for the elderly using the experimental measures relative to the official measure.

Table 3. Poverty Rates by Selected Characteristics, 2000

	Official Measure	MSI	MIT
All Persons	11.3	12.2	12.7
Age			
Children (<18)	16.1	14.6	15.9
Adults, 18-64	9.4	10.4	11.0
Elderly, 65+	10.2	16.6	14.2
Race/Ethnicity			
Non-Hispanic White	7.5	8.5	8.6
Black	22.0	20.6	21.3
Hispanic	21.2	24.2	26.3
Family Type			
Married-couple	5.6	6.9	7.2
Male-headed (no spouse present)	14.8	17.3	17.6
Female-headed (no spouse present)	25.7	25.1	25.8
Number of workers			
No workers	33.2	35.4	33.8
One or more workers	8.0	8.7	9.5
Region			
Northeast	10.3	12.9	13.2
Midwest	9.5	9.0	9.3
South	12.5	12.2	12.5
West	11.9	14.9	15.8
Metropolitan Area			
Central city	16.1	17.6	18.4
In metro, not central city	7.8	9.8	10.2
Nonmetropolitan area	13.4	10.8	10.8

Source: March 2001 Current Population Survey

Figure 1: Poverty Rates by Age

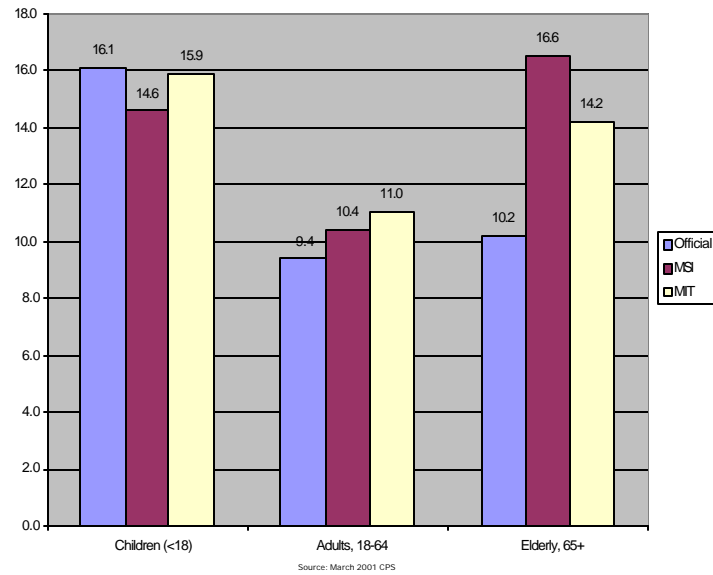
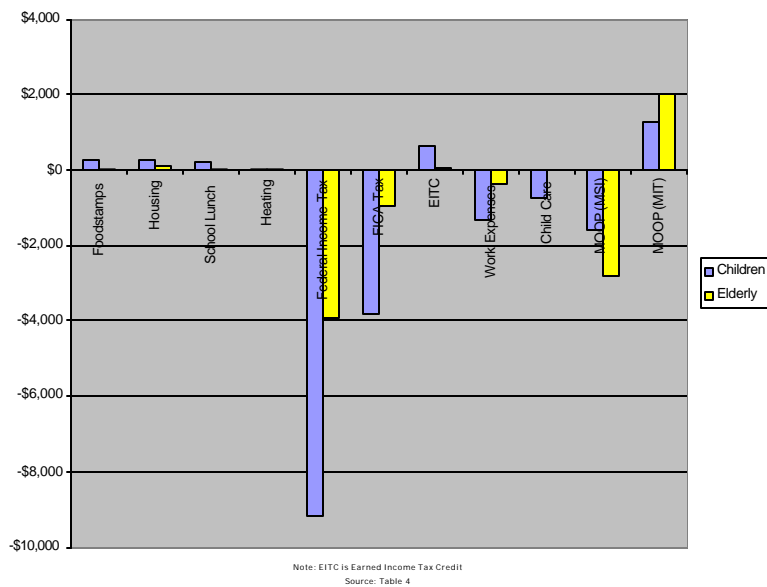


Figure 2: Mean Transfer Benefits and Expenses



Differences in poverty rates between the two experimental measures are only explained by different treatments of MOOP. While average values for MOOP are lower for most subgroups that we examine under the MIT method, this method likely errs by assigning the same values to all in a given group. This results in the imputation of too large a value to too many families, and too small a value to the few families who actually face large MOOP expenses.

Experimental poverty rates also differ by race and ethnicity. Experimental poverty rates are higher than official poverty rates for Non-Hispanic Whites and Hispanics, though slightly lower for Blacks. The rates tend to be lower for Blacks due to a combination of factors, including higher receipt of some near-cash transfers and slightly lower work-related expenses and taxes paid. Differences in average amounts of these elements are shown in **Table 4** by race and Hispanic origin.

Accounting for non-cash transfers also affects the incidence of poverty by family type. When poverty rates by family type are examined, one sees increases moving from the official to the experimental measures among persons in married-couple and male-householder (unmarried) families, and little change among female-householder families. Married-couples tend to receive less near-cash transfer income and have higher work-related and medical expenses than the other family types (see **Table 4** for average amounts).

As expected, the experimental measures (which include geographic adjustments) result in poverty rates that differ by region and by metropolitan/non-metropolitan status. As highlighted by the change in the poverty rates between

Table 4: Mean Family Amounts across Individuals, 2000 (dollars)

	All	Official Poor	Near Poor	Children	Adults	Elderly	White	Black	Hispanic	No Workers	1+ Workers
Foodstamps	117	750	248	252	76	33	83	314	231	264	95
Housing	142	978	346	270	93	116	85	473	293	460	94
School Lunch	103	322	256	229	68	9	87	190	254	65	109
Heating	6	28	25	10	5	6	5	11	5	15	5
Federal Income Tax	-9,075	-20	-101	-9,159	-10,031	-3,936	-9,711	-4,496	-3,887	-1,144	-10,271
FICA Tax	-3,475	-438	-979	-3,807	-3,827	-931	-3,611	-2,379	-2,770	0	-4,000
EITC	319	1,147	1,257	624	245	41	276	559	795	0	368
Work Expenses	-1,230	-460	-771	-1,312	-1,361	-374	1,242	-1,096	-1,364	0	-1,416
Child Care	-377	-162	-305	-746	-292	-8	-367	-468	-429	0	-434
MOOP (MSI) ^a	-1,762	-551	-753	-1,563	-1,643	-2,818	-1,824	-1,419	-1,281	-1,987	-1,729
MOOP (MIT) ^b	1,323	851	1,102	1,256	1,210	2,053	1,340	1,201	1,203	1,443	1304
	Married Couple	Female Householder	Northeast	Midwest	South	West	Central City	Suburbs	Non-metro Territory		
Foodstamps	62	309	117	92	120	136	198	64	138		
Housing	48	439	239	98	100	171	287	82	88		
School Lunch	98	154	89	86	106	126	135	81	115		
Heating	4	14	11	9	3	4	8	4	10		
Federal Income Tax	-11,933	-2,621	-10,651	8,709	-8,414	-9,151	-7,647	-11,235	-5,254		
FICA Tax	-4,333	-1,607	-3,736	3,668	-3,184	-3,513	-3,002	-3,985	-2,787		
EITC	238	627	284	252	337	389	410	263	335		
Work Expenses	-1,455	-787	-1,240	-1,281	-1,184	-1,242	-1,155	-1,299	-1,154		
Child Care	-415	-369	-434	-346	-352	-398	-372	-410	-292		
MOOP (MSI) ^a	-2,042	-1,313	-1,883	-1,824	-1,715	-1,674	-1,533	-1,894	-1,753		
MOOP (MIT) ^b	1,476	1,090	1,345	1,341	1,318	1,293	1,235	1,365	1,341		

^aAverage out-of-pocket expenditure subtracted from resources.^bAverage out-of-pocket expenditures included in threshold.^c People classified as "near poor" are those with family income below 125 percent of the poverty threshold.

Source: March 2001 Current Population Survey

the official and the experimental measures, poverty estimates increase in the Northeast and West and decrease in the Midwest and South. Likewise, measures that include geographic adjustments (as the MSI and MIT do) yield higher poverty rates in central cities, and to a less extent in the suburbs, while lower poverty rates result for nonmetropolitan areas.

Poverty gaps

The previous section reports the prevalence of poverty under different poverty measures. While the poverty rate tells us the proportion of a population that is poor, it does not give us information about the depth of poverty in that population. The mean income deficit, or average poverty gap, tells us something about the shortfall of income relative to the poverty threshold, and thus the depth of poverty for various people.

Table 5 lists mean income deficits, or poverty gaps, under the official measure and under the two experimental measures, the MSI and the MIT measures. These income deficits are calculated by determining who is poor under the given measure, and for those individuals, subtracting their family income from their relevant poverty threshold. When incomes are negative, the deficit is set equal to the poverty threshold, suggesting that no deficit exceeds the measure of need for the basic bundle of goods.

In official Census Bureau publications, income deficits are calculated separately for families and for unrelated individuals. The first two lines of **Table 5** show these calculations for these two groups under the three measures. The third line combines family heads and individuals for simplicity, and the remaining

averages for subgroups are based on this combined group, by characteristic of the family head or the unrelated individual (in effect, unrelated individuals are treated like families consisting of one person). Also see **Figure 3**.

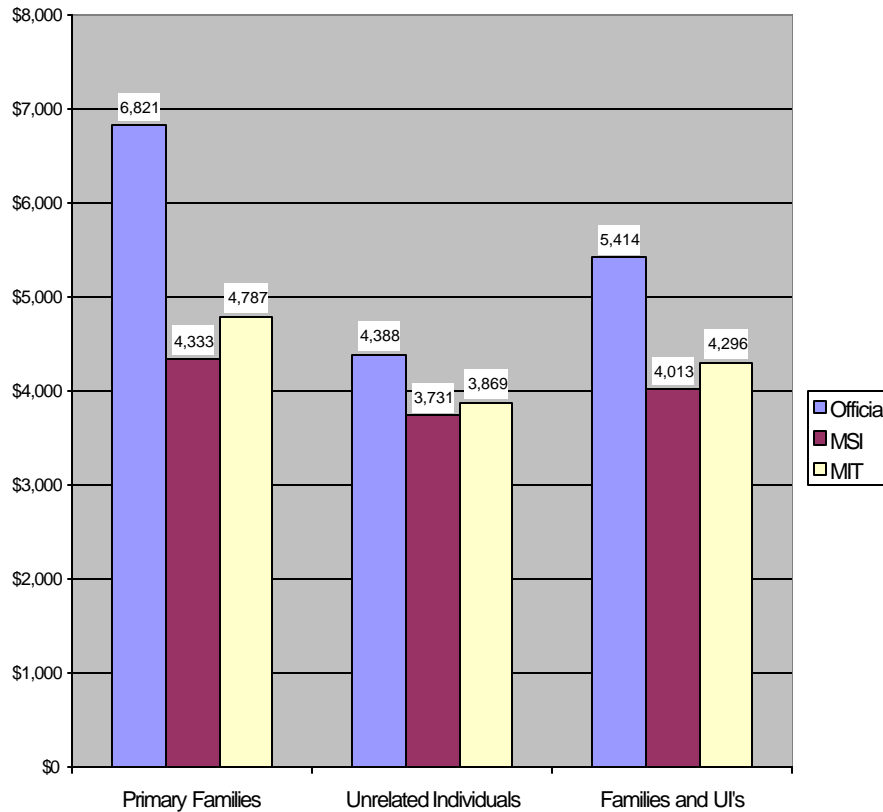
Table 5: Mean Income Deficits: 2000 (dollars)

	Official	MSI	MIT
Families	\$6,821	\$4,333	\$4,787
Unrelated Individuals	4,388	3,731	3,869
Families and Unrelated Individuals	5,414	4,013	4,296
Age of head			
18 to 64	5,986	4,249	4,831
65+	2,868	3,173	2,573
White	5,248	3,931	4,184
Black	5,773	4,078	4,438
Hispanic origin	6,258	4,847	5,366
No workers	5,486	4,701	4,701
One or more workers	5,335	3,434	3,951
In family of type:			
Married couple	6,612	4,153	4,578
Male householder	4,968	4,129	4,445
Female householder	5,243	3,889	4,091
Geographic regions:			
Northeast	5,344	4,286	4,607
Midwest	5,398	3,666	3,843
South	5,214	3,718	3,929
West	5,841	4,459	4,893
Metropolitan Area:			
Central city	5,588	4,292	4,638
Not central city	5,496	4,150	4,470
Nonmetropolitan Area	4,972	3,113	3,176

Source: March 2001 Current Population Survey

While the prevalence of poverty may be higher under the experimental measures relative to the official measure, this table indicates that average poverty gaps are much lower for both experimental measures than the official measure. This result holds for all groups shown here, except one (discussed

Figure 3: Mean Income Deficits 2000



below). While the differences between the income deficits are larger or smaller for different groups, in general, the family incomes of poor individuals are closer to the poverty line under the experimental measures than under the official measure. Thus, while subtracting taxes and other necessary expenses from income does move people across the poverty line and into poverty, on average, they are not being moved as far below that line as they would be below the office threshold. Also, including noncash benefits raises the income of many poor families, even if they are not sufficient to raise them out of poverty.

There is one exception -- the elderly. As shown in **Table 5**, the elderly demonstrate higher mean income deficits under the MSI experimental measure relative to the official measure. While the large MOOP expenses attributed to the elderly contribute greatly to these higher figures, there is an additional factor that explains this difference. The official poverty thresholds are specified to be lower for the elderly than for the non-elderly, while the experimental poverty thresholds make no distinction for age of householder. On the other hand, due to the lower values of MOOP assigned using the MIT measure, the poverty gap for the elderly under that measure is lower than the official measure gap.

Income-to-poverty-threshold ratios

Another gauge of the relative distance of the poor from the poverty level is the proportion below specified fractions of their respective poverty thresholds. This section examines income-to-poverty-threshold ratios under the various measures and does so across the entire income distribution. This exercise illustrates not only the difference in distribution below the poverty line, but across all income levels as the definition of family resources changes.

Table 6 shows estimates of the percent of people by family income-to-poverty-threshold ratios under the three measures discussed, the official, MSI, and MIT measures. It can be seen that accounting for taxes and transfers in the income measure results in greater percentages of individuals in the middle-income ranges. This is the result of the re-distributional effect of taxes and transfers that are included in the experimental measures.

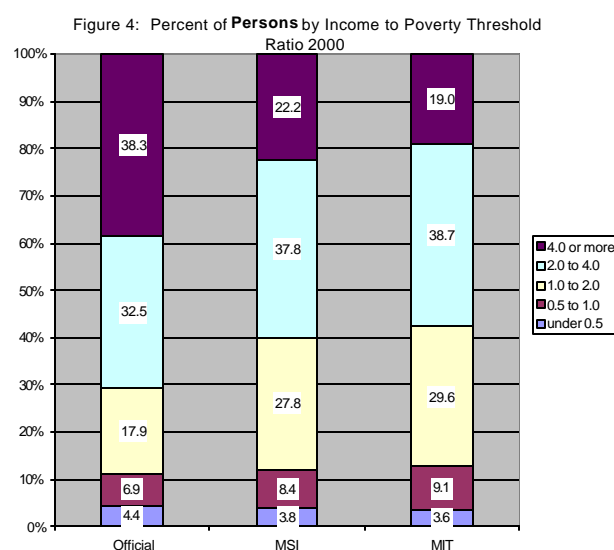
Table 6: Percent of People by Income-to-Poverty Ratios, 2000

All persons				White			
	Official	MSI	MIT		Official	MSI	MIT
Less than 0.5	4.4	3.8	3.6	Less than 0.5	3.5	3.4	3.2
0.5 to 0.99	6.9	8.4	9.1	0.5 to 0.99	5.9	7.3	7.9
1.0 to 1.99	17.9	27.8	29.6	1.0 to 1.99	17.0	26.1	27.9
2.0 to 3.99	32.5	37.8	38.7	2.0 to 3.99	32.7	39.0	40.3
4 or more	38.3	22.2	19.0	4 or more	40.9	24.1	20.7
Children				Black			
	Official	MSI	MIT		Official	MSI	MIT
Less than 0.5	6.4	3.9	3.8	Less than 0.5	9.3	6.1	5.7
0.5 to 0.99	9.6	10.7	12.0	0.5 to 0.99	12.7	14.5	15.6
1.0 to 1.99	21.3	33.3	34.1	1.0 to 1.99	24.4	37.8	39.6
2.0 to 3.99	33.3	36.7	36.8	2.0 to 3.99	32.0	30.7	30.1
4 or more	29.3	15.4	13.2	4 or more	21.7	11.0	9.0
Nonelderly Adults				Hispanic			
	Official	MSI	MIT		Official	MSI	MIT
Less than 0.5	3.9	3.6	3.6	Less than 0.5	7.3	6.3	6.1
0.5 to 0.99	5.5	6.8	7.4	0.5 to 0.99	13.9	17.9	20.2
1.0 to 1.99	14.7	24.6	25.9	1.0 to 1.99	30.1	44.1	44.3
2.0 to 3.99	31.6	39.0	40.4	2.0 to 3.99	32.6	25.7	24.4
4 or more	44.3	26.0	22.6	4 or more	16.1	6.0	5.1
Elderly				Female Householder			
	Official	MSI	MIT		Official	MSI	MIT
Less than 0.5	2.2	4.6	2.7	Less than 0.5	10.9	8.6	8.0
0.5 to 0.99	8.0	12.0	11.5	0.5 to 0.99	14.8	16.5	17.9
1.0 to 1.99	27.1	32.5	38.8	1.0 to 1.99	27.2	38.6	40.1
2.0 to 3.99	35.7	33.5	34.0	2.0 to 3.99	29.2	26.6	26.2
4 or more	27.0	17.4	13.1	4 or more	17.9	9.7	7.9

Source: March 2001 Current Population Survey

Comparing the official versus the MSI measure shows that a slightly higher percentage of all people – 4.4 versus 3.8 percent – are in extreme poverty (below one-half of the relevant poverty threshold) using the official measure (also see **Figure 4**). Further, while the MSI measure yields a slightly higher percentage of people below the poverty line than the official measure yields, more of those

individuals are above one-half the relevant poverty threshold than are found using the official measure – 8.4 percent using MSI versus 6.9 percent using the official measure. This is as expected from the calculation of poverty gaps and results from the addition of in-kind transfers to family incomes in the experimental measures. The results are similar, though even more pronounced, for the MIT measures relative to the official measure.



The table also shows that this pattern of fewer people in extreme poverty when using the experimental measures holds for most demographic groups including children, Blacks, and Hispanics. The percent of children in extreme poverty as reported with the official poverty measure is 6.4 percent. Under the experimental measures that falls to 3.9 and 3.8 percent.

The one exception is the elderly. Notably, 2.2 percent of the elderly are in extreme poverty under the official measure. Under the MSI measure this rises to 4.6 percent. This result follows from the method used in that measure to value MOOP expenses. However, the MIT measure is much closer to the official measure in this regard.

Summary and conclusions

This paper describes and compares the size and composition of the poverty population under the official poverty measure and two experimental measures of poverty. The major focus is a discussion of methods and data used to estimate medical out-of-pocket expenses.

Results indicate that, while many groups are somewhat more likely to be classified as poor under the experimental measures, the depth of their poverty is less than is generally found under the official measure. Further, income-to-poverty threshold ratios reveal that for several groups, such as children, Blacks, and Hispanics, the percent in extreme poverty is lower under the experimental measures than the official measure.

A few elements in the experimental measures have a particularly important role in changing our perception of who is poor. For one, accounting for health care costs considerably increases the number of people who appear to be struggling to get by. Particularly, it increases the number of elderly who are perceived to be poor, while only slightly affecting the number of poor children and Blacks. Choice of method to account for health care costs has an effect on these estimates. All

statistics shown here, poverty rates, poverty gaps, and income-to-poverty thresholds ratios, are affected by the method chosen to include medical expenses.

A final but important conclusion from this study is that there is much to be learned from a poverty measure that is carefully and explicitly constructed. It allows us to understand more precisely the economic situation of families and individuals. Including government benefits aimed at the most needy within the experimental measures also helps gauge the effectiveness of these programs in improving the lives of low-income families and individuals. With such a procedure one can more carefully ascertain the situation of particular population subgroups that are often specifically targeted for aid. Finally, the experimental measures allow us to more thoroughly understand the costs and economic hardship that individuals and families face and to examine where and how difficulties arise.

Appendix Table. Medical Risk Factors (with adjustment for uninsured) and Mean Values of MOOP for MSI and MIT Measures

Characteristics	Medical Risk Factors	MSI Mean Amount	MIT Mean Amount
Reference family	1.00	\$1,853	\$1,349
Families with no elderly members			
Private, 1 person			
Good health	0.42	868	571
Fair/poor health	0.77	933	1,044
Private, 2 people			
Good health	0.89	1,991	1,196
Fair/poor health	1.13	2,143	1,520
Private, 3+ people			
Good health	1.00	1,946	1,352
Fair/poor health	1.26	1,913	1,695
Public, 1 person			
Good health	0.02	438	24
Fair/poor health	0.07	487	93
Public, 2+ people			
Good health	0.03	322	45
Fair/poor health	0.09	403	124
Uninsured, 1 person			
Good health	0.48	235	649
Fair/poor health	0.90	278	1,217
Uninsured, 2+ people			
Good health	1.02	556	1,370
Fair/poor health	1.08	460	1,462
Families with elderly members			
Private, 1 person			
Good health	1.19	2,043	1,606
Fair/poor health	1.31	2,059	1,765
Private, 2+ people			
Good health	1.92	3,045	2,593
Fair/poor health	2.30	3,025	3,096
Public, 1 person			
Good health	0.49	1,978	659
Fair/poor health	0.45	1,841	605
Public, 2+ people			
Good health	0.91	2,845	1,220
Fair/poor health	1.01	2,734	1,367

Source: 1998- 2001 Consumer Expenditure Survey, 2001 Current Population Survey, 1996 Medical Expenditure Panel Survey and Banthin et al., 2001.

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WORKING PAPER (DRAFT)

**IMPROVING THE MEASUREMENT OF POVERTY IN THE AMERICAS
HEALTH ADJUSTED POVERTY LINES:
BACKGROUND MATERIALS – A LITERATURE REVIEW**

Abstract

This literature review is about papers on conceptual and methodological issues, and on empirical results related of incorporating different aspects of health in the measurement of poverty. It includes a summary of concepts and methods for the measurement of poverty in USA, Canada, Latin America and the Caribbean. It includes an annotated bibliography of papers discussing the treatment of health needs, medical out-of-pocket expenditures, health insurance and catastrophic losses and other dimensions of health in the measurement of poverty. A final section contains a graphical presentation of different ways in which health related variables may affect the definition of resources, needs and poverty thresholds and the measurement of poverty and inequalities. The electronic version of the paper provides links to most of the papers included in this review.

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Keywords: Distribution, Health, Welfare and Poverty,
JEL Classification Numbers: D3, I1, I3,

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IMPROVING THE MEASUREMENT OF POVERTY IN THE AMERICAS
HEALTH ADJUSTED POVERTY LINES :
BACKGROUND MATERIALS – A LITERATURE REVIEW

This literature review is about papers on conceptual and methodological issues, and on empirical results related of incorporating different aspects of health in the measurement of poverty: on the *incidence* of poverty (How many people are poor); on the measurement of relative poverty (How far are the poor from the average); *depth* of poverty (How poor are the poor); on the number of people that can be classified as poor or extremely poor or indigent; and also, the duration of poverty (How long are the poor, poor). This review covers the five broad areas discussed at the Workshop on Improving the Measurement of Poverty in the Americas: Health Adjusted Poverty Lines –HAPL, held September 29-30, 2003³:

- How to include in the measurements of poverty households and/or individual's health need, the consumption of health care services, or the benefits or costs of health care insurance services.
- How to define and estimate the minimum or adequate amount of health care expenditures needed to ensure a household minimum level of well being.
- How to adjust existing measurements of poverty to consider “nutritional losses” due to illness and diseases.
- How important health related catastrophic expenditures are in explaining the dynamics of poverty.

This literature review is organized as follows. *Section I* includes a brief review of some conceptual and methodological issues related to the measurement of poverty: definitions of resources, needs and poverty thresholds. *Section II* presents a review of the methodologies currently used in the measurement of poverty in Canada, Latin America and the Caribbean, and the USA. *Section III* includes a review of papers discussing conceptual and methodological issues regarding the treatment of medical out-of-pocket expenditures in the measurement of poverty, and of papers assessing the impact of catastrophic health expenditures and the lack of health insurance on the measurement of poverty. *Section IV* presents a review of papers dealing with other dimensions of health: the impact of nutritional losses and early mortality on the measurement of poverty. *Section V* includes a review of papers discussing the role of poor health and early mortality in explaining the dynamics of poverty: why people move into and out of poverty. The last, Section VI includes a graphical presentation of health adjusted poverty lines.

I. THE MEASUREMENTS OF POVERTY

1.1 Background: Going beyond income-essential food-needs

There are several papers discussing conceptual issues related to a precise definition of a concept of poverty that may capture different aspects of well-being and societal and economic changes during time, as well as on methodological issues on the adequacy of the source of data to evaluate those concepts⁴. There is a close relationship between the purpose

³ See: <http://www.paho.org/English/DPM/SHD/HP/hapl-workshop.htm>

⁴ For a review on this debate see: Subramanian, S (editor) **Measurement of Inequality and Poverty**. Oxford University Press, 1997.

of measurement, the concept of poverty used, and the methodology and data sources that may be used for measuring it. From a conceptual point of view, it is clear that poverty as is an indicator of individual well being is a multidimensional phenomenon, and in consequence it should capture more accurately the different dimensions of poverty.

The focus of this review is on those papers addressing conceptual and methodological issues, or presenting empirical evidence in adjusting the most commonly income-consumption or assets based indicators of poverty to include different dimensions of individual and social well being. It concentrates on papers dealing with issues related to the incorporation of different dimensions of health in the measurement of poverty.

The rationale for improving the measurement of poverty is a very practical one. A more accurate measure of poverty that incorporates multidimensional aspects will offer policy makers guidelines for designing and monitoring "dimension or sector specific" poverty alleviation programs. The type of adjustments being discussed here are aimed to better capture changes in the extent of poverty and inequality over time that result from government programs, public policies or other major societal and economic changes other than changes in the level of income and/or consumption of essential food based measurement of poverty.

In particular, we discuss how and improved measurements of poverty reflecting a broader set of dimensions or characteristics of poverty (characteristics adjusted poverty lines - CAPLIN) may be more relevant for assessing the impact of government expenditures in social programs; nutrition, health and education, or the impact of government assistance programs as basic housing, subsidized access to water and sanitation, electricity, transport and communications services, on individual and social wellbeing. Even in the case that the minimum income or basket of food consumption thresholds are used, the well being of a household with similar level of income (or consumption of basic food-needs) would be very different if some of them would have access to government free or subsidized health and educational services, or if the families is one of the countries are covered by social (public) health insurance or other social protection programs and families in other country are not.

1.2 Conceptual and Methodological Issues⁵

This section summarize the most common concepts of poverty and well-being and of methodological issues related to the measurement of these concepts discussed in the papers included in this review.

⁵ This methodological review, unless specifically mentioned, has been based on:
Subramanian, S (editor) **Measurement of Inequality and Poverty**. Oxford University Press, 1997.
Ravallion, M. **Poverty Comparisons. A Guide to Concepts and Methods**. LSMS Working Papers N^o 88,p.38 http://www-wds.worldbank.org/servlet/WDSCContentServer/WDSP/IB/2000/04/28/000178830_98101902174198/Rended/PDF/multi_page.pdf
Kahndker, Shahid et al. **Measuring Poverty**
<http://www.worldbank.org/wbi/povertyanalysis/manual/index.html>
Feres, JC, and Xavier Mancero **Enfoques para la medición de la pobreza. Breve revisión de la literatura**
http://www1.ibge.gov.br/poverty/pdf/final_report.pdf

Poverty and Well-being concepts: Defining Poverty

While there is no agreement in how to define the concept of poverty, it is widely accepted that the definitions of poverty depends on what is intended to be measured: needs, standard of living, lack of resources or command, deprivation (material, physical, psychological, etc.), or social exclusion. In general, the concepts of poverty are aimed to capture the lack of command on any or a group of basic needs (*direct* method) or as the lack of resources to meet those basic needs (*indirect* method).

The first step on measurement of poverty is to choose a well defined indicator of *well-being* that allows a separation of the poor and the no-poor. Because of data availability, the well-being indicator usually chosen for measuring poverty is that of “material (economic) deprivation”, based on income or consumption expenditure levels⁶.

The poverty line: Objective, Absolute

According to the direct method; based on data obtained usually from Household Expenditure Surveys (HES)⁷, a threshold is defined to reflect the cost of a basic *bundle of goods and services*, as the minimum level (of consumption) that is necessary to meet some *basic needs*. Part of the discussion is what should be considered as *basic need*, from a material point of view: food only or should a wider concept of needs and services, including clothing, shelter, education, health care, entertainment, etc. There is no unanimous practice in this issue. A second related issue is about the use of household data instead of individual data to obtain information on actual levels of consumption. The line or threshold; a minimized expenditure function, is denominated the “*poverty line*”. Since the level of consumption necessary to satisfy basic needs varies across time and societies, poverty lines vary in time and place, and each country uses lines which are appropriate to its level of development, societal norms and values. Other related issue is that of the unit of analysis to define the threshold; thresholds will differ according to the number of adults and children in a family or household, the ways in which families or household are organized, the health status of its members, by the age of the family or household head, and/or by the changes in the composition of households over the family life cycle⁸. Once a poverty threshold is obtained, it should be compared with families' *income* or *resources*, to determine whether or not they are poor.

Dealing with differences in household composition

In practice, a poverty threshold is defined for a reference family (usually two adults and two children) and the data collected is household level. To deal with the differences in household composition (age and sex) and with economies of scale in the processing and use of resources, *equivalence scales* are used to reflect the needs of each household member and to estimate the cost for household with different size and composition to attain similar level of well-being. The most commonly used method for dealing with differences in the size and composition of households is the “adults equivalent” approach and “the ratio of costs”

⁶ For a review of the methodological discussion on using expenditure or income, see: Kahndker, Shahid et al. **Chapter 2. Measuring Poverty**
<http://www.worldbank.org/wbi/povertyanalysis/ch2.pdf>

⁷ The use of Household Expenditure Surveys is also a matter of discussion. The LSMS developed by the World Bank, tried to solve some of the weaknesses presented by regular HES. See:
<http://www.worldbank.org/html/prdph/lsm/lsmshome.html>

⁸ For simplicity reasons, the terms “family” and “household” will be used indistinctly, meaning the group of people who eat and live together.

approach. Under the adult equivalent approach each member of the household counts as some fraction of an adult male. Thus, the household size is measured as the sum of *adult equivalents*. Part of the discussion here is about the weights to be assigned to characterize a child or an elderly person. Under the *ratio of cost* approach, based on the observation of the aggregate household consumption, the estimation of a function of demand is required. Discussion here is about whether “observed” demand is a good indicator for measuring household well-being.

From an *absolute* point of view, a person is considered poor if the resources of the household he/she lives are insufficient to afford his/her basic needs. The poverty concept that underlies an absolute poverty line is that being poor means not being able to satisfy very basic needs, regardless the situation of the others members of the society.

Relative Poverty

From a *relative* point of view, a person is deemed poor if her consumption or income is below a predetermined percentage –usually 50% or 60%- of the *average* consumption or income of the population. Thus, a relative poverty line is sensitive to the variations on the average consumption or income of the society, meaning that it reflects not only changes on income itself, but on living standards of the society. Also, it could be defined in terms of the percentage of population below one or two standard deviations below the average income or consumption.

Subjective poverty: Minimum Income Question (MIQ)

An alternative method for establishing the cost of a minimum level necessary to meet basic needs, is to ask directly people about what constitutes a socially acceptable minimum standard of living. The question typically used is: “*What income level do you personally consider to be absolutely minimal? That is to say that with less you could not make ends meet.*” This methodology is also known as the “Minimum Income Question (MIQ)” and the answers are tabulated to establish the threshold (poverty line) that defines who is or is not considered poor. Variations have been applied rephrasing the question asking for consumption instead of income. Besides the concerns about how to treat or weight differences in individuals and /or household member perception about the “minimum income”, there is a concern that answers may reflect expected rather than actual needs.

Poverty Indicators

After having identified *Who* is poor, the next step on the measure of poverty is to choose the indicator or combination of indicators that better characterizes different dimensions of poverty: How many are poor?; How poor are they?. The most commonly used indicators used in the paper included in this review are:

- a) *Headcount Index*: measures the proportion of the population that is counted as poor, referred to as the *incidence* of poverty;
- b) *Poverty Gap index*: measures the extent to which individuals fall below the poverty line, and expresses it as a proportion of the poverty line. Sometimes is interpreted as how much should be given to the poor in order to move out from poverty. It is deemed as a measure of *depth* of poverty.
- c) *Sen index*: intended to combine the effects of the number of poor, the depth of poverty, and the *distribution* of poverty within the group as its main contribution

- d) *Foster, Greer and Thorbecke indexes*: are “additive” measures of the *severity* of poverty. This “additivity” property attributed to the FGT indexes allows that aggregate poverty be equal to the population weighted sum of poverty levels in the various sub-groups of the society⁹ Its main contribution is to allow the calculus of the contribution of each sub-group of population to total poverty^{10 11}.

II. POVERTY MEASUREMENT IN THE AMERICAS :

2.1 THE POVERTY MEASURE IN THE USA

The United States is one of the few developed countries with an official measure of poverty. The concept of poverty (absolute poverty) was originally developed in the early 1960s, as an indicator of the number and proportion of people with inadequate family incomes (resources) for needed consumption of food and other goods and services. The poverty thresholds were defined as the cost of a **minimum** diet (food) times three to allow for expenditures on all other goods and services¹². A set of thresholds (in dollars) is estimated and updated annually using the Consumer Price Index (CPI). Poverty thresholds differ by the number of adults and children in a family, and for one-person or two-person families, by whether the family head is over or under age 65. A family’s poverty status is established by comparing its poverty threshold to its resources: annual before-tax money income; which is obtained for the preceding calendar year from the March income supplement to the Current Population Survey (CPS).

This methodology, officially adopted in 1965, has not been changed in essence since then, despite increasing concerns about some identified limitations:

- ✓ By defining families’ resources as gross before-tax money income the current measure does not reflect the effect in the extent of poverty over time of government policies that alter the families’ disposable income (i.e. food stamp benefits, Social Security payroll taxes increase, Earned Income Tax Credit, etc.).
- ✓ It does not distinguish between the needs of families in which the parents do or do not work (i.e. child care costs).
- ✓ *It does not take account of the differences in health status and health insurance coverage that affect different population groups facing different medical costs.*
- ✓ It does not take account of the significant price variations across geographic areas.
- ✓ The family size adjustments in the poverty thresholds do not represent the changing demographic and family characteristics over time.

⁹ See: Foster, J, J. Greer, and E. Thorbecke **A Class of Decomposable Poverty Measures**. In Surbramanian, S.

¹⁰ For a brief description see Appendix B.

¹¹ For further detail, you might refer to: Kahndker, S, Chapter 5; or Ravallion, M.(1992).

¹² Orshansky, "Counting the Poor: Another Look at the Poverty Profile," *Social Security Bulletin*, Vol. 28, No. 1, January 1965, pp. 3-29; reprinted in *Social Security Bulletin*, Vol. 51, N° 10, 1980, pp. 25-51. Not available online.

For a summary see:

Fisher, Gordon. **The Development and History of the Poverty Thresholds**. *Social Security Bulletin*, Vol. 55 No 4, 1992. Available at: <http://www.ssa.gov/history/fisheronpoverty.html>

To address some of these issues, and at request of the Congress, the National Academy of Sciences (NAS) established in 1992 the Panel on Poverty and Family Assistance, in charge of reviewing the concepts and measurement of poverty in the US. The panel released a report in 1995; referred henceforth as the NAS Report, the main recommendation was to develop a new measure of poverty status by determining the adequacy of families' disposable money and near-money income for needed consumption of food, clothing, shelter and other needs¹³. Some of the specific findings and recommendations of the NAS Report are:

The current measure *needs* used in the measurement of poverty (in the USA) no longer provides neither an accurate picture of the differences in the extent of economic poverty among population groups or geographic areas of the country, nor an accurate picture of trends over time.

*The definition of **need**; based on estimates of the needs of a family of four in 1955, was not reflecting the marked changes in the nation's economy and society and in public policies that have affected families' economic well-being.*

Redefining Needs and Thresholds:

The thresholds should comprise a budget for three basic needs of food, clothing, shelter (including utilities), and a small additional amount to allow for other needs (e.g., household supplies, personal care, non-work-related transportation):

*The amount should be determined as a percentage of **median** expenditures on food, clothing, and shelter by two-adult/ two-child families. This sum should then be increased by a modest additional amount to allow for "other necessities", intended to cover such goods and services as personal care, household supplies, and non-work-related transportation. However, it should not include such nondiscretionary expenses as taxes and childcare and other costs of working which are treated as deductions from income (see below). The resulting threshold should be updated on a yearly basis.*

The reference family threshold should be adjusted for different family types by using an equivalence scale and for geographic areas by using an index of differences in the cost of housing. In the equivalence scale, children under 18 are considered consuming the equivalent to 70% an adult. Taking the number of adult equivalents and raising this number to a power on a range between 0.65 and 0.75 estimated economies of scale for larger families.

The data source recommended by the NAS panel for deriving and updating the poverty thresholds was the Consumer Expenditure Survey (CE)¹⁴.

Redefining Resources:

Family resources should be defined—consistently with the threshold concept—as the sum of money income from all sources together with the value of near-money

¹³ See Citro, Constance and Robert Michael. **Measuring Poverty. A New Approach**. 1995. Available at: <http://www.nap.edu/books/0309051282/html/index.html>

¹⁴ Since 1980, the CE is a continuing survey recently expanded for 7,700 consumer units -either a family (blood, marriage or adoption related), two or more persons living together and that share responsibility for two of three major expenses (i.e. food, housing, etc.) or a single person living alone or sharing a household with others but financially independent- which are interviewed at 3 months interval for five quarters in a row.

benefits (e.g., food stamps) that are available to buy goods and services in the budget, *minus expenses* that cannot be used to buy these goods and services. Such expenses include income and payroll taxes, *child care* and other work-related expenses, child support payments to another household, and *out-of-pocket medical care costs, including health insurance premiums*.

The Panel recommended that measures of poverty that add the value of public and private health insurance benefits to families' resources without adjusting the thresholds to account for medical care needs should be discontinued.

The data source recommended by the NAS panel for measuring income or resources was the Survey of Income and Program Participation (SIPP)¹⁵. However, in case of medical care costs, it should be imputed from medical expenditure surveys, neither CPS nor SIPP, ask sufficiently detailed questions in this area (See below).

Adjusted Poverty Estimates

To show the effects of the proposed measure the Panel estimated poverty rates for 1992 and compared the results using the official and the proposed measures, obtaining these results: i) Keeping the overall poverty rate of 14.5% the estimation showed important distribution effects. ii) Using the midpoint of the suggested range of threshold for the reference family, the estimates showed an increase of the overall poverty rate.

The identification of the weaknesses in the US official measure of poverty, as well as the subsequent recommendations of the Panel's proposal, are of particular relevance for countries of the Latin America and the Caribbean region since concepts and methods similar to the one use in the US official definition of poverty are widely used by countries of the Region, as well as in the Regional estimation of poverty produced by ECLAC; discussed below.

In 1999 and in 2001 the US Census Bureau released two reports that presented several variations of alternative methods of measuring who is poor based on the recommendations of the NAS panel and the subsequent research developed – July 1999 with results for the years 1990-97 (Short et al., 1999) and October 2001 with results from 1999 (Short, 2001a)¹⁶. The aim of these reports was to continue improving the measurement and to stimulate further discussion. The articles surveyed as well as mentioned further on are part of this subsequent research.

- Betson, D., C. Citro, and R. Michael. **Recent Development for Poverty Measurement in US Official Statistics**. 2000
<http://www.jos.nu/Articles/abstra ct.asp?article=162087>

The article summarizes the panel's evaluation of the current official measure of poverty; describe the panel's recommendations for a revised measure and place those recommendations in the context of the literature on poverty measurement; present revised empirical analysis of the effects of the proposed measure, based on revised estimates of

¹⁵ The SIPP is a longitudinal and continuing panel survey for 37,000 households in which all respondent household members are followed even if they move, every 4 months for 32 months. The reporting unit is the household with unrelated individual and families also identified. Measures to redesign it are also recommended For more detail, see Citro, et.al. Appendix B

¹⁶ See Appendix

MOOP expenditures; and briefly review research that has been stimulated by the panel's work and that may lead to a revised official US measure of poverty.

- ✓ Short Kathleen and Garner Thesia I. **Experimental Poverty Measures under Alternate Treatments of Medical Out-of-Pocket Expenditures: An Application of the Consumer Expenditure Survey.** May 28, 2002

<http://www.census.gov/hhes/poverty/povmeas/papers/mlr.pdf>

This paper, intended to encourage discussion, reports the results of research and analysis undertaken by the Bureau of Labor Statistics (BLS) and the US Census Bureau staff. It presents the difference in two of the measures that use Consumer Expenditure (CE) data to estimate medical out-of-pocket expenses: the MOOP subtracted from income method (MSI) and the MOOP in the threshold method (MIT). Both of these methods were used in the second Census report with results for 1999, but in this case, the results are estimated for the year 2000.

Poverty rates, poverty gaps, and income-to-poverty-threshold ratios are computed and compared across poverty measures for various subgroups, particularly children and the aged. Results show that alternate methods of measuring medical expenses affect our perception of the relative incidence of poverty, the depth of poverty experienced by these groups, and the number of people who are classified in extreme poverty (those with family income below one-half of the poverty threshold).

Additional literature:

- ✓ Haveman, R. and M. Mullikin. **Alternatives to the Official Poverty Measure: Perspectives and Assessment.** April 1999

<http://www.ssc.wisc.edu/irp/povmeas/havemanall.pdf>

- ✓ Institute for Research on Poverty. **Revising the Poverty Measure.** *Focus*, Spring 1998

<http://www.ssc.wisc.edu/irp/focus/foc192.pdf>

- ✓ Short Kathleen, Iceland John and Dalaker Joseph. **Defining and redefining poverty.** August 2002.

<http://www.census.gov/hhes/poverty/povmeas/papers/define.pdf>

- ✓ Short Kathleen and Garner Thesia I. **A Decade of Experimental Poverty Thresholds 1990 to 2000.** June 2002.

<http://www.census.gov/hhes/poverty/povmeas/papers/decade.pdf>

- ✓ Short, Kathleen and Shea Martina. **Beyond Poverty, Extended Measures of Well-Being: 1992.** November 1995.

www.census.gov/prod/1/pop/p70-50rv.pdf

- ✓ Short, Kathleen. **Alternative Poverty Measures in the Survey of Income and Program Participation: 1996.** January 2003.

<http://www.census.gov/hhes/poverty/povmeas/papers/sipp.pdf>

2.2 POVERTY MEASUREMENT IN CANADA¹⁷

LOW INCOME CUT-OFF (LICO'S) AND LOW-INCOME MEASURE (LIM)

Canada, like most industrialized countries excepting the United States, has no official government mandated poverty line. However, Statistics Canada has produced information on poverty; since the 1960s, using low income cutoffs or LICO's concept. In practice the LICOS estimates is used as a semi-official poverty lines.

Defining Needs

The LICO's are thresholds of income with reference to the average of what a family spends in a year on *food, shelter* and *clothing* as a proportion of their annual income. A family unit with income below the cut-off for its family size and urbanization classification is considered a "low income" family. Notice that a family's low income status depends solely on its income, not on its spending.

Expenditure survey data is used in order to find the average spending on the three basics¹⁸. Once this percentage is defined, twenty percentage points are added to this number, on the rationale that a family spending over that total percentage of its income on these essentials would be in profound disadvantage in relation to the average. The resulting threshold is then converted to a set of low income cutoffs that varied by family size and community size. This set is composed by 35 cutoffs produced for seven family sizes and five sizes of area of residence ranging from rural areas to cities of 500,000 or more.

Originally, and in order to capture the effect of the change on spending patterns, the LICO's have been periodically "rebased" and adjusted annually for variations in the Consumer Price Index (CPI). After the second public consultation undertaken in 2000, the LICOS are annually rebased. (See below). LICO's are used to calculate low income rates that represent the income level where a family would generally spend more than a certain percentage of its before-tax income or its after-tax income on these three essentials (food, shelter and clothing).

Defining Resources (Income)

LICO's are calculated on the basis of after-tax as well as before-tax income. The former refers to market income, -meaning earnings and investment income- plus government transfers, whilst after tax-income is obtained from before-tax minus income tax. The source of data for income estimation is the Survey of Consumer Finances (SCF), conducted each April as a supplement to the Labor Force Survey.

¹⁷ The concepts reviewed here are based on different research papers presented by Statistics Canada, the Fraser Institute, the Canadian Council on Social Development and the Human Resources Development Canada (See additional literature review survey in this Section).

¹⁸ Originally, the LICO's were designed on the base of 1959 Family Expenditure Survey and were rebased four times being the last one using the 1992 Family Expenditure Survey. After the public consultation undertaken in 2000, the LICOS are annually rebased using the Survey of Household Spending (SHS) with data for 1997, while the 1992 based measure continues to be published. See below.

Criticisms were raised about the concepts and methodologies underlying the construction of LICOs as well as its appropriateness for evaluating the effectiveness of poverty-reduction policies and programs. Some of these issues are:

- ✓ LICOs are actually a “relative” measure of poverty. It rises with increases in average spending, therefore, it identifies those who are substantially worse-off than the average, but it does not mean that they are poor. Thus, LICOs could be thought as an inequality measure instead of a poverty measure¹⁹.
- ✓ Its resulting value is considered as too high as to be an “impoverishment” threshold.
- ✓ It fails in considering regional differential costs, such as housing costs, even though rent is a major proportion of people’s living costs.
- ✓ LICOs are not sensitive to age differences in income.

Proposals to improve LICOs adequacy were presented at consultations that took place in 1989 and 2000. The 1989’s consultation discuss the replacement of LICOS or addition of a more conventional relative measure of poverty; as the 50% of median family income, where the income distribution has been adjusted for family size and composition (known as the Low Income Measure or LIM). Statistics Canada start to LICO-based low income information, and expanded its reporting to estimates on LIM based on after-tax income and estimates on the *depth*²⁰ of low income. The 2000 consultation dealt with the availability of annual expenditure data from the new Survey of Household Spending, instead of the currently used FAMEX - which produced data every four years²¹. One of the issues was about how to deal with a declining share of household expenditures in the three basics (food, shelter and clothing) with an observe increase in the level of income over time.

Some of the steps that Statistics Canada adopted the deal with some of these issues were: i) to introduce a series of LICO’s based on annually updated spending data based on data from the SCF (the 1992 estimates of consumption spending were maintained); ii) to undertake further work to include payroll taxes, besides income taxes; iii) provided that no alternatives proposed have proved to be less arbitrary, it was decided to maintain the 20 percentage margin, and; iv) to keep developing research on restructuring the LICO matrix, possibly adding city-specific LICOs.

THE MARKET BASKET MEASURE: MBM AN ALTERNATIVE MEASURE?

Human Resources Development Canada (HRDC) -at the request of the federal, provincial and territorial governments of Canada, in 1997 - undertook the task to develop an alternative measure of low-income to assess the effectiveness of the Child Tax Benefit Programs. The resulting measure was the Market Basket Measure (MBM); conceptualized as a measure of a standard of living. The MBM involved the estimation of the cost of a basket of goods and services - necessary for taking part in the life of the community, and compared it to the disposable income in order to determine the low income status of families with children. In May 2003, HRDC issued a report containing the first estimation of MBM using data collected by Statistics Canada specifically for this project²² (See below).

¹⁹ See: Sarlo, C. **Measuring Poverty in Canada**. The Fraser Institute, July 2001

²⁰ Conceived as the amount of money needed, on average, to pull families out of low income.

²¹ Cotton, C., M. Webber, Y. Saint-Pierre. *Should the Low Income Cutoffs Be Updated ?* January 2000

²² Data on the cost of goods and services in the basket to calculate thresholds was collected for 19 specific communities and 29 community sizes in the ten provinces of Canada.

- ✓ Human Resources Development Canada. **Understanding the 2000 Low Income Statistics Based on the Market Basket Measure.** May 2003
<http://www.hrdc-drhc.gc.ca/sp-ps/arb-dgra/publications/research/2003docs/SP-569-03/SP569english.pdf>

This report provides an overview of the incidence and depth of low income in Canada for the year 2000 based on the Market Basket Measure and describes it in the context of other concepts of low income, with a particular emphasis on the post-income tax Low Income Cut-off (LICO-IAT). This is the first year for which data based on the MBM has been calculated.

Methodology:

The MBM is calculated for a reference family of four-persons: one male and one female aged 25-49 and two children –a girl aged 9 and a boy aged 13. For all other household compositions, equivalence scales are applied²³. The basket of goods and services, which is defined by federal and provincial officials, is composed by food, shelter, clothing, transportation costs and other necessities. A “multiplier” is used to calculate the cost of these other necessities, representing their share as a proportion of spending on food and clothing by the second decile reference family (20% of families having less income).

Once thresholds are defined, they are compared to an MBM disposable income. This is defined as the income available to purchase those goods and services and should be equal to: after payroll-tax income (as defined by LICOs), minus alimony and child support payments made to another household, and all mandatory payroll deductions or employer-sponsored pension plans, union dues and employer sponsored supplementary health plans. Also, out-of-pocket expenses on child care and medically-prescribed non-insured health-related expenses should be deducted.

Key findings:

- ✓ The overall *incidence* of low income in 2000 for the ten provinces combined using MBM was higher (13.1%) than using the post-income tax LICOs (10.9%) but lower than using the pre-income tax LICOs (14.7%).
 - ✓ By age groups, children under age 18 comprised a higher share of the low income population in 2000 using the MBM than the LICOs post-income tax (29.5% vs 25.5). Seniors 65 and over, however comprised a lower share (5.2% vs 8.1%)
 - ✓ The *depth* of low income is lower using MBM than using both the pre and post-income tax LICOs (30.9% vs 34% and 32.5% respectively).
 - ✓ This pattern of lower depth held for most sub-categories excepting for females over 1ge 65 living alone.
-
- ✓ Bishop, K., C. Cotton, and S. Michaud. **Exploration of Methodological Issues in the Development of HRDC’s Market Basket Measure.** July 2003

By request of the HRDC, the Prices Division of Statistics Canada started to collect prices that would be required to calculate the MBM. Also some questions to determine

²³ The values are: First adult =1; second adult= 0.4; children under age 16=0.3.

disposable income were collected by the Survey of Labor and Income Dynamics, where as Statistics Canada started to document the methodology behind the MBM.

The purpose of this document is to describe the detailed methodology and assumptions behind the construction of the MBM, to raise some issues and to highlight some data limitations.

Key findings:

- ✓ Availability of adequate data is one of the most important limitations to the goal of obtaining accurate calculations by province. Regarding non-discretionary expenses to be deducted from income, for example, some health expenses would be subtracted from total income, even though they are not necessary expenses. This is done because they cannot be separated from other allowable medical expenses that are claimed on the tax form.
- ✓ Comparing the cost of the basket with expenditure data brings along a conceptual conflict: the basket price represent the cost of a fixed selection of goods and services, while expenditure data represent the amount actually spent and therefore reflect the behaviors and choices or spending patterns.

Additional Literature

- ✓ Canadian Council on Social Development. **Defining and Re-Defining Poverty: A CCSD Perspective**. October 2001
<http://www.ccsd.ca/pubs/2001/povertyp.htm>
- ✓ Cotton, Cathy, M. Webber, and Y. Saint-Pierre. **Should the Low Income Cutoffs be Updated? A Discussion Paper**. December 1999.
<http://www.nlc-bnc.ca/eppp-archive/100/201/301/daily/daily-h/2000/00-01/00-01-12/99009.pdf>
- ✓ Cotton, Cathy and M. Webber. **Should the Low Income Cutoffs be Updated? A Summary of Feedback on Statistics Canada's Discussion Paper**. September 2000
<http://collection.nlc-bnc.ca/100/201/301/daily/daily-h/2000/00-09/00-09-26/75F0002MIE00011.pdf>
- ✓ Hale, Alison. **Poverty and Low Income Measurement in Canada: Recent Analyses and Future Directions**. November 1999
http://www1.ibge.gov.br/poverty/pdf/alison_hale.pdf
- ✓ Hatfield, Michael. **Constructing the Revised Market Basket Measurement**. April 2002
<http://www.hrdc-drhc.gc.ca/sp-ps/arb-dgra/publications/research/2002docs/it-01-1/english/it-01-1e.pdf>
- ✓ Sarlo, Christopher. **Measuring Poverty in Canada**. The Fraser Institute. July 2001
<http://www.fraserinstitute.ca/shared/readmore.asp?sNav=pb&id=216>

2.3. POVERTY MEASUREMENT IN LATIN AMERICA AND THE CARIBBEAN (TO BE COMPLETE)

The Economic Commission for Latin America and the Caribbean -ECLAC is one of the main institutions producing statistics on poverty and inequality for countries of the Latin America and Caribbean Region –LAC. Using data from household surveys, National Accounts and administrative and technical information carries out headcount poverty and indigence estimates for 14 Latin American countries, spanning in most countries more than four years.

Defining needs - expenditures

The value of the absolute poverty line employed by ECLAC is the cost of a basket that contains a set of food and non-food items considered essential. The food basket is built as to meet minimum nutritional requirements while being representative of the population's consumption pattern. The cost of essential non-food items is added by multiplying the value of the food basket by a constant number. This poverty line is expressed in per-cápita terms, so it has to be multiplied by the number of household members before comparing it to the household income. The lines are calculated for metropolitan, urban and rural areas, and are usually updated by CPI for food. Data sources are mainly Expenditure and Income Surveys carried out approximately every ten years in the countries.

Defining resources:

Household income is defined according to the concept of the National Accounts, as monetary income derived from current account transactions, including transfers in cash from public sources. An imputed income for own house occupiers is also considered. Data sources on household income are Multi-purpose Household-Surveys and Income and Expenditure Surveys carried out in the countries. The household account of National Accounts is used to verify and adjust totals of the different sources of income from household surveys.

Feres, J.C. and Xavier Mancero, **Enfoques para la Medición de la Pobreza. Breve Revisión de la Literatura.** January, 2001

<http://www.eclac.cl/deype/publicaciones/xml/4/5954/lc11479e.pdf>

The document offers a guide to the different conceptual interpretations of poverty and a review of the methodologies used more often for the *identification* and *aggregation* processes. The trade offs between *absolute* and *relative* poverty concepts, the *direct* and *indirect* approaches, and the *objective* and *subjective* perspectives, are reviewed from a conceptual and a methodological point of view. The main conclusion stated in the report is that not any *identification* or *aggregation* methods are sufficient by itself, thus the combined use of both appears to be the correct option.

- ✓ Economic Commission for Latin America and the Caribbean -ECLAC; **Social Panorama of Latin America 2002-2003**; Santiago, Chile.

In 2002, the number of Latin Americans living in poverty reached 220 million people (43.4%), of which 95 million (18.8%) were indigents. These are among the estimates presented today by the Economic Commission for Latin America and the

Caribbean (ECLAC) in its advance version of the study, Social Panorama of Latin America.

Progress toward overcoming poverty ground to a halt in the past five years, with poverty and indigence rates remaining practically constant since 1997. The sole exception was 2000, when better economic performance brought with it a reduction in the volume of poverty by more than 4 million people.

Social Panorama of Latin America 2002-2003.

<http://www.eclac.cl/cgi-bin/getProd.asp?xml=/prensa/noticias/comunicados/6/12986/P12986.xml&xsl=/prensa/tp-l-i/p6f.xsl&base=/tpl-i/top-bottom.xsl>

- ✓ **Pedro Sainz;** ECLAC : “Rio Group on Poverty Statistics – Fifth Meeting : Final Report”
<http://www1.ibge.gov.br/poverty/>
http://www1.ibge.gov.br/poverty/pdf/final_report.pdf

Experts from the Rio Group and ECLAC have been jointly working on establishing the basics for the elaboration of a Compendium of best practices on poverty measurement. The Group is chaired by the Brazilian Institute of Geography and Statistics (IBGE) and so far, five meetings have been carried out in order to gather the progress made by the participants.

During the last meeting, there was agreement on a set of guidelines in the elaboration of the Compendium. In general, the Compendium should mainly target statistical offices and governmental institutions that are responsible for poverty estimates as well as institutions responsible for programs of poverty alleviation. Also, it was agreed that it should be mainly useful to developing countries and poor countries.

Regarding the contents, there was agreement in three components of the Compendium:

- i) an introduction to familiarize the reader with the conceptual aspects of poverty;
- ii) a description of the five approaches used to collect the experiences: absolute poverty lines, access to basic services and capital possession, relative poverty, subjective poverty, and a fifth approach that include social and political dimensions associates to poverty (social exclusion and deprivation, empowerment, and others); and,
- iii) Finally, “transversal topics;” dealing with methodological issues related to poverty dynamics, international comparisons, international strategies, and strategies for the improvement of the quality of the information.

III. HEALTH DIMENSIONS OF POVERTY: NEEDS, RESOURCES AND THRESHOLDS

3.1 On medical expenditures and Basic Needs

The case is made that since medical care spending represents an increasing fraction of all consumption, it may be considered as a basic need for an important group of the society –i.e.

elder people, or children²⁴. Therefore many would favor including medical care in the minimal bundle of basic needs to satisfy. However, there is no general agreement on this. Some of the methodological issues are about how to define the level of health expenditure associated to “basic health needs” given the variations in the frequency of medical spending, and the household composition of needs to be used in costing health care needs. Medical care spending doesn’t have the same regularity as food consumption (everyone needs to eat throughout the year, but some people may no need medical care at all while others may need expensive or prolonged treatments²⁵). In the other, families with different compositions and health status (by size or age) do not necessarily have the same level of medical need.

A second related issue is how to measure the resources available to fund those basic health needs. One of the problems is about how to treat different ways in which resources may be available to satisfy health needs, or the different sources of funding for medical care spending: Out-of-Pocket (MOOP), by a third party insurance payment (government or employee funded), by a private health insurance (sometimes deemed as part of MOOP) or as a combination of these.

Some of these issues were addressed in the discussion of the NAS Panel; in the case of the USA, and in the discussion about the Market Base Measurement (MBM) in the case of Canada.

✓ **The Treatment of Medical Expenditures in the NAS panel proposal²⁶:**

The NAS Panel stated that trying to account for private and public medical insurance benefits would greatly complicate the poverty measure and cloud its interpretation. Hence, the proposed poverty measure does not include an allowance for medical expenses, either those that might be covered by insurance or paid for out of pocket; for consistency, the proposed resource definition does not add the value of health insurance. Also for consistency, the NAS Panel proposed definition subtracts out-of-pocket medical care expenses from income: even with insurance, many people must pay out of pocket to obtain that insurance or to receive care, and such expenses reduce disposable income.

The case was made that although the proposed poverty measure excludes medical care from both the thresholds and resources, it will reflect changes in health care policy that affect disposable income. For example, if changes in health care financing reduce out-of-pocket medical expenditures and thereby free up resources for food, housing, and other consumption, the proposed measure will show a lower poverty rate; the current measure would not show this effect. The Panel also recommended that appropriate agencies develop direct indicators of the extent to which families lack or have inadequate health insurance that puts them at risk of not being able to afford needed treatment. These “medical care risk” measures should be cross-tabulated with but kept separate from the economic poverty measure.

²⁴ In the US, medical spending in 2002 represented around 13.1 % of the gross domestic product (GDP). In Latin America, this has been calculated at 7.2 % of the GDP. The significance of Medical Out-of-Pocket expenditures; direct and indirect, as share of the total medical expenditures is very similar: around 58 % of total medical spending. See, PAHO, Health in the Americas, 2002.

²⁵ For example, in case of catastrophic illness or chronic diseases

²⁶ See Citro et.al. 1995

✓ **The Treatment of Medical Expenditures in the MBM measure²⁷:**

In the case of the MBM it was argued that MOOP expenses²⁸ should be deducted from income. The measure recognize that households must spend significant sums of money on such items so experience a lower living standard than those with the same income who do not have to bear those costs. The proposal states that Statistics Canada's estimates of spending on those items should be subtracted from gross income before that income is compared to the MBM thresholds.

However, they are not included in the cost of the basket because of it is considered that the high variability of health expenses, highly dependable on the health needs of the family members, makes difficult to set a "standard" basket component for this category of expenditure.

3.2 HEALTH NEEDS, SPENDING AND RESOURCES

- ✓ Short Kathleen and Garner Thesia I. **Experimental poverty measures: accounting for medical expenditures**. August 2002.
<http://www.bls.gov/opub/mlr/2002/08/art1exc.htm>

This article describes and compares the size and composition of the poverty population in the US under the official poverty measure and two experimental measures of poverty that use Consumer Expenditure data:

Methodology:

Two methods to adjust poverty measurement are assessed by the authors, both using CE data: i) MOOP subtracted from income (MSI), similar to the proposal of the NAS panel, but with some computational differences; and ii) MOOP added to the thresholds for the reference family (MIT), before determining poverty status. A *medical risk index* is used to estimate thresholds for other families.

Key findings:

All statistics shown in this article—poverty rates, poverty gaps, and income-to-poverty thresholds ratios—are affected by the method chosen to account for medical expenses in the measure. Results indicate that, while many groups are somewhat more likely to be classified as poor under the experimental measures, the depth of their poverty is less than is generally found under the official measure. In general, results show that alternate methods of measuring medical expenses affect our perception of the relative incidence of poverty, the depth of poverty experienced by these groups, and the number of people who are classified in extreme poverty (those with family income below one-half of the poverty threshold).

²⁷ See HRDC report, May 2003.

²⁸ Defined as non-insured health care spending recommended by a health professional, such as dental and vision care and prescription drugs plus private health insurance and aids for persons with disabilities such as hearing aids, wheelchairs and guide dogs

- ✓ Burtles, Gary. **Medical Spending, Health Insurance, and Measurement of American Poverty**. August, 2001
<http://www.brookingsinstitution.org/dybdocroot/es/dynamics/papers/poverty/poverty.pdf>

This paper examines the effects of three basic methods of including household spending on health care in the poverty thresholds. The first is the method embodied in the official poverty statistics. The other two are based, directly or indirectly, on the recommendations of the NAS' panel.

Methodology:

The author uses an estimate of "reasonable" medical spending as estimates of expected medical spending requirements faced by different classes of families, taking account of the number, age and health status of family members as well as their coverage under a health insurance plan. For those families that lack insurance coverage, the author attempts to estimate their "expected spending" to gain insurance coverage as well as to pay their medical bills after medical insurance has been obtained. As there is no evidence to calculate precise "reasonable" health spending, the author derives three estimates corresponding to "high", "medium", and "low" assessments of the medical spending needs of uninsured or partly insured families. Subsequently, it examines the sensitivity of poverty rates to these three estimates. The estimates of medical spending are derived from survey results obtained in the 1987 National Medical Expenses Survey (NMES) and updated by price changes using the medical component of the CPI.

Key findings:

- ✓ The inclusion of medical spending in the poverty definition has a large effect on the level and composition of poverty.
 - ✓ The level and composition of poverty is comparatively unaffected by the decision to add "reasonable" medical spending to poverty thresholds rather than subtract "actual" medical spending from family resources.
-
- ✓ O'Hara, Brett. **Do Medical Out-of-Pocket Expenses Thrust Families into Poverty?** August, 2003

The author estimates the impact of MOOP expenses on families' well being in the US, trying to answer if MOOP pushes families into poverty or not, and if so, what types of families are affected the most. The analysis puts special emphasis in identifying if the most affected are uninsured or underinsured.

Methodology:

MOOP are defined as the out-of-pocket costs from medical services and the family's share of health insurance premiums. Based on the official poverty measure methodology, the author redefines the concept of poverty as follows: if a family income minus total MOOP is less than the official poverty line, the family is considered in poverty. If the family was not in poverty before, but it is under the alternative definition, it is considered as "newly impoverished".

Regarding data sources, SIIP is used to estimate income and MOOP in adults, and imputed information from the Medical Expenditures Survey (MEPS) is used to account

for MOOP in children. Demographic characteristics, insurance status, and medical usage of the family are analyzed to determine which characteristics are more likely to thrust a family into impoverishment.

Key findings:

- ✓ Families impoverished because of MOOP are far more likely to have older heads of family, or at least one family member in poor health, or to have some adults without health insurance.
- ✓ Families without at least one person who worked full-time for the entire year were also likely to be impoverished.
- ✓ Children in family have little effect of the probability to become impoverished.

Additional literature:

- ✓ Acs, Gregory and J. Sabelhaus. **Trends in Out-Of-Pocket Spending on Health Care, 1980-1992.** December 1995.
<http://www.bls.gov/opub/mlr/1995/12/art4full.pdf>
- ✓ Bavier, Richard. **Updating the Poverty Thresholds with Expenditure Data.** 1997
<http://www.census.gov/hhes/poverty/povmeas/papers/povupdat.html>
- ✓ Bavier, Richard. **Medical Needs and the Poverty Threshold.** 1998
<http://www.census.gov/hhes/poverty/povmeas/papers/medinpov.html>
- ✓ Bavier, Richard. **Medical Out-of-Pocket Spending on Poverty Thresholds.** 2000
<http://www.census.gov/hhes/poverty/povmeas/papers/altmoop.html>
- ✓ Betson, David. **Response to Bavier's Critique of the NRC Panel's Recommendations.** October 2000.
<http://www.census.gov/hhes/poverty/povmeas/papers/comonbavier.pdf>
- ✓ Betson, David. **Imputation of Medical Out-of-Pocket (MOOP) Spending to CPS Records**
<http://www.census.gov/hhes/poverty/povmeas/papers/koopdb.pdf>
- ✓ Doyle, Pat. **How Do We Deduct Something We Do Not Collect? The Case of Out-Of-Pocket Medical Expenditures.** August, 1997
<http://www.census.gov/hhes/poverty/povmeas/papers/oopmedex.html>

3.2 ACCOUNTING FOR MEDICAL EXPENSES : CATASTROPHIC LOSSES AND HEALTH INSURANCE

An important issue to take account on how to treat medical care expenses on poverty measure is the characteristics of the health insurance system. The lack of universal coverage should turn the attention of any poverty measurement to that population that is unprotected either by being uninsured or underinsured, and therefore whose risk to be exposed to catastrophic health expenses is greater.

- ✓ Banthin Jessica, Garner Thesia and Short Kathleen. **Medical Care Needs in Poverty Thresholds: Problems Posed by the Uninsured.** December 2000.
<http://www.census.gov/hhes/poverty/povmeas/papers/medneeds7.pdf>

This paper compares several methods of incorporating medical care needs into a revised poverty measure. All of these measures are partially based on the recommendations of the

NAS' panel, but instead of subtracting medical care expenses from resources incorporates them directly into poverty threshold definitions.

The concept that underlies this different approach is that the author bases the analysis in an *ex ante* view of poverty measurement: the thresholds define a minimum level of basic needs that is *expected* to be sufficient, allowing an adjustment to the expenditures of the uninsured. The NAS proposal instead, is based on an *ex post* calculation of how many families could not meet their needs out of their current income in the previous year. Theoretical support to the author's proposal is found on the argument that when *uncertainty* is present -as in the case of medical care expenditures-, the consumer's expected utility rather than utility should be the focus of public policy.

Methodology:

Poverty thresholds are calculated following basically the NAS proposed methodology with some modifications consisting primarily in the addition of MOOP to the basic bundle of goods, and that family types are allowed to vary by health insurance status and by health status. All the thresholds are updated by using the medical component of the CPI.

Sensitivity tests on the final poverty rates are conducted across three sources of possible variation in the measurement of MOOP expenditures:

- iv) The source of data: CE and MEPS are used to construct six different sets of thresholds, lately compared;
- v) The central tendency of the distribution: median as well as mean MOOP estimates are used and compared;
- vi) The uninsured families: and explicit adjustment is made adding an estimate of the cost of a "standard, unsubsidized insurance package" to the reported MOOP spending.

Key findings:

- ✓ There is little difference in overall poverty rates between adding MOOP to thresholds and deducting it from resources.
 - ✓ Further sensitivity testing is needed to refine the MOOP imputation methods in terms of measures of central tendency, best data sources, and premium imputation methods.
 - ✓ Further examination of average and aggregate imputed values in comparison to privately insured families is needed, as well as in the adjustments to the expenditures of the uninsured.
- ✓ Cordero, L., J. Herrera, and G. Yamada. **Health Adjusted Poverty Lines: The Case of Peru.** September 2003

This report subscribes into the effort to sensitize monetary poverty concepts to health needs on the basis of international experience on the issue. An application to the Peruvian case is presented using National Household Survey (ENAH) data for 2002 and the Living Standards Survey (ENNIV) for 1994, 1997 and 2000.

Methodology:

The paper is carried out in three steps. First, based on the indirect method to adjust poverty lines by health needs, medical expenses are subtracted from both, the family resources and the traditional poverty line. Then, the authors apply the direct method to adjust poverty indicators by health care expenses, including in the estimation of the food poverty line (*extreme* poverty line) an estimate of the total health need expenses based on the own perception of the households of what is needed to achieve an adequate health status. Finally, it is explored the sensitivity of the indicators obtained to the availability of health insurance and catastrophic health events.

Key findings:

- ✓ Under the indirect methodology and using ENAHO data for 2002, subtracting health care expenses from the total expenses does not have any effect on the incidence of poverty (in both cases equals 55.1%).
- ✓ Using the same methodology, but ENNIV for 2000, incidence and severity indicators are statistically no significant. However, in sub group level data, the impact of the adjustment by health expenses is increasing to the extent that these sub groups have been exposed to catastrophic health expenses.
- ✓ Applying health care expenses on the *extreme* poverty line, increases the poverty incidence indicator in two percentage points.
- ✓ Under the direct methodology and using the self assessed poverty information from ENAHO 2002, two findings are highlighted: i) regarding health expenses, these increase according to the age with augmented disparity on the insurance covered sub group of the population; ii) on the extreme poverty comparison, the incidence indicator is 13.2 percentage points higher.

Additional Literature:

- ✓ Berki, S. **A Look at Catastrophic Medical Expenses and the Poor.** Winter 1986
<http://www.healthaffairs.org/readeragent.php?ID=/usr/local/apache/sites/healthaffairs.org/htdocs/Library/v5n4/s14.pdf>
- ✓ Betson David. **Imputation of Medical Out of Pocket (MOOP) Spending to CPS Records.** January 2001.
<http://www.census.gov/hhes/poverty/povmeas/papers/moopdb.pdf>
- ✓ Betson David. **In Search of a Elusive Truth “How Much do Americans Spend on their Health Care?”.** April 1997
<http://aspe.hhs.gov/poverty/papers/moop.pdf>
- ✓ Gertler, Paul. **Insuring the Economic Cost of Illness.** February 1999
<http://www.iadb.org/sds/doc/871eng.pdf>
- ✓ Gertler, Paul. **Insuring Consumption Against Illness.** April 1997
http://www.jcpr.org/wpfiles/gertler_gruber.pdf
- ✓ Human and Social Development Group. **Chile Health Insurance Issues. Old Age and Catastrophic Health Costs.** August, 2000
[http://wbln0018.worldbank.org/lac/lacinfoclient.nsf/0/725faf9bdb5f1c9f8525696000710527/\\$FILE/Chile%20Old%20Age.pdf](http://wbln0018.worldbank.org/lac/lacinfoclient.nsf/0/725faf9bdb5f1c9f8525696000710527/$FILE/Chile%20Old%20Age.pdf)

- ✓ Prescott, Nicholas. **Coping with Catastrophic Health Shocks.** February 1999
<http://www.iadb.org/sds/doc/860eng.pdf>
- ✓ Reinhardt, Uwe. **Is There Hope for the Uninsured?** August, 2003
<http://www.healthaffairs.org/WebExclusives/2206Reinhardt.pdf>
- ✓ Xu, K. D. Evans, K. Kawabata.et.al. **Household Catastrophic Health Expenditure: a Multicountry Analysis.** The Lancet. Vol. 362. July, 2003
- ✓ Wagstaff, Adam. **Catastrophe and Impoverishment in Paying for Health Care: With Applications to Vietnam 1993-1998.** February 2002
http://poverty.worldbank.org/files/9510_catastrophe.pdf
- ✓ Zuvekas, Samuel H., Banthin Jessica S. and Selden Thomas M. **Mental Health Parity: What Are the Gaps in Coverage?** 1998
<http://www.icmpe.org/test1/journal/issues/v1i3/v1i3text05.pdf>

IV. **OTHER DIMENSIONS OF HEALTH ON POVERTY MEASUREMENT: NUTRITIONAL LOSSES AND EARLY MORTALITY**

4.1 NUTRITIONAL LOSSES

The incidence of illness and disease could produce nutritional losses that imply adjustments to the level of food intakes required to achieve the minimum level of consumption associated with the adequate caloric intakes. They may imply temporary reduction in the diets and subsequent changes in the composition of the diet needed to restore nutritional losses. The empirical evidence from health surveys suggests that illness; particularly infectious diseases, are more frequent in low income groups. Similarly, to the case of infectious diseases, the presence of chronic diseases in one of the household members may imply changes in diets affecting the cost of the food-basket of these families. While there are some studies documenting the nutritional losses of particular diseases, we found no empirical work quantifying the likely the adjustments needed to the food-consumption baskets of different income groups associated to differences in morbidity. Nonetheless, evidence concerning the effect of specific illness and disease in nutritional levels could be found in the literature surveyed below, rising the need for further research on this topic, mainly in developing countries.

- ✓ **The Management of Acute Diarrhea in Children: Oral Rehydration, Maintenance, and Nutritional Therapy.**
<http://www.cdc.gov/mmwr/preview/mmwrhtml/00018677.htm>

This report was released on 1992 by the US Department of Health and Human Services Public Health Service Centers for Disease Control and Prevention (CDC). It reviews the proper management of diarrhea among children and particular attention is given to the use of oral therapy for rehydration and maintenance therapy for the dehydrated child and nutritional management. Evidence shows that in the United States, diarrhea remains one of the most common illnesses of children less than 5 years of age. Most hospitalizations and deaths due to diarrhea occur in the first year of life.

- ✓ Madkour, Ahmed, et.al. **Nutritional outcome of appropriate feeding during and after acute diarrhea in children.** 1995
<http://www.emro.who.int/Publications/EMHJ/0102/01.htm>

The study finds that successful nutritional management requires education and good feeding practices during diarrhea, as well as a supply of “extra energy” after diarrhea to compensate the *nutritional losses* caused by the rapid transit time and/or the cultural practice of withholding or reducing food during diarrhea. This practice of supplying extra energy will have its impact on the prevention and correction of malnutrition, and will help in breaking the vicious cycle of diarrhea and malnutrition.

- ✓ Phillips, Billy. **The Case for Cancer Nutritional support.** The Cancer Nutrition Network of Texas. May 1999
<http://www2.utmb.edu/nsights/Cancersprt.pdf>

The paper points out that one of the most fundamentals areas of need of a cancer patient is nutritional support, which can significantly improve his quality of life. Malnutrition is a significant problem for the cancer patient provided that it induces changes in metabolism that combines with suppressed appetite and reduced food consumption derived from side-effects of secondary treatment (i.e. chemotherapy). Therefore what is needed is to assure that proper nutrition be part of an integral treatment program to the cancer patient.

- ✓ **Nutrition Care and Support for Women Living with HIV/AIDS in West Africa.**
<http://www.fantaproject.org/downloads/pdfs/HIV.pdf>

The article points out the fact that once infected, malnutrition and HIV work in tandem, creating a “vicious cycle” where each condition worsens the other. HIV affects nutrition through reductions in dietary intake, nutrient malabsorption and loss, and metabolic alterations that culminate in weight loss and wasting common in AIDS. On the other hand, pre-existing malnutrition exacerbates the effects of HIV because the immune system is already compromised. Malnutrition also increases fatigue, and it decreases physical activity and work productivity of people living with HIV/AIDS, further affecting quality of life.

The case is made, and specifically in Africa, provided that additional negative economic impact on the household well-being status is derived from the evidence obtained from affected households:

- i) They tend to change from profitable and/or nutritious crops with root crops that mature quickly but are less nutritious and profitable.
- ii) They face the need to use their savings and sale their asses (livestock) for money to provide patient care or funeral expenses.
- iii) HIV affects the young and the most productive members of society.

- ✓ **Nutrition In Pediatric HIV Infection.**
<http://www.hivpositive.com/f-Nutrition/f-3-PediatricNeut/n-Zafonte.html>

The article addresses the study of malnutrition as a common complication of HIV infection and AIDS. It is pointed out that malnutrition in children is particularly

devastating because children are still growing and developing, placing even higher energy demands on their bodies and immune systems. All children, regardless of the stage of their infection, should be seen by a registered dietitian (RD) for a thorough assessment and evaluation. It has been estimated that over 90% of children with HIV infection/AIDS will experience delayed growth. The reason for this is multifactorial including poor socioeconomic situations, poor nutritional intake, malabsorption and the disease itself.

Everyone infected with HIV should see a dietitian as soon as possible after diagnosis and at intervals determined to be appropriate based on needs. It is especially important that children be followed by a dietitian as part of the medical team to be sure that oral intake is adequate to support growth and development.

Additional literature:

- ✓ National Academy Press. **Nutrition Issues in Developing Countries: Part I: Diarrhea Diseases, Part II: Diet and Activity During Pregnancy and Lactation.**
<http://www.nap.edu/catalog/1979.html>
- ✓ Wagstaff, A. and N. Watanabe. **Socioeconomic inequalities in Child Malnutrition in the Developing World.** 2000
http://econ.worldbank.org/files/1189_wps2434.pdf

4.2 EARLY MORTALITY

There is a paradox in all commonly used measures of poverty: the death of a person reduces poverty. Therefore, in the presence of premature mortality for the poorer sections of the population, standard poverty measures will show a decrease.

- ✓ Kanbur, Ravi and Diganta Mukherjee. **Premature Mortality and Poverty Measurement.** March 2003
<http://www.irc.essex.ac.uk/pubs/workpaps/2003-06.php>

The author begins the task of developing poverty measures that are not perversely mortality sensitive. A family of measures is proposed that is an intuitive modification of standard poverty measures to take into account the fact that rich live longer than the poor.

Methodology:

In this paper the author develops and characterizes a poverty measure based on the life time income profile of an individual. A normative rather than actual length of life time, L , is defined, and based on the top of the range observed in rich countries; it is set in 80 years. To define the amount of income corresponding to those prematurely dead, different income levels are defined resembling the income distribution of a society. They are assumed to remain constant over time. Also, there is no mobility across income levels. Each individual at each income level lives for a number of periods, after which time he or she is replaced by exactly one individual. The relevant set of individuals are all those who were born L years ago or less, including those had they lived the full L years. All these assumptions allow the author to build up a modified family of FGT indices to

measure poverty, which relates income and length of life. In any event, measured poverty will be affected by the income lifetime relation, over and above the distribution of income.

V. ON THE DYNAMICS OF POVERTY

Questions intended to be answered by the authors surveyed next are: i) **Why** people move into poverty; ii) **How** people move out of poverty; iii) **How long** are the poor, poor. Every approach to measuring poverty would benefit from a follow up in time of the units that at a certain moment were declared poor.

- ✓ Gordon, David. **Measuring Poverty and Social Exclusion in Britain**. May 2002
http://www.bris.ac.uk/poverty/pse/conf_pap/02budapest_dg.pdf

This paper is based on the Poverty and Social Exclusion Survey (PSE), one of the largest poverty surveys ever carried out in Britain, and that covers different aspects of poverty and social exclusion. The author concentrates on the theoretical and measurement issues, particularly where they concern the dynamics of poverty.

Methodology:

The author combines multi-variate statistical methods using cross-sectional data obtained from PSE, and validates these results using the perception of the respondents about recent changes in their circumstances. The author states that to test this poverty dynamics model, further longitudinal income and deprivation data are needed.

Key findings:

- ✓ People become “poor” in Britain after their income has dropped catastrophically, as a consequence of job loss, family break-up, retirement, severe ill health, etc.
 - ✓ When income falls people will try to delay the descent into poverty, but if the income of a poor person increases she will quickly try to improve her standard of living.
 - ✓ It is possible to identify the dynamics of poverty in a cross-sectional survey, since besides identify the non-poor and the poor (multiple deprivation and low income) it could identify those with low income and high standard of living (sinking into poverty) and those with high income but a low standard of living (moving out of poverty).
- ✓ McKernan, S. and C. Ratcliffe. **Transition Events in the Dynamics of Poverty**. September 2002
http://www.urban.org/uploadedPDF/410575_DynamicsofPoverty.pdf

The author tries to explain the fall of the official poverty rate in the United States from 15% in 1993 to 11.3% in 2000. Questions looked to be answered are: What are the dynamics behind changes in the poverty rate over time? What events increase individual's likelihood of entering and exiting poverty? What is the likelihood of entering and exiting poverty given these different events?

Methodology:

The author uses multivariate analysis based on two longitudinal data sets: yearly data from the 1975-1997 panels on the Panel Study of Income Dynamics (PSID), and monthly data from the 1988, 1990, and 1996 panels on the Survey of Income and Program Participation (SIPP). Poverty dynamics is examined over time as well as transitions into and out of poverty using the official definition of poverty.

Key findings:

- ✓ Shifts in household structure are relatively rare events in the population, but individuals who experience these events are the most likely to transition into or out of poverty.
- ✓ Individuals who experience employment shifts are somewhat less likely to experience a poverty transition than those mentioned before. However, as shifts in employment are more common so they are associated with a larger share of transitions into and out of poverty.
- ✓ Controlling for demographic and economic factors in the multivariate analysis, the likelihood of entering or exiting poverty is highest for persons living in households with employment changes, followed by persons living in households with a shift in headship.

Additional Literature:

- ✓ Noreau, N., M. Webber, P. Giles, and A. Hale. **Crossing the Low Income Life**. July 1997
http://collection.nlc-bnc.ca/100/200/301/statcan/income_research_75f0002-e/1997/no11/75F0002MIE97011.pdf
- ✓ Poverty and Social Exclusion. Survey of Britain Homepage.
<http://www.bris.ac.uk/poverty/pse/welcome.htm>
- ✓ Townsend Centre for International Poverty Research Homepage
<http://www.bris.ac.uk/poverty/publications.htm>

Section VI Health Adjusted Poverty Lines: A Graphical Presentation

6.1 Accounting for Health Care Expenses (HCExp)

The debate on how to improve the measurement of poverty is centered in finding which methods appear to be more accurate to show how poverty indicators would be affected by accounting for different types of individual, household, and community needs. Some of the questions related to the treatment of health, health care need and health care expenditures may be summarized as follows:

- How to value HCExp? Should HCExp be treated as a *basic need* (added to a threshold) or as an *actual expense* to be deducted from resources, or both?

- Should HCExp be ignored or receive a separate treatment?
- Should HCExp include health insurance premiums or only Out-Of-Pocket
- How to treat health insurance needs and household expenditures in health insurance; Is it health insurance an actual *need* for every income level group?
- Should “actual” or “expected” values of MOOP be used?

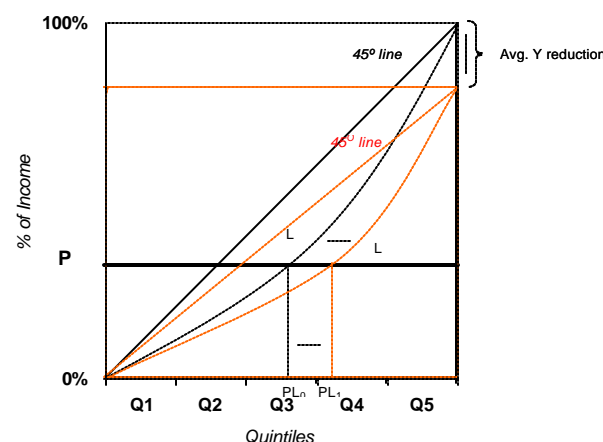
A graphic representation

This section summarizes some of the issues of the literature on the measurement of poverty: resources, needs and threshold using a simplified version of income distribution-Lorenz Curve boxes. In particular we focus in the analyzing the impact on the measurement of poverty and inequality of different approaches to the treatment of health needs, health care expenditures (HCExp) and medical out of pocket expenditures (MOOP).

On resources

Assuming the income distribution of the society, represented in figure 1 by the distribution of resources L_0 is known, and that a poverty line, PL has already been established. The level PL_0 on the axis x represents the cut-off point (threshold) to separate the poor and the non-poor. Under the assumption that HCExp is deemed *nondiscretionary* – meaning a *need*, hence is not available for consumption of other needs–, subtracting HCExp from resources (income, in this case), the curve L_1 would be a better representation of the available resources²⁹. Given this assumption, the new cut-off point (threshold) would be PL_1 . Notice that by construction, the shift from PL_0 to PL_1 would reflect an increase of the number of people on poverty, even when the income distribution may have remain unchanged (in terms of the Gini coefficient).

Figure 1.



²⁹To simplify the presentation we assume that income levels are affected proportionately; that is that the income elasticity of HCExp is equal to 1. .

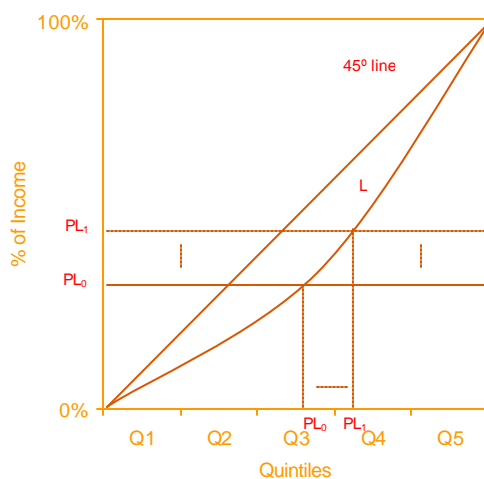
The researchers who support this point of view define resources as disposable money and near income that is available for the consumption of the basic bundle. Consequently, if HCExp have a non-discretionary nature, they do not free up resources for consumption of other basic needs, and are not considered as available resources. In the other hand, those who oppose to this treatment, argue that at least benefits obtained from medical insurance should be deemed since they do free up resources for consumption.

6.2 On Thresholds and Needs

While maintaining similar initial conditions than those in figure 1, in figure 2 we describe the impact of including the cost of a basket to satisfy some basic health care needs. In this case, the graph would show an upward shift of the poverty line to reflect the higher monetary value of the basic bundle; from PL_0 to PL_1 causing again an increase on the proportion of people on poverty.

Controversy exists on which one of these two methods to use. Since HCExp is characterized for its variation and uncertainty, not every family requires medical care in a given year, but when they do, the costs could be extraordinarily large. In this way, thresholds should be estimated for every case complicating the measurement. On the other hand, the case is made for those who are underinsured or uninsured: when ignoring HCExp on the threshold, these groups would appear better off than they really are. This is specially the case for developing countries where a great percentage of HCExp are financed by direct Out-of-Pocket; close to 50 percent of total national health care expenditures in case of the Latin American and Caribbean region.

Figure 2



As a conclusion of this tentative analysis, we would want to suggest that whichever the method be used, the inclusion of HCExp on the measurement of poverty will affect the estimates on incidence of poverty. It is not so clear what would be the result on income distribution, provided that the income elasticity of the *good* health care is not necessarily the same for every individual or unit of analysis at any income level. In other words, the good health care may not considered a *need*.

APPENDIX A

ADDITIONAL LITERATURE REVIEW

I. On Poverty Measurement

- Ravallion, M. **Poverty Comparisons. A Guide to Concepts and Methods**. LSMS Working Papers N° 88
http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/04/28/000178830_98101902174198/Rendered/PDF/multi_page.pdf

Poverty assessments are typically clouded in conceptual and methodological uncertainties. How should living standards be assessed? Is a household survey necessary, and is it a reliable guide? Where should the poverty line be drawn, and does the choice matter? What poverty measure should be used in aggregating data on individual living standards? Does that choice matter?

This paper surveys the issues that need to be considered in answering these questions, and discusses a number of new tools of analysis which can greatly facilitate poverty comparisons, recognizing the uncertainties involved. Various applications in poverty assessment and policy evaluation for developing countries are used to show how these methods can be put into practice.

II. The Census Bureau Reports On Experimental Poverty Measurement:

- ✓ Short Kathleen, Garner Thesia I., Stephanie Shipp, Charles Nelson and Geoffrey Paulin. **Experimental poverty measurement for the 1990s**. March 1998.
<http://www.bls.gov/opub/mlr/1998/03/art4full.pdf>

This article, presented as a joined effort of the USCB and the Bureau of Labor Statistics (BLS), basically analyzes the NAS Panel's basic proposed procedure, and examines the additional Panel's recommendations, identified as "experimental", following the methodological procedures proposed by the panel.

Key findings

- ✓ Poverty thresholds under the NAS procedures seem to be stable over time and across various definitions of the minimum expenditure bundle.
 - ✓ Poverty rates based on these thresholds follow trends over time similar to the official poverty measure and are always higher both over time and across variously defined budgets and subgroups, than rates based on the official measure.
 - ✓ Differences across subgroups are stable over time and the poverty population looks more like the total population in terms of demographic and socioeconomic characteristics: the poor are more likely to be white, to be married, and to have a member of the family in the workforce.
- ✓ Garner, Thesia I., Short, Kathleen, Johnson David and Doyle Patricia. **Experimental Poverty Measures 1990 to 1997**. June 1999.
<http://www.census.gov/prod/99pubs/p60-205.pdf>

This report presents experimental measures of poverty in the United States as illustrative variations of the recommendations of the *Panel on Poverty and Family Assistance: Concepts, Information Needs, and Measurement Methods* of the National Research Council.¹ The report shows how estimated levels of poverty would differ from official levels as specific recommendations of the NAS panel (on poverty thresholds, family resources, on both thresholds and resources and on various methods for updating the thresholds over time) are implemented individually and how estimated trends would differ when many recommendations are implemented simultaneously. In addition the report examines the effect of experimental poverty measures on various subgroups, holding the overall poverty rates constant.

The experimental measures presented here:

- Incorporate, in a way that the official measure does not, the effects of key government policies aimed at the most needy families in the United States.
- Use an after-tax income measure.
- Add the value of in-kind benefits, such as food stamps, to income.
- Take account of variations in expenses that are necessary to hold a job and to obtain medical care.

Methodological characteristics of this report can be summarized as follows: In one hand, different treatment is used for child care expenses, including a Different Equivalence Scale (DES), meaning the use of Equivalence Scales with three parameters (while the NAS Panel uses a two parameter equivalence scale), in order to better capture economies of scale in families with different number of children³⁰. In the other hand, and unlike what was recommended by the NAS Panel, the measures of this report are mainly based on the Current Population Survey (CPS).

Key general findings:

- ✓ Considering all in-kind transfers together reduces the incidence of poverty substantially, even though the reductions from any single program are generally quite small.
- ✓ The increase in poverty rates when one accounts for necessary expenses can be substantial but depends on the method used to value those expenses.
- ✓ Because of the Earned Income Tax Credit, deducting taxes from income on balance reduces the percentage of people who are viewed as being poor.

The report closes discussing data limitations and opportunities in major surveys for more completely implementing the NAS panel recommendations, and identifying directions for future research. These, as stated in the report, should focus on refining the poverty thresholds (mainly I the adjustment for geographic differences in cost of housing, and the overall cost of living) and further examining the resource measure (mainly in work related expenses, MOOP, the treatment of cohabitants and the treatment of he flow of services from owner-occupied housing).

- ✓ Short, K. **Experimental Poverty Measures: 1999**. October 2001
<http://www.census.gov/prod/2001pubs/p60-216.pdf>

³⁰ This approach, follows Betson, 1996

Responding to the call for future research made in the first report, this report addresses measurement issues and presents alternative ways of accounting for: the calculation of work related expenses including child care; the value of housing subsidies that is added to income as a non-cash transfer; the valuation of MOOP spending; and adjustments for geographic cost-of-living differences in the threshold.

Methodological characteristics of this report to be highlighted are the use of DES as a starting point for a posterior use of the new techniques, and as well as in the first report, the use of the March 2000 Annual Demographic Supplement of the CPS.

Key general findings:

- ✓ Experimental poverty rates are more comparable in magnitude to official rates.
- ✓ Updated estimates of work-related expenses, including child care, are lower than those used in previous experimental measures, resulting in lower experimental poverty rates overall.
- ✓ Improved methods for including the value of housing subsidies result in increased imputed income for those families who benefit from these programs
- ✓ Estimates of MOOP spending that are based on more recent data and alternative techniques have a considerable smaller effect than those previously reported.
- ✓ Alternative geographic adjustments yield slightly higher experimental poverty rates but may provide better estimates of state-level poverty than those presented in the NAS and earlier Census reports.

The report closes with the acknowledgment that the measures surveyed represent methodological improvements to the NAS Panel proposal, but that they do not affect most of the previous conclusions about the relative incidence of poverty for various subgroups: that there are more elderly, more married-couple families, more families in the West and Northeast, and in suburban areas, classified as poor than are currently identified with the official measures.

Finally, two lines of further research are stressed: the treatment of cohabitants in the unit of analysis and the treatment of the flow of services from owner-occupied housing.

III. Measurement of Poverty in Canada

- ✓ Cotton, Cathy. **Recent Developments in the Low Income Cutoffs**. July 2001
<http://www.statcan.ca/english/research/75F0002MIE/75F0002MIE2001003.pdf>

This paper outlines the result of an investigation into three aspects of the low income cutoffs resulting from the feedback received in the January 2000 public consultation: the behavior of a proposed ‘annually updated’ low income series, the addition of payroll taxes, and restructuring of the matrix of 35 cutoffs.

Methodology:

On the annually updated series, the release of the Survey of Household Spending with annual data on consumption spending allowed to synchronize the base year and the

income reference year for a set of cutoffs. The report describes the behavior of the series for 1997 and 1998.

Regarding the addition of payroll taxes, and in order to obtain a more accurate measure of disposable income, a new set of cutoffs was produced using an income concept defined as the After-payroll-tax income. This is obtained by subtracting from the after-tax income, the contributions paid to the Canadian Pension Plan or the Quebec Pension Plan, minus the contributions paid to the Employment Insurance. The thresholds were based on 1992 FAMEX data updated to 1997 and 1998 using CPI.

On restructuring the matrix of LICOs, the author produces city-specific cutoffs for Toronto, Montreal and Vancouver and for a residual group of six cities, using 1992 FAMEX data updated by the CPI to 1997 and 1998.

Key findings:

- ✓ The annually updated series showed that in a climate of decreased average spending on the three basics, thresholds and low income rates will be higher compared to a series of fixed base.
- ✓ The after-payroll-tax low income rate did not show the same results for all types of families. In groups that tend to have earnings, the income is reduce a bit more than the threshold, and a few more families fall below the cutoff, so counted as being in low income (i.e. non-elderly families). In groups that do not have much earning, the thresholds reduce a bit and the income is barely affected or not at all, so a few more families are counted above the new cutoff (i.e. elderly families).
- ✓ Restructuring the LICOs' matrix, generated higher cutoffs for Toronto and Vancouver and lower for Montreal and the group of six cities, and corresponding higher and lower low income rates.

III. Other issues related to improving the measurement of poverty:

- ✓ Garner, Thesia I. and Short, Kathleen. "**Personal Assessments of Minimum Income and Expenses: What Do They Tell Us about 'Minimum Living' Thresholds and Equivalence Scales?**" in John A. Bishop and Yoram Amiel, eds., *Inequality, Poverty and the Redistribution of Income, Research on Economic Inequality*, Vol. 10, New York: Elsevier Science, Forthcoming.
<http://www.census.gov/hhes/poverty/povmeas/approaches.html>

Economic well-being can be described using various measures. Two are examined in this study. These are based on personal or subjective assessments of *minimum income* (MIQ) to make ends meet and *minimum spending* (MSQ) for basic necessities. This work builds upon that of others, particularly the Leyden group, a team of Dutch researchers conducting research on similar measures in the early 1970s. Variations of the measures developed by that group have been used to assess economic well-being, estimate equivalence scales, income sufficiency, and poverty thresholds.

Using data from US Surveys the author found that thresholds based on the MIQ are higher than those based on the MSQ. Equivalence scales derived from the estimated subjective thresholds imply greater economies of scale than those implicit in the other measures previously noted, but are similar to behavioral scales derived from econometric

analyses of household expenditure data. The flatness of the scales suggest that personal assessment or subjective-based scales, like behavioral scales, account for the trade-offs families make to meet their minimum needs. Based on this research, and that of others, we conclude that MIQ and MSQ measures are useful complements to other measures of economic well-being. Societal norms on what constitutes a minimum standard or level of living can be assessed through the use of personal assessment questions like the MIQ and MSQ.

- ✓ Betson David. **"Is Everything Relative?" The Role of Equivalence Scales in Poverty Measurement.** March 1996.
<http://aspe.hhs.gov/poverty/papers/escale.pdf>
- ✓ Betson David. **Poor Old Folks: Have Our Methods of Poverty Measurement Blinded Us to Who is Poor?** November 1995.
<http://aspe.hhs.gov/poverty/papers/poldfolk.pdf>
- ✓ Short, Kathleen. **Where we live. Geographic differences in Poverty Thresholds.** January 2001.
<http://www.census.gov/hhes/poverty/povmeas/papers/sgepaper.pdf>
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<http://aspe.hhs.gov/poverty/papers/homeown.pdf>
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http://www.bc.edu/centers/crr/papers/wp_2002-01.pdf
- Bavier Richard. **The impact of welfare reform on families in data from the Survey of Income and Program Participation.** June 2002
<http://www.jcpr.org/wpfiles/bavier.pdf>

See also:

<http://www.census.gov/hhes/www/povmeas.html>
<http://www.census.gov/hhes/poverty/povmeas/approaches.html>
<http://www.census.gov/hhes/poverty/povmeas/papers.html>
<http://www.census.gov/hhes/poverty/povmeas/topicpg3.html>
<http://aspe.hhs.gov/poverty/betson-papers.htm>

APPENDIX B

POVERTY INDEXES PROPERTIES

Basic axioms:

- i) *Focus* axiom: other things equal, the poverty measure should be insensitive to the increase of the income of a non poor person. In this way the well-being of the worst off shouldn't be affected by an income increases that happen above the poverty line;
- ii) *Monotonicity* axiom: other things equal, a reduction in a poor person's income should increase the value of the poverty measure;
- iii) *Transfer* axiom: other things equal, a transfer of income from a poor person to a richer poor person should raise the value of the poverty index. This means that the index must be sensitive to the income distribution below the poverty line. A weak version of this index requires only that the beneficiary of the transfer continues to remain poor after the transfer;

Without further detail we can say that: the *Headcount* index satisfies only the focus axiom; the *Poverty Gap* index satisfies both: the focus and the monotonicity axioms; while the *Sen* index satisfies the three of them. The FGT class satisfies all this requirements, plus the additional *Sub-group consistency*, that requires overall poverty should increase when, ceteris paribus, poverty in any sub-group increases.

Child poverty in the developing world

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The first priority was to review direct and indirect information about children and to find the strengths and weaknesses of existing data about children's conditions and needs. While a great deal of national and international research on Articles in the Convention on the Rights of the Child has been completed, the relationship between child poverty and child rights had not been fully explored. Thanks are due to Jo Beall, Jonathan Bradshaw, Meghnad Desai and David Piachaud, John Micklewright, Giovanni Andrea Cornia and Jane Falkingham for the ideas being developed and especially the comparative studies on the transition countries of Eastern Europe published by the Innocenti Research Centre in Florence, Italy. The valuable assistance, in the early weeks, of Ceema Namazie in reviewing child data in Kyrgyz is gratefully acknowledged. We would also like to thank Enrique Delamonica and Bill O'Neil for their very helpful comments on the first draft. Jan Vandemoortele also provided us with considerable help, support and encouragement. The establishment of the Centre for the Study of Human Rights at the London School of Economics and Political Science

(LSE) has been a source of inspiration during the period of the research and, in particular, Christine Chinkin and the first Director of the Centre, Conor Gearty, have argued through ideas relevant to the research.

Several classes of postgraduate students at both the University of Bristol, Birmingham University and LSE have generated a stimulating debate on the measurement of child poverty in developing countries.

The DHS data were provided by MACRO International whose staff were extremely helpful and gave us a great deal of assistance.

The dependable advice and support of Jean Corston and Helen Gordon throughout this project is also warmly acknowledged.

Child poverty and child rights in developing countries

This short report presents the first ever scientific measurement of the extent and depth of child poverty in all the developing regions of the world. It represents a summary of a much larger research report on child poverty and child rights funded by the United Nations Children's Fund (UNICEF) (Gordon et al, 2001, 2003). Full details of this research will be published in a future book on this subject.

This measurement of child poverty is based on internationally agreed definitions arising from the international framework of child rights. In successive annual reports, UNICEF has argued that poverty is one of the greatest obstacles to the survival and development of children. The near-consensus reached by all national governments in framing the 1989 Convention on the Rights of the Child gave momentum to serious and effective work to reduce violations of a number of rights relevant to the reduction of child poverty in different countries.

Poverty denies children their fundamental human rights. Severe or extreme poverty can cause children permanent damage – both physically and mentally – stunt and distort their development and destroy opportunities of fulfilment, including the roles they are expected to play successively as they get older in family, community and society. Both research and administrative data show that investment in basic social services for children is a key element to ensure success in alleviating their poverty. It also shows that a minimal level of family resources to enable parents to meet the needs of their children are required – even when families are prepared to put their own needs or the needs of work and other social claims on them in second place. If there are insufficient

resources to satisfy children's needs – however hard parents can be shown to try – then this can cause other obligations and relationships to crumble. This is why UNICEF insists that “poverty reduction begins with children”.

The World Declaration and Plan of Action adopted by the World Summit for Children in 1990 set forth a vision of a ‘first call’ for children by establishing seven major and 20 supporting goals that were quantifiable and considered achievable by 2000.

UNICEF has reported on progress towards these goals¹. In 2000, it was found that some of the trends in the 1980s and 1990s had deepened rather than lifted public concern. Since 1987, the number of people in developing countries, other than in East Asia and the Pacific, with less than \$1 a day, had increased by 12 million a year. In many countries, the extreme poor had been “left further behind”. And “the evidence is compelling that the 1990s saw a widening in the gap between rich and poor countries as well as between rich and poor people within countries, both in terms of incomes and social outcomes” (UNICEF, 2000, pp 9, 17, 45).

In a statement prepared for the end-of-the-decade review, planned for September 2001 but postponed until May 2002, the Executive Director of UNICEF,

¹ In 2000, an exhaustive and exacting end-of-decade review of progress towards the Summit goals was undertaken, drawing on a range of sources not previously available, from data collected in the Multiple Indicator Cluster Surveys (MICS), the Demographic and Health Surveys (DHS) and national progress reports from nearly 150 countries (UNICEF, 2002a).

Carol Bellamy, was obliged to call attention to the “mixture of conspicuous achievement and dispiriting failure” for children. Most governments had not lived up to the promises made at the 1990 World Summit for Children. Despite some progress, stronger leadership and more sustained policies were required (UNICEF, 2002b).

At the UN General Assembly’s Special Session on Children in September 2002, the latest information was debated. The 10 years since the 1990 World Summit for Children were found to have yielded mixed results. Three million fewer children under the age of five now died each year, due in large part to immunisation programmes and the dedicated efforts of families and communities. In developing countries, 28 million fewer children under the age of five suffered the debilitating effects of malnutrition. More than 175 countries were polio-free and 104 had eliminated neonatal tetanus. Yet, despite these gains, more than 10 million children still died each year from mostly preventable diseases – 150 million were estimated to be malnourished, some 600 million children still lived in poverty and more than 100 million – the majority of them girls – were not in school. The number of children orphaned by AIDS had grown from 1.2 million to 10.4 million and under-five mortality from AIDS was expected to double by the year 2010 (UN, 2002 and see also UNICEF, 2002c).

UNICEF has strengthened its work on poverty. It has actively participated in international conferences and government exchanges and published documents and promoted policies – many aimed at reducing child poverty. Its report, *Poverty reduction begins with children* (UNICEF, 2000), was of prime concern at the special session of the UN General Assembly in Geneva in June 2000. The reports from the UNICEF Innocenti Research Centre cover a wide range of research into child rights and development in both rich and poor countries, especially that affecting child poverty, including, for example, *A league table of child poverty in rich nations* (UNICEF Innocenti Research Centre, 2000), and extensive work on poverty in the transition economies and on the problems of child labour in India, Sub-Saharan Africa and Latin America, and the ramifying problems of children caught up in armed conflict.

The authors of this report seek to contribute to the consolidation and extension of this work to include all the developing regions of the world.

Measurement of child poverty and standard of living

Introduction

This chapter will present a very brief summary of recent research on the international comparative measurement of child poverty.

The 21st century world is one in which a vast quantity of information on all aspects of human existence is easily available, often via the Internet. The 1990s witnessed a revolution in the collection of high quality statistical information about the world's children and their families. A range of harmonised survey instruments, such as the Living Standards and Measurement Surveys (LSMS), the Demographic and Health Surveys (DHS) and the Multiple Indicator Cluster Surveys (MICS) have been used successfully in a large number of countries (see Gordon et al, 2001, 2003, for discussion). However, despite these advances and increasing concern about the issue of child poverty, there are still few analyses of the standard of living and well-being of children in developing countries. In fact, there is a surprising lack of direct information on children per se. With the notable exception of basic health and education statistics, much of the statistical information on 'children' is derived from measures of the situation of the child's family or main carer. Children are routinely considered as a property of their household and are assumed to share equally in its fortunes (or misfortunes).

Income and child poverty

One of the most commonly used international indicators of 'poverty' for both adults and children is

the per capita Gross Domestic Product (GDP) – or Gross National Product (GNP) – of a country. Numerous studies use these kinds of economic activity indicators as a proxy for poverty (for example, Sachs et al, 2001). Although it can be expected that the distribution of child poverty would broadly conform with the global distribution of GDP per head, this is a very crude way in which to measure and map child poverty. These kinds of economic statistics, derived from national accounts data, are only proxy measures of the social situation and living conditions within a country, and it must be remembered that there are large disparities in both income and living conditions *within* most countries as well as *between* them. It was inherent inadequacies of these kinds of analysis that led to the growth of the social indicators movement in the 1960s (Bauer, 1966).

The revolution in volume, coverage and quality of household survey data that occurred in the 1990s has recently allowed the analysis of income data on a global scale based on the directly measured income of households, rather than on their inferred incomes from national accounts (Milanovic, 2002). Analyses are so far available for both 1988 and 1993 and data for later years are currently being assembled. It would be possible to use the global household level income data from social surveys collected by Milanovic and his co-workers to produce a low income 'poverty' analysis for households with children for the regions of the world. For example, a similar type of analysis to the World Bank's \$1 per day poverty line could be used, based on income rather than expenditure/consumption. There are, however, a number of reasons why this kind of

approach to measuring child poverty in developing countries is far from ideal (see Gordon et al, 2001, for discussion).

- Little is known about the income/expenditure/consumption needs of children in most developing countries and how these needs may vary by age, gender and location. Therefore, any income or expenditure/consumption poverty threshold for children would have to be set at an essentially arbitrary level given the current lack of knowledge about children's needs. In particular, the World Bank's (1990) consumption-based poverty definition in terms of *the expenditure necessary to buy a minimum standard of nutrition* is inappropriate for measuring child poverty, particularly for young children who have low food requirements but numerous additional basic needs that require expenditure. Many academic commentators have severely criticised the World Bank's \$1 per day poverty threshold for not being an adequate definition of adults' needs in developing countries (for example, Comparative Research Programme on Poverty, 2001). Therefore, setting an arbitrary child poverty income threshold is unjustifiable and would be likely to lead to incorrect policy conclusions.
- Household-based income and expenditure/consumption 'poverty' analyses usually assume an equal sharing of resources within a household. This assumption is unlikely to be correct for many 'poor' and 'rich' households with children. In 'poor' families across the world, parents often sacrifice their own needs in order to ensure that their children can have some of the things they need (that is, children are often allocated a disproportionate share of household resources). Conversely, in 'rich' households parents may spend less than expected on young children so as not to 'spoil' them.
- There are many technical problems involved in using either an income or expenditure/consumption approach to measuring child poverty in developing countries, for example, calculating equivalent spending power of national currencies using purchasing power parity, equivalisation by household type, controlling for infrequent, irregular or seasonal purchases, under-reporting bias and other measurement errors, data discontinuities, quantifying the benefits from

'home' production and the use of durables, and so on (for a discussion of these issues, see Atkinson, 1990; Goodman and Webb, 1995; Reddy and Pogge, 2002).

- The extent of child poverty is not just dependent on family income but also on the availability of infrastructure and services, such as health, education and water supply.
- Internationally agreed definitions of poverty are all concerned with outcomes (for example, the effects of the lack of command over resources over time).

International definitions of poverty

Poverty, like evolution or health, is both a scientific and a moral concept. Many of the problems of measuring poverty arise because the moral and scientific concepts are often confused. In scientific terms, a child or their household is 'poor' when they have both a low standard of living and a lack of resources over time (often measured in terms of low income). In many circumstances, a child or their household would not be considered to be 'poor' if they have a low income but a reasonable standard of living (although they are likely to be at risk of becoming 'poor').

A low standard of living is often measured by using deprivation indicators (high deprivation equals a low standard of living) or by consumption expenditure (low consumption expenditure equals a low standard of living). Of these two methods, deprivation indices are more accurate since consumption expenditure is often only measured over a brief period and is obviously not independent of income currently available. Deprivation indices are broader measures because they reflect different aspects of living standards, including personal, physical and mental conditions, local and environmental facilities, social activities and customs.

For scientific purposes, broad measures of both income and standard of living are desirable. When the definition of income is extended operationally to include the value of assets and receipt of goods and services in kind, the correlation between the two becomes greater (see Townsend, 1979, p 1176). Standards of living comprise varied elements, including both the material and social conditions in which children and their families live and their

participation in the social, cultural, economic and political life of their country.

A wide range of different methods have been used by governments and academic researchers to measure poverty and the merits and problems of each method have been classified and discussed by the Comparative Research Programme on Poverty (CROP) of the International Social Science Council (Øyen et al, 1996) and, more recently, by Boltvinik (1999) on behalf of the UN Development Programme.

Social science research has shown that all cultures have a concept and definition of poverty although these definitions often vary (Gordon and Spicker, 1998). A major problem with many previous attempts to measure poverty on a global scale is that there was no agreed definition of poverty. This situation changed at the World Summit for Social Development in Copenhagen (UN, 1995). Among the innovations agreed in the 1995 *Copenhagen declaration and programme of action* was the preparation of national anti-poverty plans based on measures in all countries of 'absolute' and 'overall' poverty. The aim was to link – if not reconcile – the difference between industrialised and developing world conceptions, allow more reliable comparisons to be made between countries and regions and to make easier the identification of acceptable priorities for action. In developing anti-poverty strategies, the international agreement at Copenhagen was a breakthrough and the governments of 117 countries agreed to these definitions of absolute and overall poverty.

Absolute poverty is defined as:

... a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services.

Overall poverty takes various forms, including:

... lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments and social

discrimination and exclusion. It is also characterised by lack of participation in decision-making and in civil, social and cultural life. It occurs in all countries: as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets.

Women bear a disproportionate burden of poverty and children growing up in poverty are often permanently disadvantaged. Older people, people with disabilities, indigenous people, refugees and internally displaced persons are also particularly vulnerable to poverty. Furthermore, poverty in its various forms represents a barrier to communication and access to services, as well as a major health risk, and people living in poverty are particularly vulnerable to the consequences of disasters and conflicts.

After the Copenhagen Summit, the UN established four task forces to prepare coordinated action on the major commitments from all the global summits, including children, women, population, habitat and social development. The conclusion of this work was a statement of commitment to action to eradicate poverty issued in June 1998 by the executive heads of all UN agencies (Langmore, 2000). Poverty eradication "is the key international commitment and a central objective of the United Nations system".

Poverty was described as:

Fundamentally, poverty is a denial of choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and cloth a family, not having a school or clinic to go to, not having the land on which to grow one's food or a job to earn one's living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence, and it often implies living on marginal or fragile environments, without access to clean water or sanitation. (UN Economic and Social Council, 1998)

Income is important but access to public goods – safe water supply, roads, healthcare, education – is of equal or greater importance, particularly in developing countries. These are the views of both the governments of the world and the institutions of the UN, and poverty measurement clearly needs to respond to these views.

There is a need to look beyond income and consumption expenditure poverty measures and at both the effects of low family income on children and the effects of inadequate service provision for children (Mehrotra et al, 2000; Vandemoortele, 2000). It is a lack of investment in good quality education, health and other public services in many parts of the world that is as significant a cause of child poverty as low family incomes. Nobel Laureate, Amartya Sen, has argued that, in developing countries, poverty is best measured directly using indicators of standard of living rather than indirectly using income or consumption measures:

In an obvious sense the direct method is superior to the income method ... it could be argued that only in the absence of direct information regarding the satisfaction of the specified needs can there be a case for bringing in the intermediary of income, so that the income method is at most a second best. (Sen, 1981)

Furthermore, Atkinson (1990) has argued that:

The definition of the poverty indicator, of the poverty level, and of the unit of analysis are not purely technical matters. They involve judgements about the objectives of policy. Any cross-country comparison of poverty has therefore to consider the purposes of this analysis and the relationship between these objectives and those pursued within the countries studied.

Measuring child poverty in developing countries

The purpose of the research detailed in this report was to produce the first accurate and reliable measure of the extent and severity of child poverty in the developing world using internationally agreed definitions of poverty. In particular, the primary

objective was to produce an operational measure of absolute poverty for children as agreed at the World Summit for Social Development.

The governments of 117 countries agreed that absolute poverty is “a condition characterised by severe deprivation of basic human needs” (UN, 1995). Brown and Madge (1982), in their major review of over 100 years of literature on deprivation, argued that:

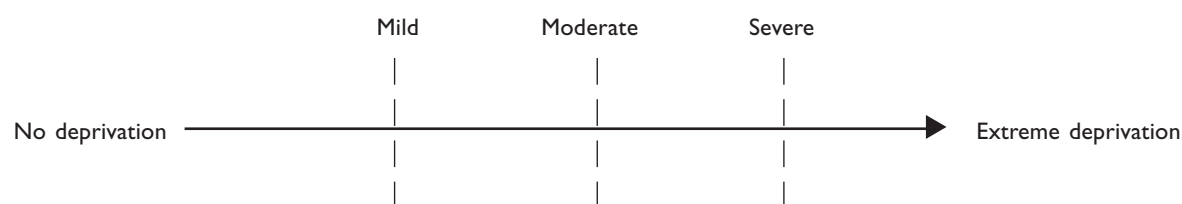
Deprivations are loosely regarded as unsatisfactory and undesirable circumstances, whether material, emotional, physical or behavioural, as recognised by a fair degree of societal consensus. Deprivations involve a lack of something generally held to be desirable – an adequate income, good health, etc – a lack which is associated to a greater or lesser extent with some degree of suffering.

Similarly, Townsend (1987) has argued that:

Deprivation may be defined as a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs. The idea has come to be applied to conditions (that is, physical, emotional or social states or circumstances) rather than resources and to specific and not only general circumstances, and therefore can be distinguished from the concept of poverty.

The two concepts of poverty and deprivation are tightly linked but there is general agreement that the concept of deprivation covers the various conditions, independent of income, experienced by people who are poor, while the concept of poverty refers to the lack of income and other resources which make those conditions inescapable or at least highly likely.

Deprivation can be conceptualised as a continuum that ranges from no deprivation, through mild, moderate and severe deprivation to extreme deprivation at the end of the scale (Gordon, 2002). Figure 2.1 illustrates this concept.

Figure 2.1: Continuum of deprivation

In order to measure absolute poverty among children, it is necessary to define the threshold measures of severe deprivation of basic human need for:

- food
- safe drinking water
- sanitation facilities
- health
- shelter
- education
- information
- access to services.

A taxonomy of severe deprivation is required, since a reliable taxonomy is a prerequisite for any scientific measurement. In this research, the threshold measures for severe deprivation, as far as is practicable, conform to internationally agreed standards and conventions. Theoretically, we have defined ‘severe deprivation of basic human need’ as those circumstances that are highly likely to have serious adverse consequences for the health, well-being and development of children. Severe deprivations are causally related to ‘poor’ developmental outcomes both long and short term. Table 2.1 shows the idealised operational definitions of deprivation for the eight criteria in the World Summit definition of absolute poverty (from Gordon et al, 2001).

Operational measures of absolute poverty for children

The most appropriate available data which could be used to operationalise the measurement of child poverty in developing countries were the DHS and, for China, the China Health and Nutrition Surveys. High quality household and individual survey data were available from 46 countries, collected since the

1990s (and, for most countries, much more recently – see Gordon et al, 2001). Detailed face-to-face interview data were available for almost 500,000 households, of which over 380,000 were households with children (Table 2.2). The total number of children in this aggregated sample was nearly 1.2 million (approximately one in every 1,500 children in the developing world) and the information about the children’s lives was reported by their mothers or main carers. This is probably the largest and most accurate survey sample of children ever assembled. It is a particularly good sample of African children (with interview data on one child in every 650) although the number of children in the East Asian and Pacific sample (123,400) represents a lower sampling fraction (one child in every 4,500).

It was not possible to use the survey data to operationalise the idealised definitions of severe deprivation of basic human need that we had established prior to the data analysis phase of this research (see Table 2.1). Some compromise always has to be made when dealing with survey data. However, the severe deprivation measures that were available are conceptually very close to our idealised measures. The measures used were²:

- 1) *Severe food deprivation*: children whose heights and weights for their age were more than –3 standard deviations below the median of the international reference population, that is, severe anthropometric failure.
- 2) *Severe water deprivation*: children who only had access to surface water (for example, rivers) for drinking or who lived in households where the nearest source of water was more than 15 minutes away (indicators of severe deprivation of water quality or quantity).

² Full technical details on how all these measures were constructed can be found in Gordon et al (2003).

Table 2.1: Operational definitions of deprivation for children

Deprivation	Mild	Moderate	Severe	Extreme
Food	Bland diet of poor nutritional value	Going hungry on occasion	Malnutrition	Starvation
Safe drinking water	Not having enough water on occasion due to lack of sufficient money	No access to water in dwelling but communal piped water available within 200m of dwelling or less than 15 minutes walk away	Long walk to water source (more than 200m or longer than 15 minutes). Unsafe drinking water (eg open water)	No access to water
Sanitation facilities	Having to share facilities with another household	Sanitation facilities outside dwelling	No sanitation facilities in or near dwelling	No access to sanitation facilities
Health	Occasional lack of access to medical care due to insufficient money	Inadequate medical care	No immunisation against diseases. Only limited non-professional medical care available when sick	No medical care
Shelter	Dwelling in poor repair. More than 1 person per room	Few facilities in dwelling, lack of heating, structural problems. More than 3 people per room	No facilities in house, non-permanent structure, no privacy, no flooring, just one or two rooms. More than 5 people per room	Roofless – no shelter
Education	Inadequate teaching due to lack of resources	Unable to attend secondary but can attend primary education	Child is 7 or older and has received no primary or secondary education	Prevented from learning due to persecution and prejudice
Information	Cannot afford newspapers or books	No television but can afford a radio	No access to radio, television or books or newspapers	Prevented from gaining access to information by government, etc
Basic social services	Health and education facilities available but occasionally of low standard	Inadequate health and education facilities near by (eg less than 1 hour travel)	Limited health and education facilities a day's travel away	No access to health or education facilities

3) *Severe deprivation of sanitation facilities*: children who had no access to a toilet of any kind in the vicinity of their dwelling, that is, no private or communal toilets or latrines.

4) *Severe health deprivation*: children who had not been immunised against any diseases or young children who had a recent illness involving diarrhoea and had not received any medical advice or treatment.

5) *Severe shelter deprivation*: children in dwellings with more than five people per room (severe overcrowding) or with no flooring material (for example, a mud floor).

6) *Severe educational deprivation*: children aged between 7 and 18 who had never been to school and were not currently attending school (no professional education of any kind).

7) *Severe information deprivation*: children aged between 3 and 18 with no access to radio, television, telephone or newspapers at home.

8) *Severe deprivation of access to basic services*: children living 20km or more from any type of school or 50km or more from any medical facility with doctors. Unfortunately, this kind of information was only available for a few countries, so it has not been possible to construct accurate regional estimates of severe deprivation of access to basic services.

Children who suffer from these levels of severe deprivation are very likely to be living in absolute poverty because, in the overwhelming majority of cases, the cause of severe deprivation of basic human need is invariably a result of lack of resources/income. However, there may also be some children in this situation due to discrimination (for example, girls suffering severe education deprivation) or due to disease (severe malnutrition can be caused by some diseases). For this reason, we have assumed that a

Table 2.2: Summary sample size details, by region

Region	Sample size (all households)	Number of households with children	Number of children in sample	Number of children under 18 (UN figures, 2000)
Latin America and Caribbean	95,963	71,863	189,709	193,482,000
South Asia	116,443	95,960	276,609	603,761,000
Middle East and North Africa	34,980	28,432	106,280	154,037,000
Sub-Saharan Africa	178,056	142,494	487,885	317,860,000
East Asia and Pacific	62,773	49,858	123,400	559,615,000
World total	488,215	388,607	1,183,883	1,828,755,000

child is living in absolute poverty *only* if he or she suffers from two or more severe deprivations of basic human need as defined above.

The main practical criteria used to select these measures of severe deprivations were:

- data availability for a large number of children;
- the definitions must be consistent with international norms and agreements.

The purpose of this study was to measure children's living conditions that were so severely deprived that they were indicative of absolute poverty. Thus, the measures used represent more severe deprivations than the indicators frequently published by international organisations. For example, 'no schooling' instead of 'non-completion of primary school', 'no sanitation facilities' instead of 'unimproved sanitation facilities', 'no immunisations of any kind' instead of 'incomplete immunisation against common diseases', 'malnutrition measured as anthropometric failure below -3 standard deviations from the reference population median' instead of 'below -2 standard deviations from the reference median', and so on. We have, in the tradition of Rowntree (1901), tried to err on the side of caution in defining these indicators of absolute poverty in such severe terms that few would question that these living conditions were unacceptable.

Absolute poverty and severe deprivation among children in the developing world

Introduction

This chapter describes the distribution of severe deprivation of basic human need among children in the developing world. It begins by summarising the main results of the study and is followed by three sub-sections which each consider the data in more detail. The first of these sub-sections compares the extent of severe deprivation in the regions of the developing world with regards to each of the seven indicators, that is, food, water, sanitation, health, shelter, education and access to information. Differences within regions are also examined in terms of gender and locality. The second sub-section examines the distribution of severe deprivation, defined in terms of children experiencing one or more severe deprivations. The third and final sub-section compares absolute poverty rates between and within regions – where absolute poverty is defined as the condition of those children who suffer from multiple severe deprivations – two or more different types of severe deprivation of basic human need (see Chapter 2 for discussion).

Summary of main results on absolute poverty

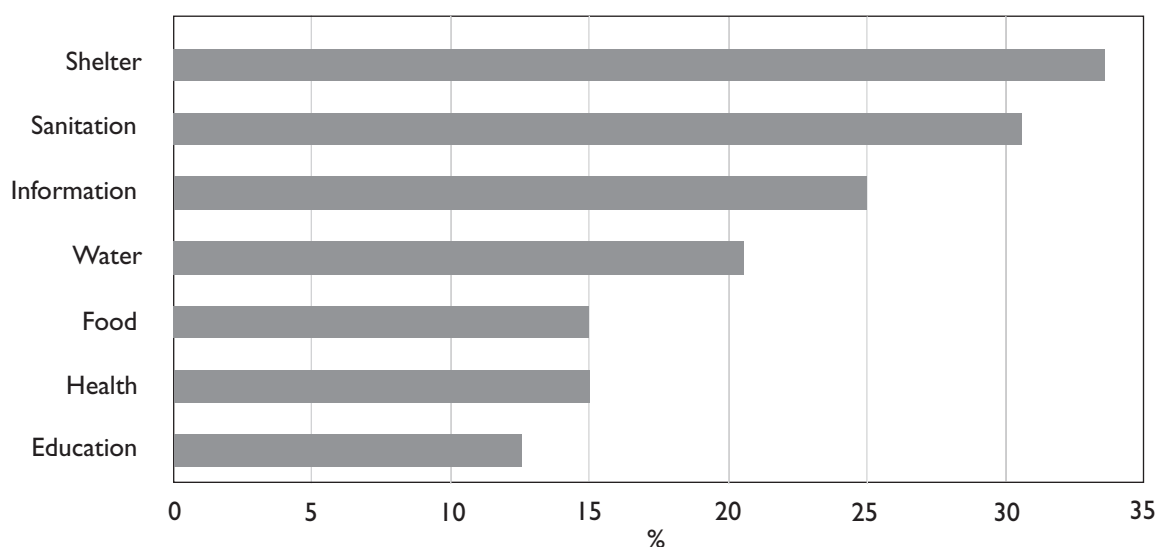
- Over a third of all children in developing countries (37% or 674 million) are living in absolute poverty. This is a shocking result given that absolute poverty has been defined in this study as suffering from two or more forms of severe deprivations of basic human need.
- Rates of absolute poverty are highest in Sub-Saharan Africa and South Asia, 65% (207 million

children) and 59% (330 million children), respectively.

- Rates are lowest in Latin America and the Caribbean and East Asia and the Pacific regions at 17% and 7%, respectively.
- Rural children face significantly higher levels of poverty than urban children, with rates for absolute poverty rising to 70% or above in both rural Sub-Saharan Africa and rural South Asia.

Summary of main results of severe deprivation of basic human need

- Over half of the world's children in developing countries (56%) – just over one billion children – are severely deprived, defined as children suffering from one or more forms of severe deprivation of basic human need.
- Two regions, South Asia and Sub-Saharan Africa, have severe deprivation rates of over 80%.
- Rural children experience much higher levels of severe deprivation than urban children. For example, more than 90% of rural children in South Asia and Sub-Saharan Africa are severely deprived of basic human needs, closely followed by rural children in the Middle East and North Africa (82%).
- Severe shelter and severe sanitation deprivation are the problems affecting the highest proportion of children in the developing world (Figure 3.1).

Figure 3.1: Percentage of children severely deprived of basic human needs

Shelter deprivation: more than a half a billion of the developing world's children (34%) have to live in dwellings with more than five people per room or which have mud flooring.

Sanitation deprivation: over half a billion children (31%) in the developing world have no toilet facilities whatsoever.

Information deprivation: almost half a billion children (25%) in the developing world lack access to radio, television, telephone or newspapers at home.

Water deprivation: nearly 376 million children (20%) in the developing world are using unsafe (open) water sources or have more than a 15-minute walk to water.

Food deprivation: over 15% of children under five years of age in the developing world are severely food deprived, over half of whom (91 million children) are in South Asia.

Health deprivation: 265 million children in the developing world (15%) have not been immunised against any diseases or have had a recent illness causing diarrhoea and have not received any medical advice or treatment.

Education deprivation: throughout the developing world, 134 million children aged between 7 and 18 (13%) are severely educationally deprived – they have never been to school.

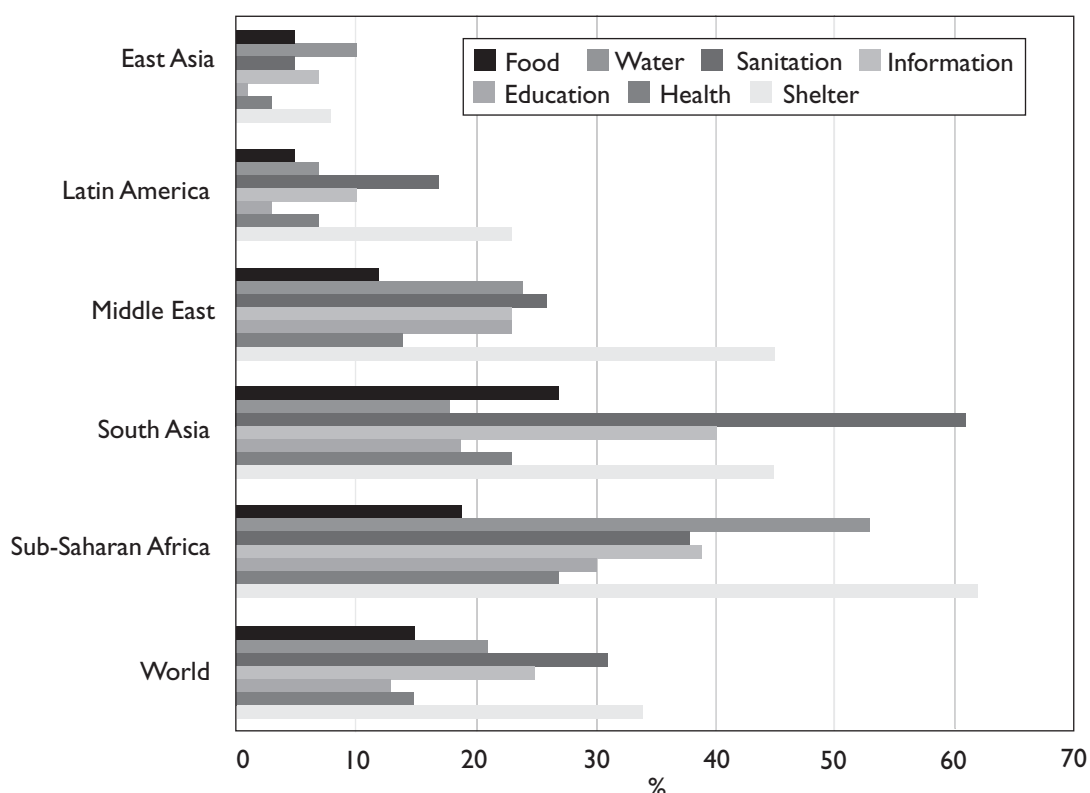
Results by region

Sub-Saharan Africa has the highest rates of severe deprivation with respect to four of the seven indicators (Figure 3.2). More than half of this region's children are severely shelter deprived (198 million) as well as water deprived (167 million). The region also suffers from the highest rates of deprivation with respect to education (30%) and health (27%).

South Asia has the highest percentages of children experiencing sanitation, information and food deprivation, 61%, 40% and 27%, respectively. Over half of the world's severely food deprived children live in South Asia (53 million).

Children in East Asia are the least likely to be severely deprived with respect to five of the seven indicators. For example, this region has the lowest rates of severe sanitation deprivation, because China – which has a rate of less than 2% – contributes to the low regional average (5%).

The study also reveals that there may be significant differences in rates of severe deprivation among children *within* regions. For example, in Sub-Saharan Africa, only 19% of Mali children live in severely water deprived conditions, compared to 90% of Rwandan children (see Gordon et al, 2003, for other examples).

Figure 3.2: Percentage of children severely deprived, by region

Results by rural–urban locality

Rural children are much more likely to be deprived than urban children with respect to all seven areas of deprivation of basic human need (Figure 3.3).

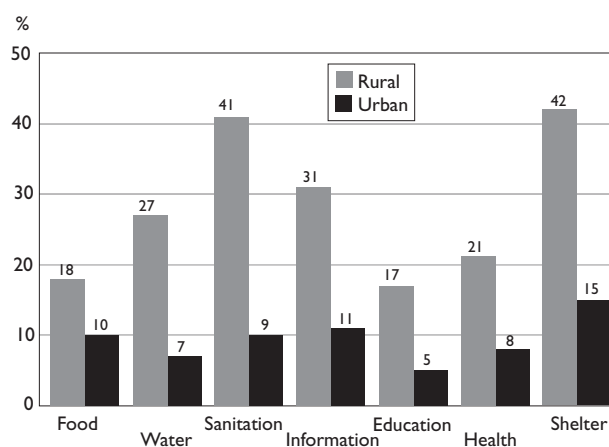
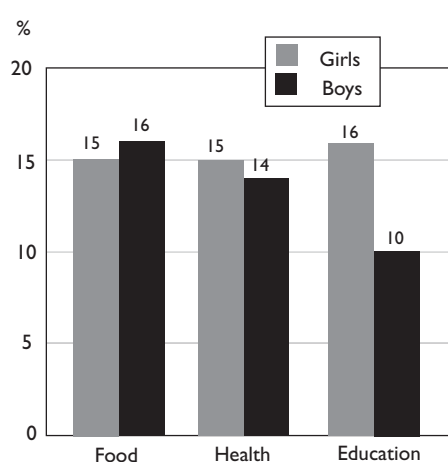
The greatest difference between urban and rural children is in severe sanitation deprivation (41% in rural areas compared to 9% in urban areas), but rural children are also almost three times more likely than urban children to live in very overcrowded conditions or in accommodation which has only mud flooring. The pattern of rural children's disproportionate experience of deprivation exists in all five regions.

Results by gender

Gender differences could only be meaningfully assessed where there was direct information on children (for example, in relation to food, health and education). At the global level, the study shows significant gender discrepancies in education but not in food or health deprivation (Figure 3.4). Girls are

at least 60% more likely than boys to be severely educationally deprived. They suffer particularly high rates of disadvantage in the Middle East and North Africa, where they are three times more likely than boys to be without primary or secondary school education.

However, girls and boys are roughly equally disadvantaged with respect to severe food deprivation (15% and 16%, respectively) and health deprivation (15% and 14%, respectively). Boys are more likely to be severely food deprived in all regions, except South Asia where severe food deprivation is more prevalent in girls. With respect to severe health deprivation, there is a slight female disadvantage in South Asia and the Middle East and the North Africa regions. The Sub-Saharan African region has a mixed pattern of gender inequalities in health. While, at the overall level, a slightly higher proportion of boys are severely health deprived compared to girls, more than a dozen countries have a slight female disadvantage.

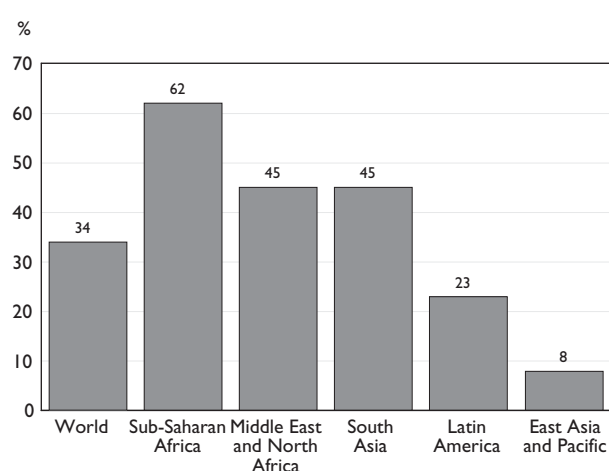
Figure 3.3: Percentage of rural and urban children severely deprived**Figure 3.4: Percentage of girls and boys severely deprived**

The remainder of Chapter 3 considers these findings in more detail. The first sub-section examines the extent of severe deprivation with regards to the seven basic human needs.

Extent of severe deprivation

Shelter deprivation

More than one in three (over 614 million) of all of the developing world's children experience severe shelter deprivation, defined as living in accommodation with more than five people per room or which has mud flooring (Figure 3.5 and Table 3.1).

Figure 3.5: Percentage of children suffering severe shelter deprivation**Table 3.1: Children suffering severe shelter deprivation**

Region	%	Number (000s)
Latin America and Caribbean	23	43,727
South Asia	45	253,506
Middle East and North Africa	45	69,471
Sub-Saharan Africa	62	198,027
East Asia and Pacific	8	49,508
Developing world	34	614,238

The risks of experiencing shelter deprivation vary enormously between regions. Sub-Saharan Africa has a rate that is almost double the world's average, at 62%, whereas South Asia and the Middle East and North Africa have risks of 45% each. By contrast, only 8% of children living in East Asia and the Pacific are severely shelter deprived.

Rural children are significantly more likely than their urban counterparts to be living in circumstances of severe shelter deprivation (42% compared to 15%) (Figure 3.6 and Table 3.2). Whereas more than 531 million of the developing world's rural children are severely shelter deprived, *only* 83 million urban children are affected by the same conditions.

However, a note of caution is required in the interpretation of these findings as the indicator of severe shelter deprivation used in this study may underestimate the dwelling-related problems

experienced by children living in urban areas, for example, homelessness.

Notwithstanding this caveat, there are important discrepancies between regions with regards to rates among rural children. Rates of severe shelter deprivation are highest for rural children in Sub-Saharan Africa (73% or 176 million children) and lowest for urban children in East Asia and the Pacific (5% or 8.5 million). Sub-Saharan Africa, as well as having the highest rates of rural children living in shelter deprivation, also has the highest proportions of urban children living in these appalling conditions (28% or 21 million children).

However, inequalities among children within regions are greatest in the Middle East and North Africa, where rural children are more than four times as likely as urban children in the same region to be severely shelter deprived (62% compared to 15%).

Figure 3.6: Percentage of rural and urban children suffering severe shelter deprivation

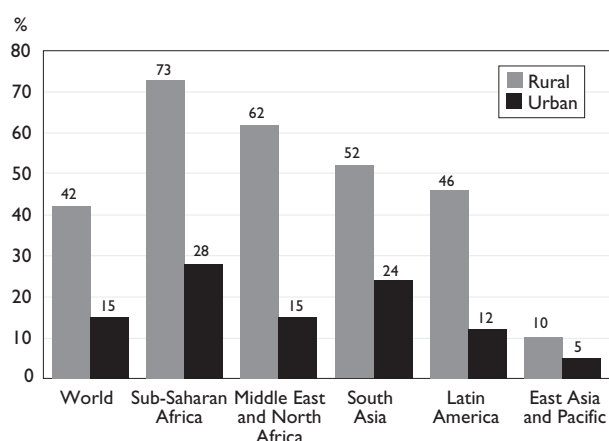


Table 3.2: Rural and urban children suffering severe shelter deprivation

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	46	28,738	12	14,987
South Asia	52	223,135	24	30,142
Middle East and North Africa	62	61,288	15	8,041
Sub-Saharan Africa	73	176,336	28	21,487
East Asia and Pacific	10	41,286	5	8,511
Developing world	42	530,783	15	83,169

Sanitation deprivation

For the purposes of this report, severe sanitation deprivation is defined as a child having **no** access to **any** sanitation facilities of any description. Thus, children with sanitation facilities which are considered not improved (for example, public or shared latrines, open pit latrines and bucket latrines) by the Joint Monitoring Programme are *not* counted as *severely* deprived in this report, although it is acknowledged that the use of a bucket or open pit latrine is a far from appropriate or adequate method of waste disposal³.

³ Data concerning sanitation collected by UNICEF and the World Health Organisation (WHO) under the Joint Monitoring Programme refer to 'improved' sanitation facilities (connections to public sewers or septic systems, simple and ventilated improved pit latrines, and pour/flush latrines). 'Not improved' facilities include public or shared latrines, open pit latrines and bucket latrines.

We found that 31% of children (nearly 567 million children) in developing countries are severely sanitation deprived, lacking **any** form of sanitation facility, improved or otherwise (Figure 3.7 and Table 3.3). The lowest rate is in the East Asia and Pacific region, at 5% (30 million children) and the highest in South Asia, at 61% (344 million children). Sub-Saharan Africa also has a relatively high rate at 38% (120 million children).

Differences between urban and rural areas are considerable, confirming the findings of the 2000 *Global water supply and sanitation assessment* (GWSSA) results (WHO, UNICEF, WSSCC, 2000). At the overall level, the urban rate of severe sanitation deprivation is 9% (51 million children) (Figure 3.8 and Table 3.4). The rural rate is nearly five times higher, at 41% (516 million children). Over half a billion children in rural areas lack access to any form of sanitation facility.

Figure 3.7: Percentage of children suffering severe sanitation deprivation

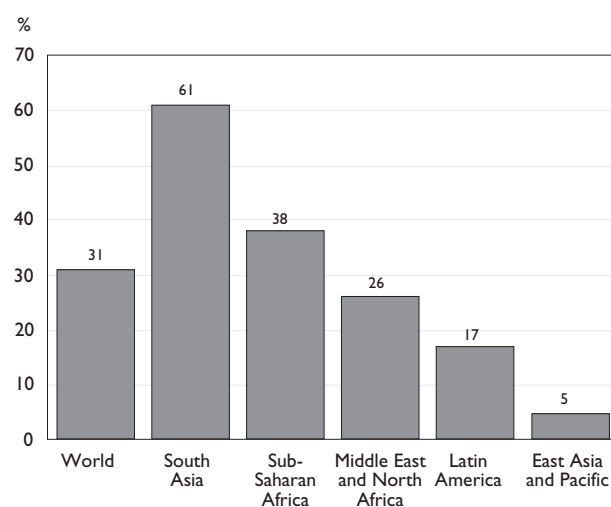


Table 3.3: Children suffering severe sanitation deprivation

Region	%	Number (000s)
Latin America and Caribbean	17	33,472
South Asia	61	343,604
Middle East and North Africa	26	39,742
Sub-Saharan Africa	38	119,833
East Asia and Pacific	5	30,188
Developing world	31	566,839

Figure 3.8: Percentage of rural and urban children suffering severe sanitation deprivation

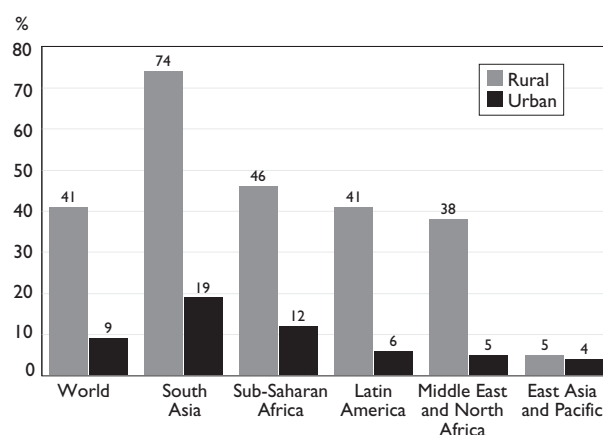


Table 3.4: Rural and urban children suffering severe sanitation deprivation

Region	Rural children % (000s)	Urban children % (000s)
Latin America and Caribbean	41 25,580	6 7,950
South Asia	74 319,135	19 24,292
Middle East and North Africa	38 37,250	5 2,462
Sub-Saharan Africa	46 110,902	12 8,966
East Asia and Pacific	5 23,223	4 6,948
Developing world	41 516,089	9 50,617

With regards to sanitation deprivation in urban areas, the East Asia and Pacific and Middle East and North Africa regions both have relatively low rates, at 4% (less than 7 million children) and 5% (just over 2 million children), respectively. The highest urban rate is in South Asia, at 19% (24 million children). In rural areas, the lowest rate is in the East Asia and Pacific region, at 5% (23 million children), considerably lower than all other regions – although this can be explained by the high availability of public (communal) sanitation facilities in China. Each of the other regions has rural sanitation deprivation rates above 35%, with South Asia having the highest rate of 74% (319 million children). The Sub-Saharan Africa and Latin America and Caribbean regions both have rural rates over 40%.

Information deprivation

Globally, it is estimated that 25% of all children aged three years and above are severely information deprived, representing almost 448 million children (Figure 3.9 and Table 3.5)⁴. This means that one in four children in developing countries lack access to television, radio, telephone or newspapers.

Nevertheless, these global figures disguise the real magnitude of information deprivation in some regions. Analysis by region reveals that 40% of South Asian and 39% of Sub-Saharan African children suffer from severe information deprivation (226 and 124 million children, respectively). On the other hand, lower than average rates were found in the regions of Latin America and the Caribbean (10%) and East Asia and the Pacific (7%).

Figure 3.9: Percentage of children (3 years+) suffering severe information deprivation

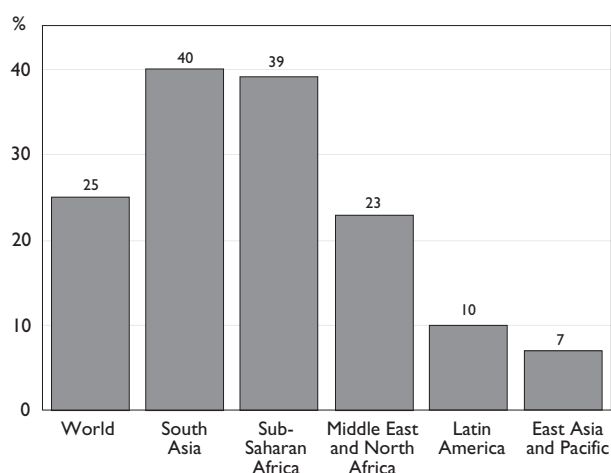


Table 3.5: Children (3 years+) suffering severe information deprivation

Region	%	Number (000s)
Latin America and Caribbean	10	18,381
South Asia	40	225,525
Middle East and North Africa	23	34,966
Sub-Saharan Africa	39	124,283
East Asia and Pacific	7	44,678
Developing world	25	447,834

⁴ The authors know of no previous attempts to measure information deprivation among children.

Severe information deprivation among children is far more extensive in rural areas than in urban areas (31% or 388 million children compared to 11% or 60 million children) (Figure 3.10 and Table 3.6). The highest rates among rural children are in South Asia at 47% (202 million children) and Sub-Saharan Africa at 45% (109 million children), while the lowest rates affect children in East Asia and the Pacific at 9% (37 million children). Among urban children, the regions with highest rates are again Sub-Saharan Africa (20%) and South Asia (19%). On the other hand, the greatest inequalities in access to information are among children living in Latin America and the Caribbean, where there are almost four rural children who are deprived for every one urban child (19% compared to *only* 5%).

Figure 3.10: Percentage of rural and urban children (3 years+) suffering severe information deprivation

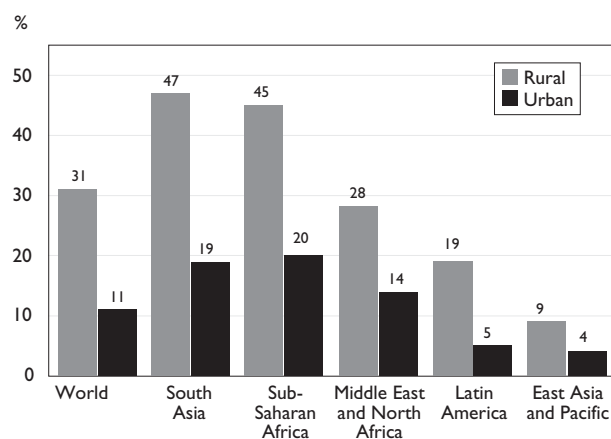


Table 3.6: Rural and urban children (3 years+) suffering severe information deprivation

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	19	11,748	5	6,646
South Asia	47	201,946	19	23,656
Middle East and North Africa	28	27,515	14	7,440
Sub-Saharan Africa	45	108,977	20	15,227
East Asia and Pacific	9	37,415	4	7,122
Developing world	31	387,601	11	60,090

Water deprivation

This study has estimated that 21% of children (nearly 376 million children) are severely water deprived (Figure 3.11 and Table 3.7). This means over a third of a billion children have more than a 15-minute walk to their source of water (thus limiting the quantity they use), or are using unsafe sources of water (that is, surface water). Of the five regions, the lowest rate is in the Latin America and Caribbean region, where 7% (14 million children) are severely water deprived. Sub-Saharan Africa has by far the highest rate, at 53% (167 million children). The East Asia and Pacific region has a relatively low rate of severe water deprivation, at 10% (59 million children).

There are considerable differences in children's severe water deprivation between rural and urban areas in each of the five regions (Figure 3.12 and Table 3.8). At the overall level, 7% of urban areas (nearly 41

million children) are severely water deprived. The rate in rural areas is over three times higher, at 27% (335 million children).

In urban areas, the lowest rate of severe water deprivation among children is in the Latin America and Caribbean region, at 1% (1.4 million children) and the highest urban rate is in Sub-Saharan Africa, at 19% (15 million children). The other regions all have urban rates of water deprivation below 10%.

Rates of severe water deprivation in rural areas are considerably higher. The East Asia and Pacific region has the lowest rural rate by far, at 11% (nearly 48 million children). All other regions have rural rates over 20%, with the highest in Sub-Saharan Africa at 63% (152 million children). The Middle East and North Africa region has the second highest rural rate of 34% (34 million children) although the geographic features of the region (that is, desert and

Figure 3.11: Percentage of children suffering severe water deprivation

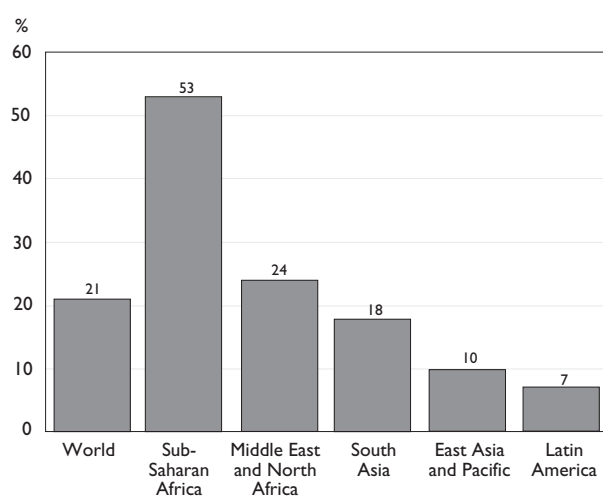


Table 3.7: Children suffering severe water deprivation

Region	%	Number (000s)
Latin America and Caribbean	7	14,318
South Asia	18	99,611
Middle East and North Africa	24	36,199
Sub-Saharan Africa	53	166,877
East Asia and Pacific	10	58,565
Developing world	21	375,569

Figure 3.12: Percentage of rural and urban children suffering severe water deprivation

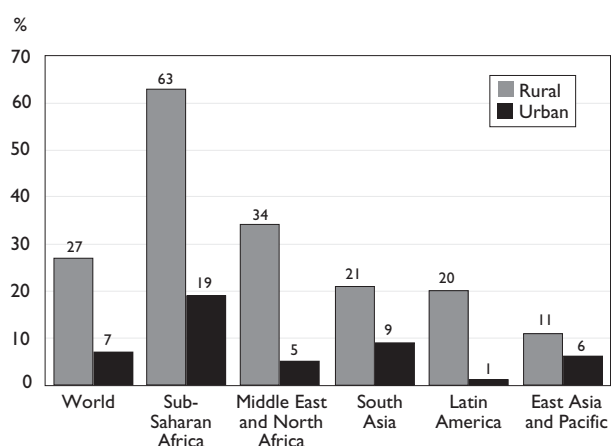


Table 3.8: Rural and urban children suffering severe water deprivation

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	20	12,885	1	1,434
South Asia	21	88,649	9	11,192
Middle East and North Africa	34	33,674	5	2,626
Sub-Saharan Africa	63	152,039	19	14,685
East Asia and Pacific	11	47,737	6	10,943
Developing world	27	334,983	7	40,880

semi-desert regions) limit the availability of water. The South Asia and Latin America and Caribbean regions have similar rural rates of 21% (89 million children) and 20% (13 million children), respectively.

Food deprivation

Severe food deprivation is measured using data on severe anthropometric failure (that is, a failure to grow at normal rates to 'normal' weights and heights) in children under the age of five. Since anthropometric data are rarely collected on or available for children over five years of age, the data presented in this report only refer to children under five in developing countries.

At an overall level, it is estimated that 15% of children under five years old (representing 91 million children) in developing countries are severely food deprived (Figure 3.13 and Table 3.9). The lowest rates are in the East Asia and Pacific and Latin American and Caribbean regions, each at 5%. South

Figure 3.13: Percentage of children (<5 years) suffering severe food deprivation

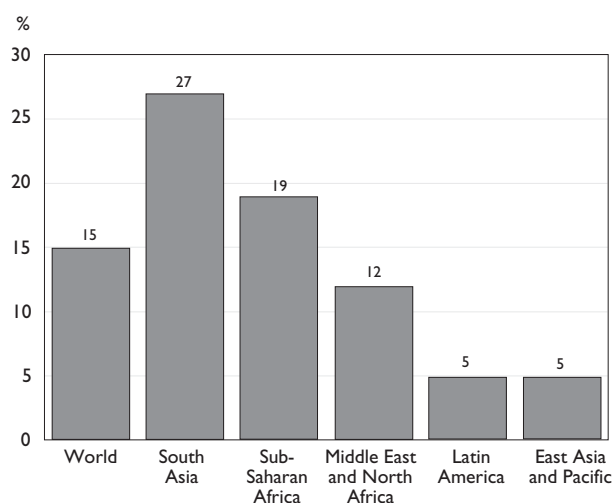


Table 3.9: Children (<5 years) suffering severe food deprivation

Region	%	Number (000s)
Latin America and Caribbean	5	2,885
South Asia	27	53,714
Middle East and North Africa	12	6,483
Sub-Saharan Africa	19	20,286
East Asia and Pacific	5	7,960
Developing world	15	91,328

Asia has the highest overall rate at 27% (54 million children).

Differences in severe food deprivation are very pronounced between urban and rural areas. At the global level, 10% of urban children under the age of five (nearly 17 million children) and 18% of rural children under five (74 million children) are severely food deprived (Figure 3.14 and Table 3.10).

In urban areas, the lowest rate of food deprivation is in the Latin America and Caribbean region, at 3% (965,000 children) and highest in South Asia, at 19% (8 million children). In rural areas, the lowest rate is in the East Asia and Pacific region, at 4% (under 5 million children) and highest in South Asia at 29% (nearly 46 million children).

Figure 3.14: Percentage of rural and urban children (<5 years) suffering severe food deprivation

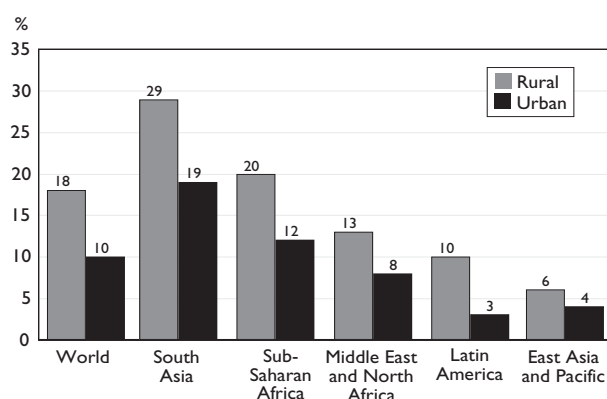


Table 3.10: Rural and urban children (<5 years) suffering severe food deprivation

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	10	1,926	3	965
South Asia	29	45,698	19	8,067
Middle East and North Africa	13	4,955	8	1,571
Sub-Saharan Africa	20	17,102	12	2,998
East Asia and Pacific	4	4,640	6	3,352
Developing world	18	74,321	10	16,953

Gender differences in severe food deprivation appear to be relatively unimportant among children under five years of age (Figure 3.15 and Table 3.11). At the overall level, it is estimated that 16% of boys under five (48 million boys) and 15% of girls under five (44 million girls) are severely food deprived.

The Latin America and Caribbean and East Asia and Pacific regions have the lowest rates of food deprivation for boys, each at 6%. East Asia has the lowest rate for girls at 3% (just over 2 million girls). South Asia has the highest rates of food deprivation for both boys and girls, at 26% (26.5 million boys) and 28% (27 million girls). While, at the overall level, gender differences in severe food deprivation are not clear, it is apparent that slight differences do occur between regions, as Table 3.11 shows.

Figure 3.15: Percentage of girls and boys (<5 years) suffering severe food deprivation

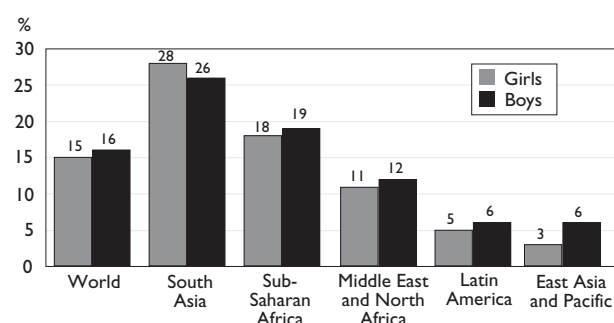


Table 3.11: Girls and boys (<5 years) suffering severe food deprivation

Region	Girls		Boys	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	5	1,332	6	1,557
South Asia	28	27,257	26	26,504
Middle East and North Africa	11	3,025	12	3,494
Sub-Saharan Africa	18	9,790	19	10,501
East Asia and Pacific	3	2,323	6	5,947
Developing world	15	43,727	16	48,003

Health deprivation

A range of factors determines the health of children and no single indicator can sufficiently reflect the burden of disease or complete extent of morbidity. For the purposes of this report, a child was considered severely health deprived if they had not received **any** of the eight immunisations recommended by the WHO's expanded programme of immunisation (EPI) or if they had had untreated diarrhoea in the two weeks prior to the DHS survey interview.

It is estimated that, at the overall level, 15% of children in developing countries (265 million children) are severely health deprived (Figure 3.16 and Table 3.12). The lowest rate is in East Asia and the Pacific at 3% (18 million children) and the highest rates are in South Asia and Sub-Saharan Africa, with 23% (128 million children) and 27% (84 million children), respectively.

Figure 3.16: Percentage of children suffering severe health deprivation

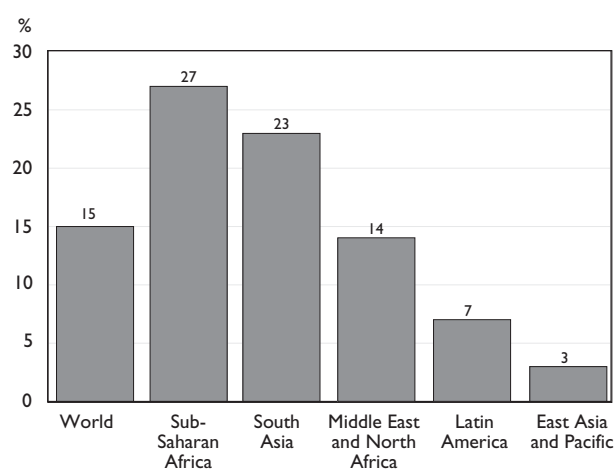


Table 3.12: Children suffering severe health deprivation

Region	%	Number (000s)
Latin America and Caribbean	7	12,770
South Asia	23	128,711
Middle East and North Africa	14	20,949
Sub-Saharan Africa	27	84,233
East Asia and Pacific	3	18,113
Developing world	15	264,776

As with the other measures of severe deprivation, there are considerable differences between urban and rural areas (Figure 3.17 and Table 3.13). Eight per cent of urban children (47 million children) and 21% of rural children (263 million children) are severely health deprived.

The lowest urban rate of child health deprivation is found in the Latin America and Caribbean region, at 4% (nearly 6 million children), although the Middle East and North Africa and East Asia and Pacific regions both have low rates, each at 6%. The highest urban rates are in Sub-Saharan Africa (13%, around 10 million children) and South Asia (14%, around 17 million children). In rural areas, the lowest rate of severe health deprivation is in the Latin America and Caribbean region, at 11% (nearly 7 million children); and the highest rate is in Sub-Saharan Africa, at 30% (73 million children).

Figure 3.17: Percentage of rural and urban children suffering severe health deprivation

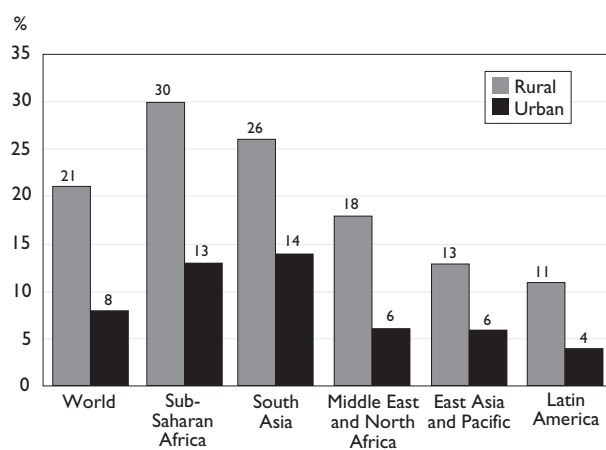


Table 3.13: Rural and urban children suffering severe health deprivation

Region	Rural children % (000s)	Urban children % (000s)
Latin America and Caribbean	11 6,821	4 5,734
South Asia	26 110,703	14 17,169
Middle East and North Africa	18 17,482	6 3,392
Sub-Saharan Africa	30 72,652	13 9,971
East Asia and Pacific	13 55,478	6 10,769
Developing world	21 263,136	8 47,035

Figure 3.18 and Table 3.14 present the data on severe health deprivation by gender. At the overall level, the rate of severe health deprivation in boys is slightly less than it is for girls, 14% (133 million boys) compared to 15% (132 million girls). At the regional level, the lowest rate of severe health deprivation for boys is in East Asia and the Pacific, at 3% (10 million boys). The highest rate for boys is in Sub-Saharan Africa, at 27% (43 million boys). The East Asia and Pacific region also has the lowest rate for girls, at 3% (under 9 million girls) and Sub-Saharan Africa again has the highest rate, at 26% (41 million girls).

It should be noted that diseases such as pneumonia, malaria and tuberculosis, which account for a large proportion of child deaths and ill-health in the developing world, are not measured by these data. It is likely that the burden of ill-health is actually far greater than is implied by the measures of severe health deprivation used in this report. What is certain

Figure 3.18: Percentage of girls and boys suffering severe health deprivation

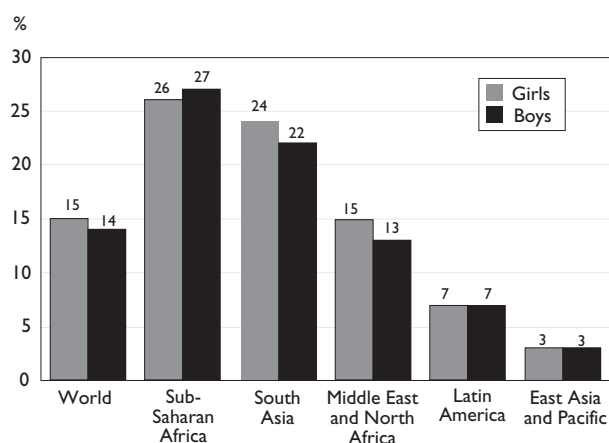


Table 3.14: Girls and boys suffering severe health deprivation

Region	Girls % (000s)	Boys % (000s)
Latin America and Caribbean	7 6,497	7 6,366
South Asia	24 65,245	22 63,555
Middle East and North Africa	15 11,118	13 9,864
Sub-Saharan Africa	26 40,661	27 43,436
East Asia and Pacific	3 8,633	3 10,124
Developing world	15 132,144	14 133,345

is that the decline of public health systems and services means that appropriate care is rarely available, affordable or provided, and so increasing numbers of children will continue to suffer and die from a range of causes, a large number of which (such as diarrhoea and the EPI six targeted diseases) are preventable.

Education deprivation

Throughout the developing world, 13% of all children (134 million) aged between 7 and 18 are severely educationally deprived, defined as lacking any primary or secondary school education, that is, never having gone to school (Figure 3.19 and Table 3.15). Sub-Saharan Africa has an above-average rate of 30% (50 million children), as do the Middle East and North African (23% or 19 million children) and South Asian (19% or 57 million children) regions, whereas Latin America and the Caribbean and East Asia have relatively low rates, at 3% and 1%, respectively.

Figure 3.19: Percentage of children (aged 7-18) suffering severe educational deprivation

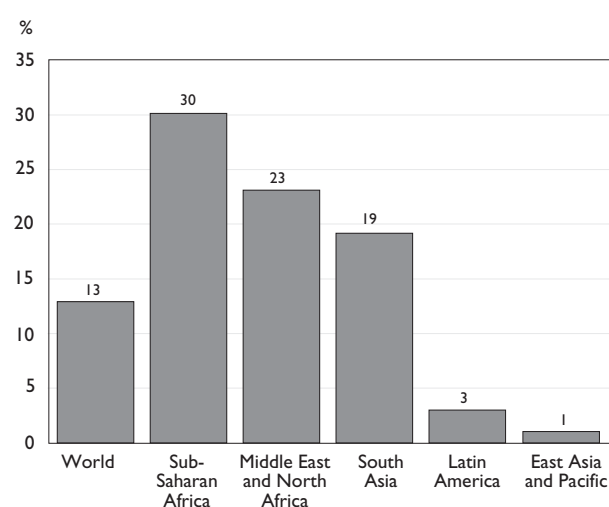


Table 3.15: Children (aged 7-18) suffering severe educational deprivation

Region	%	Number (000s)
Latin America and Caribbean	3	4,028
South Asia	19	57,134
Middle East and North Africa	23	18,608
Sub-Saharan Africa	30	50,274
East Asia and Pacific	1	4,139
Developing world	13	134,183

There are significant urban–rural differences in lack of access to education. Seventeen per cent of all rural children aged between 7 and 18 experience severe education deprivation, compared to *only* 5% of all urban children (Figure 3.20 and Table 3.16). Rates of severe educational deprivation are higher among rural children in every single region of the developing world. The Middle East and North Africa and Sub-Saharan Africa regions have well above-average rates of severe education deprivation among rural children, at 33% and 35%, respectively.

With regards to urban children, higher than average prevalence rates of educational deprivation exist in the Sub-Saharan Africa and South Asia regions (13% and 10%, respectively). Some regions exhibit large inequalities between urban and rural children. For example, rural children in the Middle East and North

Figure 3.20: Percentage of rural and urban children (aged 7-18) suffering severe educational deprivation

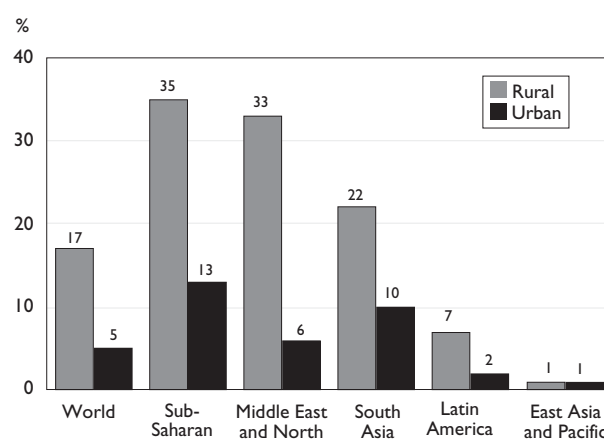


Table 3.16: Rural and urban (aged 7-18) children suffering severe educational deprivation

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	7	2,428	2	1,541
South Asia	22	50,055	10	6,892
Middle East and North Africa	33	16,877	6	1,768
Sub-Saharan Africa	35	44,700	13	5,556
East Asia and Pacific	1	3,542	1	623
Developing world	17	117,602	5	16,380

Africa are at least five times more likely than their urban counterparts to be severely educationally deprived (33% compared to *only* 6%).

Girls are much more likely than boys to be at risk of being educationally deprived. Globally, they are over one-and-a-half times more likely than boys to suffer severe educational deprivation (16% compared to 10%) (Figure 3.21 and Table 3.17). There are also many more educationally deprived girls than boys throughout the world. It is estimated that 80 million girls have received neither a primary nor secondary school education, compared to 54 million boys.

This study also reveals significant gender discrepancies in access to education both between regions and within them. The regions of the Middle East and North Africa and Sub-Saharan Africa have above-average deprivation rates among girls, at 34% and 32%, respectively. However, the greatest gender

inequalities exist in the Middle East and North Africa region where educationally deprived girls outnumber boys by almost three to one. The East Asia and the Pacific region has the greatest gender equality with respect to access to education, whereas Latin America and the Caribbean reveals a very small gender bias *against* boys rather than girls.

Distribution of severe deprivation

This next section looks at the distribution of severe deprivation among the regions of the developing world. For the purposes of this study, severe deprivation has been defined as children experiencing one or more severe deprivations of basic human need. Figure 3.22 and Table 3.18 show the number and proportion of children in the five UNICEF regions suffering one or more severe deprivations.

Figure 3.21: Percentage of girls and boys (aged 7-18) suffering severe educational deprivation

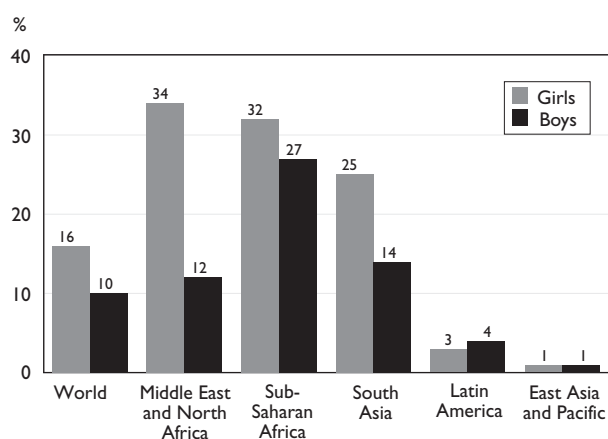


Table 3.17: Girls and boys (aged 7-18) suffering severe educational deprivation

Region	Girls		Boys	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	3	1,822	4	2,148
South Asia	25	35,983	14	21,015
Middle East and North Africa	34	13,491	12	5,100
Sub-Saharan Africa	32	27,056	27	23,293
East Asia and Pacific	1	1,946	1	2,123
Developing world	16	80,299	10	53,679

Figure 3.22: Percentage of children suffering severe deprivation

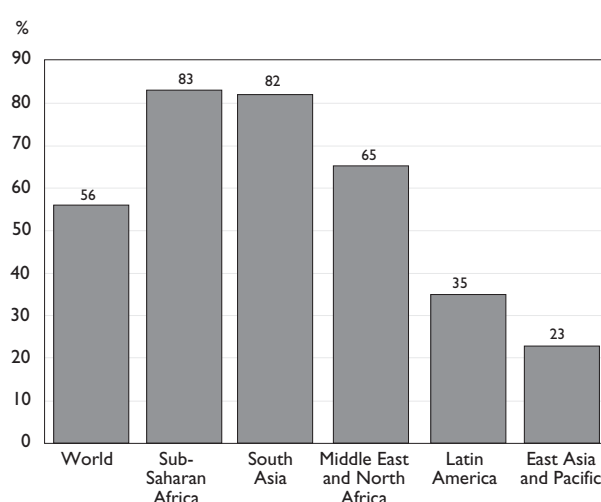


Table 3.18: Children suffering severe deprivation

Region	%	Number (000s)
Latin America and Caribbean	35	68,493
South Asia	82	459,444
Middle East and North Africa	65	99,354
Sub-Saharan Africa	83	264,460
East Asia and Pacific	23	137,054
Developing world	56	1,028,804

At the global level, 56% of children in the developing world (more than 1 billion children) are severely deprived of basic human needs. The lowest rate is in the East Asia and Pacific region (23%), while rates are highest in South Asia (82%) and Sub-Saharan Africa (83%). All but two of the regions have severe deprivation rates above 50%.

Approximately a third of children (over 175 million) in urban areas and two thirds of children (853 million) in rural areas are severely deprived of basic human needs (Figure 3.23 and Table 3.19).

The East Asia and Pacific region has the lowest rates for both urban and rural areas, at 17% and 25% respectively, while Sub-Saharan Africa has the highest rates for both urban and rural areas, at 53% and 93%. South Asia has the largest numbers of children living in severe deprivation in both urban and rural areas (61 million children and 398 million children, respectively).

Figure 3.23: Percentage of rural and urban children suffering severe deprivation

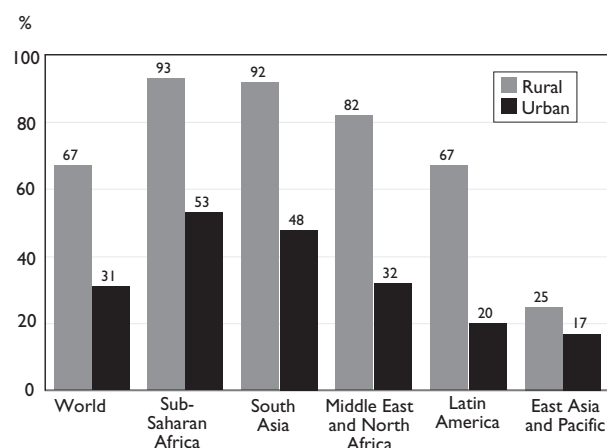


Table 3.19: Rural and urban children suffering severe deprivation

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	67	42,570	20	25,934
South Asia	92	398,270	48	61,174
Middle East and North Africa	82	81,651	32	17,669
Sub-Saharan Africa	93	223,969	53	40,578
East Asia and Pacific	25	106,656	17	30,050
Developing world	67	853,115	31	175,405

Distribution of absolute poverty

The final section of this chapter compares the extent of absolute poverty among the different regions in the developing world. For the purposes of this report, absolute poverty is defined as multiple severe deprivation of basic human need – that is, children suffering from two or more different severe deprivations.

More than one third (37%) of the developing world's children (over 674 million children) are living in absolute poverty. The lowest rate is found in the East Asia and Pacific region, at 7% (43 million children) and the highest rate is in Sub-Saharan Africa, at 65% (nearly 207 million children). South Asia also has a high rate of absolute poverty, with 59% (330 million children) of children suffering two or more forms of severe deprivation.

Figure 3.24: Percentage of children in absolute poverty

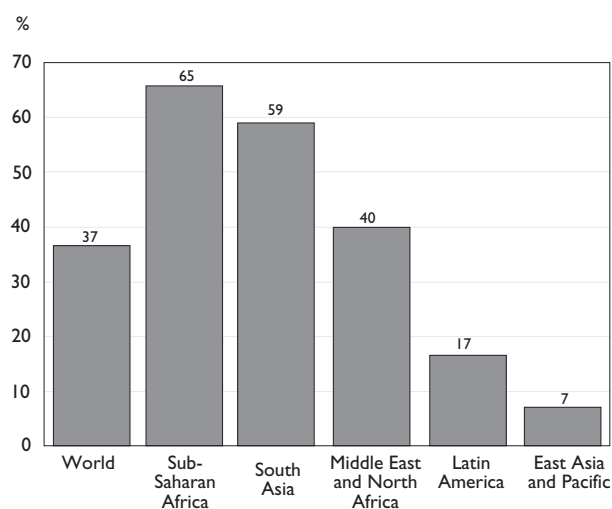
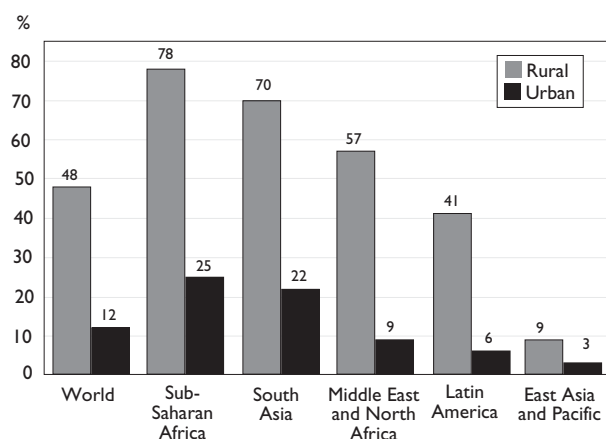


Table 3.20: Children suffering from absolute poverty

Region	%	Number (000s)
Latin America and Caribbean	17	33,085
South Asia	59	329,613
Middle East and North Africa	40	61,153
Sub-Saharan Africa	65	206,927
East Asia and Pacific	7	43,471
Developing world	37	674,249

Most children in absolute poverty live in rural areas, although rates in the urban areas of some regions are also high (Figure 3.25 and Table 3.21). The urban rate of absolute poverty is 12% (65 million children), while the rural rate is much higher at 48% (610 million children).

Figure 3.25: Percentage of rural and urban children in absolute poverty



The lowest urban and rural rates of absolute poverty are found in the East Asia and Pacific region, at 3% (just over 5 million children) and 9% (38 million children), respectively. The highest urban rates of absolute poverty are in Sub-Saharan Africa and South Asia; with the former's urban absolute poverty rate at 25% (19 million children) compared to South Asia's 22% (28 million children). Absolute poverty rates in rural areas are above 50% in all regions (except Latin America and the Caribbean and East Asia and Pacific), with rates in both South Asia and Sub-Saharan Africa at 70% or more.

Table 3.21: Rural and urban children in absolute poverty

Region	Rural children		Urban children	
	%	Number (000s)	%	Number (000s)
Latin America and Caribbean	41	25,769	6	7,168
South Asia	70	301,838	22	28,234
Middle East and North Africa	57	56,222	9	4,978
Sub-Saharan Africa	78	188,124	25	19,014
East Asia and Pacific	9	38,276	3	5,385
Developing world	48	610,229	12	64,778

Conclusions and policy implications

Over one billion children – **more than half** the children in developing countries – suffer from severe deprivation of basic human need and **over one third** (674 million) suffer from absolute poverty (two or more severe deprivations).

- Over one third of children have to live in dwellings with more than five people per room or which have a mud flooring.
- Over half a billion children (31%) have no toilet facilities whatsoever.
- Almost half a billion children (25%) lack access to radio, television, telephone or newspapers at home.
- Over 20% of children (nearly 376 million) have more than a 15-minute walk to water or are using unsafe (open) water sources.
- Over 15% of children under-five years in the developing world are severely food deprived, over half of whom (91 million children) are in South Asia.
- 265 million children (15%) have not been immunised against any diseases or have had a recent illness involving diarrhoea and have not received any medical advice or treatment.
- 134 million children aged between 7 and 18 (13%) are severely educationally deprived in terms of lacking any school education whatsoever.
- There are differences both *between* and *within* regions that are masked by the overall average rates. For example, Sub-Saharan Africa has the highest rates of severe deprivation with respect to four of the seven indicators – severe shelter, water, educational and health deprivation. However, within the region, only 19% of Mali children live in severely water deprived conditions, compared to 90% of Rwandan children.
- Rural children are much more likely to be deprived than urban children in all seven areas of deprivation of basic human need and in all regions. This is particularly the case with respect to severe sanitation deprivation.
- At the global level, there are significant gender differences with girls more likely to be severely educationally deprived, particularly in the Middle East and North Africa, where they are three times more likely than boys to be without primary or secondary school education.

These findings are shocking given that severe deprivations of basic human need are those circumstances that are highly likely to have serious adverse consequences for the health, well-being and development of children. Severe deprivations harm children in both the short term and the long term. Many of the absolutely poor children surveyed in this research will have died or had their health profoundly damaged by the time this report is published, as a direct consequence of their appalling living conditions. Many others will have had their development so severely impaired that they may be unable to escape from a lifetime of grinding poverty.

The definitions used in this study to identify severe deprivation of children's basic human needs represent much worse living conditions than are usually reported by UN agencies. This research has measured absolute poverty using such severe criteria that any reasonable person would consider that these living conditions were unacceptable and damaging. No government or parent wants children to have to live like this. This final chapter looks at what lessons can be learnt from this research and what could be done

to help eradicate absolute child poverty during the 21st century.

The causes of absolute poverty

Absolute poverty has been measured within the internationally agreed framework of children's rights, using a definition of absolute poverty that has been agreed to by 117 governments as: "a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services".

This research has shown that the severe deprivations that affect the greatest number of children are shelter, sanitation, information and water deprivation. Fewer children suffer from severe deprivation of food, health and education. This, in part, demonstrates the partial success of international agencies and donors that have focused on improving children's access to health and education services and preventing malnutrition.

However, lessons need to be drawn from the experiences of industrialised countries in combating poverty and improving children's health. During the 19th and first half of the 20th centuries, the most important improvements in standard of living and life expectancy of children in industrialised countries were as a result of significant public investment in housing, sewerage and water systems. Safe water, housing and sanitation facilities are prerequisites for good health and education. If children are made chronically sick as a result of unsafe water supplies or inadequate sanitation or overcrowded housing conditions, then they cannot go to school even if free high quality education is available. Similarly, good health facilities can help alleviate the symptoms of chronic sickness but they cannot tackle the underlying causes. Food aid will not be effective in reducing malnutrition if children suffer from chronic diarrhoea as a result of a lack of sanitation facilities and/or unsafe water.

The evidence presented in this report points to the conclusion that UN and other international agencies, governments and donors may need to give a higher priority to tackling the problems of severe shelter,

sanitation and water deprivation than is presently the case.

There has been some recent debate within the international community about the need to tackle the problems of housing, water and sanitation deprivation. However, much of this debate has focused on facilitating the private sector to provide additional investment and infrastructure in urban areas. This research shows that far more children in rural areas suffer from severe deprivation than their urban peers⁵. Since the prime motivation of the private sector is the need to optimise profits, it is extremely unlikely that it will be able to provide water and sewerage infrastructure to all poor rural areas, as this would not be profitable. The only way to provide all absolutely poor rural children with adequate housing, sanitation and water facilities is by public investment to pay for these infrastructure facilities. International agencies could be more active in campaigning for greater shelter, sanitation and water infrastructure investment in rural areas of the developing world. Improvements to this rural infrastructure would be the most effective method of reducing absolute child poverty.

Sanitation

Children are particularly affected by poor sanitation, since it is directly linked to the most serious of childhood illnesses – diarrhoea and malnutrition. Sanitation facilities provided for communities may often be unsuitable for children. If facilities are constructed for adults, they may be too large for young children and present obvious dangers (such as falling in); facilities lacking adequate lighting may intimidate young children wanting to use them at night; children wanting to use public facilities may be made to wait while adults use them first, and so on. The needs of adolescent girls and young women for sanitation and privacy also need to be a priority.

⁵ Approximately 530 million rural children suffer from severe shelter deprivation compared with 85 million urban children; 515 million rural children suffer from severe sanitation deprivation compared with 50 million urban children; 335 million rural children suffer from severe water deprivation compared with 40 million urban children – see Chapter 3 for details.

Sanitation facilities require effective drainage systems that carry sewage away from communities. Children use fields and open spaces to play, areas that are commonly used for defecation in the absence of public or private facilities. Organisations like UNICEF and the World Bank are already committed to improving children's access to sanitation and should support organisations that try to establish and maintain public sanitation facilities. Such organisations have started to provide child-friendly facilities, which children can use in safety, without fear or intimidation⁶. The provision of sanitation facilities in schools is also important and should be supported.

There has been some reluctance in the past to highlight the need to improve sanitation facilities as many people do not like to talk about human excreta disposal and donors have gained greater positive publicity for helping improve children's health and education facilities than for funding latrines. Organisations like UNICEF could play a lead role in both raising funds and highlighting the crucial importance of eradicating severe sanitation deprivation as a method of helping eradicate absolute child poverty. Toilet facilities are clearly a priority for children.

Water

Severe water deprivation is an issue of both quality and quantity. Improving water quality is clearly important for the health of children. Children should not have to use unsafe (or unimproved) sources of water, such as lakes, ponds or streams, as these may become contaminated and dangerous. Communities need to have access to safe water (piped water, stand-pumps, covered wells and so on),

through services that they can afford, run and maintain themselves. Such facilities will need to be located and provided near to where people live, to cut journey times for collection. Distance to the water source is of special significance to children since they often help collect and carry the water. Carrying water over long distances can result in injuries, especially to necks and backs, and the time spent collecting water can impact on school attendance.

The distance children need to go in order to get to their water supply is arguably of greater importance than water quality (Esrey, 1996). Water quantity is directly linked to distance to water supply, with less water used the further away the water source. The measure of severe water deprivation used in this report takes into account the issue of distance to water source – something the Joint Monitoring Programme (JMP) of UNICEF and WHO does not, that is, it focuses on water quality issues only. It is important that international organisations, governments and donors take steps to help increase both the quality and quantity of water available to poor children if absolute poverty is to be eradicated.

Shelter

Overcrowded dwellings facilitate the transmission of disease (for example, respiratory infections, measles). They can also result in increased stress and mental health problems for both adults and children and lead to accidents and injuries. Poor quality shelter, constructed from inferior materials, does not protect against the elements. Successive UN conferences and conventions have sought to address the issue of poor housing and shelter deprivation in both developed and developing countries but progress on meeting children's basic shelter needs has been slow. Considerable international attention has focused on improving the housing conditions of urban slums, shanty towns and favelas. However, this research shows that severe shelter deprivation blights the lives of 42% of rural children in developing countries, compared with 15% of children in urban areas. Improving the housing conditions of families with children in rural areas needs to be given greater priority.

⁶ One non-governmental organisation running such schemes is Gramalaya. Based in Tamil Nadu in India, the scheme came about after consultation with the local community. Facilities are constructed adjacent to community toilets. Water with soap is provided for hand washing after defecation. A caretaker from the community toilet teaches hand washing and its importance to the children and observes children's hygiene behaviours. Facilities are provided free to children (<http://gramalaya.org/childtoilets.html>).

Food

This research used severe anthropometric failure, that is, children more than -3 standard deviations below the international reference population median, as a measure of severe food deprivation. However, data on children's height and weights are only usually collected for children up to five years old. There is good scientific evidence that older children (particularly during puberty) may also be at risk of suffering from malnutrition. Anthropometric data on older children need to be collected, so that more accurate estimates of child malnutrition in the developing world can be made.

A technical innovation of this research has been the development and use of a Composite Index of Anthropometric Failure (CIAF), based on the work of Peter Svedberg (2000). It provides a more comprehensive indicator of malnutrition than existing measures, and thus may be more appropriate for use in target setting and resource allocation. UNICEF may want to consider development of this indicator and its potential use to monitor the international commitments to reduce child malnutrition by half by 2015. A number of countries, such as Thailand and Costa Rica, have managed to eradicate severe malnutrition and reduce mild-moderate malnutrition relatively quickly. Their success was based on clear political commitment to reducing malnutrition, the provision of food subsidies, the targeting of food supplements to children and mothers, health and nutrition education and regular growth monitoring and surveillance (ACC/SCN, 2002).

Child and family benefit

Another lesson that can be drawn from the experiences of industrialised countries in reducing child poverty is that, after public infrastructure investment, the most effective anti-poverty policy for children is the establishment of a child or family social security benefit.

It has been argued elsewhere (Townsend and Gordon, 2002) that an international children's investment fund should be established under the auspices of the UN. Half its annual resources should be devoted to countries with extensive child poverty, where

schemes of child benefit in cash or kind exist or where such schemes can be introduced. All countries with large numbers of children who are below an internationally recognised poverty line and also with comparatively low GDP should be entitled to participate. Such participation would require dependable information that the benefits are reaching children for whom they are intended. The remaining annual resources of the fund would be made available to countries for investment in housing, sanitation and water infrastructure, education, health and other schemes of direct benefit to children.

Programmes to gradually increase public expenditure so that categories of the extreme poor start to benefit offer a realistic, affordable and successful method for poverty alleviation. For example, in Brazil, the Zero Hunger Programme intends to provide regular and sufficient supplies of quality food to all Brazilians in conjunction with accelerated social security reform. The first includes food banks, popular restaurants, food cards, distribution of emergency food baskets, strengthening of family agriculture and a variety of other measures to fight malnutrition. The social security reform programme includes social assistance for low-income 15- to 17-year-olds, assistance for 7- to 14-year-olds who are enabled to go to school and avoid the exacting toll of the worst conditions of child labour, minimum income and food scholarships for pregnant and nursing mothers with incomes less than half the minimum wage or who are HIV positive, benefits for elderly disabled people with special needs and a range of other transfer programmes for the elderly, widowed, sick and industrially injured and unemployed that are being enlarged year by year (Suplicy, 2003: forthcoming).

The social security systems of developing countries present a diverse picture. Partial systems were introduced by colonial authorities in most of Asia, Africa and the Caribbean. They were extended in the first instance to civil servants and employees of large enterprises. There were benefits for relatively small groups that included healthcare, maternity leave, disability allowances and pensions (Midgeley, 1984; Ahmad et al, 1991). In India, there are differences among major states as well as a range of schemes for smallish categories of population (Ghai, 2001; Prabhu, 2001). In Latin America, some countries introduced schemes before the 1939-45 war and others followed suit after. Benefits tended to

be limited in range and coverage. There were different systems for particular occupations and categories of workers and a multiplicity of institutions. Between 20 and 60% of the workforce were covered, compared with between 5 and 10% for most of Sub-Saharan Africa and 10 to 30% for most of Asia. “The greatest challenge facing the developing countries is to extend the benefits of social security to the excluded majority to enable them to cope with indigence and social contingencies” (Huber, 1996).

These recommendations are the key to a far better future for hundreds of millions of children. But how might social security systems now evolve to provide universal beneficial effects of more substantial redistribution? Human rights now play a central part in discussions of international social policy. This applies to civil and political rights, less so to social and economic rights. Articles 22 and 25 in the Declaration of Human Rights – dealing with the rights to an ‘adequate’ standard of living and social security – have been often overlooked in General Assembly and other reports from the UN. The fundamental right to social security is also spelt out in Article 26 of the Convention on the Rights of the Child and the related rights to an adequate standard of living in Article 27.

UNICEF and other international organisations (such as the International Labour Organization [ILO]) should campaign for a legal right to child benefit under Articles 25 and 27 of the Convention on the Rights of the Child.

The needs of children in the 21st century

The needs of children in the 21st century are different from those of children in the 19th and 20th centuries and new policies will be required to meet these needs. For example, in the 21st century, severe information deprivation is an important constraint on the development of both individual children and societies as a whole – many consider that ‘knowledge is power’. This study provides the first estimates of the extent of severe information deprivation among children. A quarter of children in the developing world are severely information deprived, with

approximately 390 million living in rural areas and 60 million living in urban areas.

Reducing information deprivation will require action at a number of different levels, including getting children into school and increasing literacy rates for both children and adults. Without these basic essentials, the impact and provision of newspapers and other media (such as computers and the Internet) will be limited.

The most cost-effective intervention is through improvements to radio access. Radio is one of the main channels of information in developing countries. They are a cheap, effective means through which communities can be informed about the importance of education and health initiatives (for example, immunisation for young children, the benefits of hand washing, effective and cheap ways to treat diarrhoea, availability of food supplements for malnourished children, and so on). All countries have the means to make radio broadcasts. Governments could improve public information services and regularly broadcast programmes that inform communities about simple but effective changes they can make to their lives – for example, making simple water filters using locally available materials, constructing basic sanitation facilities at low cost, and so on. The development of cheap clockwork radios has meant the technology can be made widely available, at an affordable price.

There are many examples of community radio networks that have an important role in the provision of public information (for example, the Developing Countries Farm Radio Network⁷, the World

⁷ Developing Countries Farm Radio Network is a Canadian-based, not-for-profit organisation working in partnership with approximately 500 radio broadcasters in over 70 countries to fight poverty and food insecurity. It supports broadcasters in meeting the needs of local small-scale farmers and their families in rural communities and helps broadcasters build the skills to develop content that responds to local needs (www.farmradio.org).

Community Radio Movement⁸, Community Radios Worldwide⁹). Community organisations have campaigned for the installation of small, local transmitters that can provide information to local communities. They have also argued for the granting of broadcast licences to women's groups, local colleges and universities, cooperatives, and so on. However, commercialisation of the airwaves and the imposition of license fees have begun to affect community radio stations, as they are pushed aside by commercial broadcasters.

Governments might consider allocating resources to the development of community media funds that would provide information over the airwaves on important issues such as health and education. UN organisations like the Food and Agriculture Organisation and the United Nations Educational, Scientific and Cultural Organization (UNESCO) have been committed to community media and radio networks for a number of years and support initiatives providing information to rural areas (Hughes, 2001; Ilboudo, 2001). As one UNESCO report stated:

Community radio is low-cost, easy to operate, reaches all segments of the community through local languages and can offer information, education, entertainment, as well as a platform for debate and cultural expression. As a grass-roots channel of communication, it maximises the potential for development to be drawn from sharing the information, knowledge and skills already existing within the community. It can therefore act as a catalyst for community and individual empowerment. (Hughes, 2001)

UN agencies could help inform both governments and the public on the importance of information access for children and thereby raise the profile of this issue. They might also assist in the setting up of local radio networks, and help train communities in accessing and using information effectively.

⁸ AMARC is an international NGO serving the community radio movement, with almost 3,000 members and associates in 106 countries. Its goal is to support and contribute to the development of community and participatory radio along the principles of solidarity and international cooperation (www.amarc.org/amarc/ang/).

⁹ www.radiorobinhood.fi/communityradios/articles

The poverty of girls

This study found that gender differences at the global level were greatest for severe education deprivation, with girls 60% more likely to be deprived. Significant regional and country disparities were revealed in the study, with girls in the Middle East and North Africa region three times more likely to be severely education deprived.

The reasons why children (and particularly girls) do not go to school vary and policies need to be targeted at the causes of non-attendance if they are to be effective. For example, children may not attend school because there is no school close enough or because it is too expensive or because the quality of the education is poor or because there is discrimination against girls going to school.

Abolishing primary school fees may encourage and enable poor parents to send their children – and particularly their daughters – to school. In some countries, there needs to be a concurrent effort made to change social attitudes about the value of education for girls. This applies to all levels of society including parents, politicians and schoolteachers. There are other practical interventions that can be pursued including the provision of incentives such as bursaries, free school meals and books, improved sanitation facilities and security. As part of the global Education For All campaign, UNESCO recently recommended a number of activities that governments should undertake to meet the goals of eliminating gender disparities in education by 2005 and achieving gender equality by 2015. These included:

- setting concrete targets and funding them adequately;
- educating mothers – the most crucial measure for the sustained education of girls;
- supporting gender-responsive schools and allowing pregnant girls and teenage mothers to continue their education;
- making educational content relevant to local cultural and economic contexts so that parents see that educating girls improves their quality of life;
- providing gender-sensitive curricula and textbooks;
- training more female teachers and make teacher training gender responsive;

- eliminating child labour. According to a recent ILO report, 352 million children between the ages of 5 and 17 are engaged in economic activities, of which 168 million are girls;
- including HIV/AIDS prevention in the curriculum;
- education is a powerful 'social vaccine' against the HIV/AIDS pandemic. Learning methods should address the fact that girls are heading households, caring for siblings and being forced to generate income;
- building schools closer to girls' homes to increase access, particularly for rural children;
- making schools safe for girls and equipping them with separate toilets.

Regional and country-specific anti-poverty policies

This research has found that the major causes of absolute child poverty vary both between and within regions of the developing world. For the world as a whole, shelter combined with sanitation deprivation affects the greatest number of children. Whereas shelter combined with water deprivation is the biggest problem in Sub-Saharan Africa, in South Asia, almost 36% of households with children suffer from shelter and information deprivation. By contrast, in the Middle East and North African region, shelter combined with education deprivation affects the greatest number of poor children. It is clear that, in order to eradicate absolute poverty among children, policies will need to be targeted at the various problems they face. A single set of anti-poverty policies for the planet is not the most effective or efficient way to eradicate child poverty. Aid donors and international agencies need to be aware – and make the public aware – of the need for tailored anti-poverty strategies which deal with the 'real' problems faced by children in different countries. Investment in eradicating severe educational deprivation may be a very effective means of reducing absolute child poverty in some countries in North Africa and the Middle East but it would be much less effective in Latin America or South Asia where ending other severe child deprivations should be prioritised.

This report has shown – for the first time – the true extent of the scale and nature of absolute child poverty in the developing world. It has used internationally agreed definitions of poverty and applied a sound, scientific methodology that shows that over half a billion children in the developing world live in absolute poverty. However, due to the severity of the measures used, this is likely to be an underestimate. Research and reports from a number of international organisations (WHO, 2001; Vandemoortele, 2002; UNDP, 2003) suggest that the optimism shown at the end of the last millennium was either premature or misplaced. It is sadly the case that there is growing recognition of the fact that most of the Millennium Development Goals will not be met in time on current trends. Issues such as international debt, unequal trade and economic relations, declining donor commitment to international aid, and increasing political and economic instability continue to work together to undermine the efforts of governments, international and non-governmental organisations, communities and individuals. As things stand today (and as this report shows), the campaign to eradicate child poverty still has a long way to go.

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Appendix: Severe deprivation and absolute poverty among children: country data

State	Child (<18) population (000s) (2000)	% water deprived	% sanitation deprived	% shelter deprived	% informa- tion deprived	% education deprived	% food deprived	% health deprived	% severely deprived	% in absolute poverty	% urban children absolute poverty	% rural children absolute poverty
Bolivia	3,830	14.8	37.1	43.9	13.1	1.3	9.2	9.5	58.9	32.9	11.7	64.9
Brazil	59,515	—	15.0	11.8	8.3	2.4	2.7	5.5	25.3	10.0	4.3	27.7
Colombia	16,302	9.1	11.0	11.9	4.0	2.0	3.0	5.8	24.4	10.5	2.0	28.5
Dominican Republic	3,359	23.0	11.1	17.1	8.1	4.2	2.9	3.4	40.7	15.2	4.3	30.2
Guatemala	5,764	12.3	15.9	58.7	14.4	11.4	19.3	8.0	63.8	33.7	16.6	44.1
Haiti	3,915	42.6	44.9	49.8	41.6	18.2	16.2	25.5	74.6	56.6	15.8	77.7
Nicaragua	2,533	12.0	16.9	62.6	15.6	11.0	8.8	3.2	67.2	30.8	11.9	54.4
Peru	10,198	22.9	25.6	56.1	7.9	0.9	7.4	5.7	62.0	35.4	11.9	66.2
Egypt	28,663	8.3	6.2	41.9	27.6	11.3	14.0	8.0	56.7	26.6	8.5	38.9
Morocco	12,302	37.1	43.5	40.7	14.4	34.6	9.0	10.3	64.0	47.0	7.2	72.3
Yemen	10,295	49.8	58.9	59.1	19.0	36.3	6.5	45.6	86.6	67.6	17.8	78.5
Cambodia	6,832	59.1	80.8	8.6	37.6	17.3	12.1	29.2	91.8	70.8	8.0	92.0
China	378,939	3.7	1.7	3.0	3.3	0.3	4.5	0.3	13.1	1.6	1.8	1.5
Indonesia	78,233	24.0	15.6	21.7	21.1	2.6	—	9.8	51.2	19.8	5.3	27.3
Philippines	33,835	18.7	15.6	23.9	11.9	2.7	—	11.2	46.7	19.8	7.5	30.2
Bangladesh	62,494	2.5	24.6	89.7	47.4	19.7	30.2	16.5	92.5	62.4	24.9	66.6
India	399,798	19.4	68.3	36.8	38.3	15.6	26.3	21.4	79.9	57.2	21.2	68.4
Nepal	10,921	37.0	85.1	93.9	41.6	28.7	27.4	32.6	98.3	90.3	52.5	93.2
Pakistan	68,231	19.5	51.0	46.7	45.3	38.4	22.9	33.5	83.0	61.0	25.0	77.1
Benin	3,360	29.2	74.5	49.7	65.7	47.7	13.0	19.1	92.6	74.7	48.0	89.4
Burkina Faso	6,457	46.6	78.2	75.8	48.9	67.6	16.4	18.8	93.4	84.0	18.6	93.0
Cameroon	7,453	53.1	10.3	57.9	29.7	16.4	12.3	20.0	77.4	54.3	17.3	70.6

State	Child population (<18) (000s) (2000)	% water deprived	% sanitation deprived	% shelter deprived	% information deprived	% education deprived	% food deprived	% health deprived	% severely deprived	% in absolute poverty	% urban children absolute poverty	% rural children absolute poverty
Central African Republic	1,844	51.9	24.0	80.7	30.7	30.7	18.9	24.2	88.9	65.4	39.2	85.6
Chad	4,172	55.2	72.1	95.9	54.0	59.1	23.3	51.2	97.3	88.2	54.5	97.7
Comoros	355	51.8	0.3	55.3	42.8	35.4	14.1	13.6	87.5	56.5	33.0	64.8
Côte d'Ivoire	7,943	21.1	42.2	30.2	37.3	40.7	13.0	26.4	72.0	47.3	13.7	66.4
Ethiopia	32,456	74.9	83.9	95.1	56.5	61.1	28.5	32.3	97.8	94.0	58.6	99.2
Ghana	9,303	50.8	25.6	29.1	37.4	14.8	10.8	10.3	77.7	47.0	18.7	58.1
Guinea	4,145	44.4	43.5	57.0	48.1	55.7	8.9	25.9	87.9	71.1	31.5	86.7
Kenya	15,705	63.1	17.1	74.0	29.3	6.0	13.6	41.3	86.8	65.8	19.8	73.7
Madagascar	8,174	70.8	63.0	38.6	43.1	24.8	25.2	24.0	89.7	74.2	45.7	82.5
Malawi	6,002	52.8	24.9	85.1	42.6	30.1	22.6	9.9	91.6	74.6	28.9	80.9
Mali	5,980	18.8	26.7	79.3	31.3	67.9	26.2	33.1	87.2	63.5	26.8	77.3
Mauritania	1,353	37.5	51.6	77.1	44.2	19.7	17.8	22.3	90.1	70.5	47.4	85.9
Mozambique	9,231	56.7	59.7	74.7	45.6	28.0	17.9	29.1	89.7	76.3	37.8	87.5
Namibia	884	46.2	67.6	71.9	19.0	6.6	8.9	9.4	80.9	69.8	12.3	89.8
Niger	6,123	37.1	79.8	85.3	42.8	69.2	30.0	46.3	91.8	85.2	31.9	97.
Nigeria	59,108	44.0	26.0	45.1	35.4	22.1	16.0	39.7	78.8	52.6	22.1	64.5
Rwanda	3,941	88.7	5.8	89.2	39.4	23.9	20.5	9.2	97.3	86.9	39.2	89.3
Senegal	4,804	23.1	33.3	45.8	22.4	—	—	—	63.1	39.4	9.0	55.9
South Africa	17,589	28.5	16.2	25.8	12.9	2.1	—	3.5	45.5	24.3	3.9	42.2
Tanzania	18,258	67.0	13.3	83.2	49.8	34.9	18.3	20.4	91.9	78.1	36.1	88.5
Togo	2,310	31.4	66.9	33.3	45.5	21.1	12.0	19.4	83.5	61.9	23.4	73.0
Uganda	13,062	87.2	16.8	87.7	38.6	17.0	16.6	22.0	96.7	85.4	39.7	91.1
Zambia	5,571	45.8	26.9	59.8	34.2	20.1	18.1	7.3	75.6	56.8	17.9	81.9
Zimbabwe	6,645	41.5	31.9	34.8	31.1	5.2	9.7	11.9	66.7	45.3	1.0	60.8

Note: Percentages for food deprivation are for the population aged <5; percentages for education deprivation are for the population aged 7-18.

- **ilc Income and living conditions**

- **ilc_mi Main indicators**
 - [mi01](#) Main indicators by total population (18Jul2003)
- **ilc_li Low income**
 - [li01](#) At risk of poverty thresholds (18Jul2003)
(indic 40-50-60-70% median, 40-50-60% mean)(unit EUR, NAC, PPS)
 - [li02](#) At risk of poverty thresholds for single person household and a household with two adults and two children (18Jul2003)
(60%median)(indic Single, 2A2C)(unit EUR, NAC, PPS)
 - [li03](#) At persistent risk of poverty rate by age and gender (18Jul2003)
(indic 50%, 60%)(sex T M F)(age 0+, 0-15, 16-24, 25-49, 50-64, 65+)
 - [li04](#) At risk of poverty rates by household type (18Jul2003)
(indic 40-50-60-70% median, BT, BTP, 40-50-60% mean, relative gap)(hhtyp...)
 - [li05](#) At risk of poverty rate by age and gender (18Jul2003)
(indic 40-50-60-70% median, 40-50-60% mean, 60% median before all transfers, after pensions, after all transfers, relative gap)(sex T M F)(age 0+, 0-15, 16-24, 25-49, 50-64, 65+)
 - [li06](#) At risk of poverty rates by most frequent activity in the previous year (percentage of persons aged 16+) (18Jul2003)
(indic 40-50-60-70% median, 40-50-60% mean, 60% median before all transfers, after pensions, after all transfers, relative gap)(sex T M F)(wstatus empl, self, unempl, retir, inact)
 - [li07](#) At risk of poverty rates by main source of income (18Jul2003)
(indic 40-50-60-70% median, 40-50-60% mean, 60% median before all transfers, after pensions, after all transfers, relative gap)(source work, private, soctransf)
 - [li08](#) At risk of poverty rates by socio-economic situation (06Mar2003)
(indic 40-50-60-70% median, 40-50-60% mean, 60% median before all transfers, after pensions, after all transfers, relative gap)(workint A1 0-50-100, A2 0-50-100, A3+ 0-50-100)
 - [li09](#) At risk of poverty rates by highest education level (18Jul2003)
(indic 40-50-60-70% median, 40-50-60% mean, 60% median before all transfers, after pensions, after all transfers, relative gap)(iscd 0-2, 3, 3+)
 - [li10](#) At risk of poverty rates by tenure status (18Jul2003)
(indic 40-50-60-70% median, 40-50-60% mean, 60% median before all transfers, after pensions, after all transfers, relative gap)(tenstat owned, rented)
- **ilc_di Distribution of income**
 - [di01](#) Distribution of income by quantiles (18Jul2003)
 - [di02](#) Distribution of income by different income groups (18Jul2003)
 - [di03](#) Mean and median income by age and gender (18Jul2003)
 - [di04](#) Mean and median income by household type (18Jul2003)
 - [di05](#) Mean and median income by most frequent activity in the previous year (persons aged 16+) (18Jul2003)
 - [di06](#) Mean and median income by main source of income (18Jul2003)
 - [di07](#) Mean and median income by socio-economic situation (11Feb2003)
 - [di08](#) Mean and median income by highest education level (persons aged 16+) (18Jul2003)
 - [di09](#) Mean and median income by tenure status (18Jul2003)
 - [di10](#) Mean and median income by ability to make ends meet (18Jul2003)
- **ilc_lk Laeken indicators**
 - [lk01a](#) At risk of poverty rate by age and gender (18Jul2003)
 - [lk01b](#) At risk of poverty rate by most frequent activity and gender (18Jul2003)
 - [lk01c](#) At risk of poverty rate by household type (18Jul2003)
 - [lk01d](#) At risk of poverty rate by tenure status (18Jul2003)
 - [lk01e](#) At risk of poverty threshold (18Jul2003)
 - [lk02](#) Inequality of income distribution S80/S20 (income quintile share ratio) (18Jul2003)
 - [lk03](#) At persistent risk of poverty rate by gender (18Jul2003)
 - [lk04](#) Relative at risk of poverty gap (18Jul2003)
 - [lk05](#) Regional cohesion (26Mar2003)
 - [lk06](#) Long term unemployment rate (31Mar2003)
 - [lk07](#) Persons living in jobless households (31Mar2003)
 - [lk08](#) Early school leavers not in education or training (31Mar2003)
 - [lk09](#) Life expectancy at birth (26Mar2003)
 - [lk11](#) Dispersion around the at risk of poverty threshold (18Jul2003)
 - [lk12](#) At risk of poverty rate anchored at one moment in time (18Jul2003)
 - [lk13](#) At risk of poverty rate before social transfers by gender (18Jul2003)
 - [lk14](#) Inequality of income distribution Gini coefficient (18Jul2003)
 - [lk15](#) At persistent risk of poverty rate (alternative threshold) by gender (18Jul2003)
 - [lk16](#) Long term unemployment share (31Mar2003)
 - [lk17](#) Very long term unemployment rate (09Apr2003)
 - [lk18](#) Persons with low educational attainment (26Mar2003)

I

(Acts whose publication is obligatory)

**REGULATION (EC) No 1177/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 16 June 2003
concerning Community statistics on income and living conditions (EU-SILC)
(Text with EEA relevance)**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 285(1) thereof,

Having regard to the proposals from the Commission ⁽¹⁾,

Having regard to the opinion of the European Economic and Social Committee ⁽²⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty ⁽³⁾,

Whereas:

- (1) In order to carry out the tasks assigned to it, particularly after the Lisbon, Nice, Stockholm and Laeken European Council meetings held in March 2000, December 2000, March 2001 and December 2001 respectively, the Commission should be kept informed of income distribution and of the level and composition of poverty and social exclusion in the Member States.
- (2) The new open method of coordination in the field of social inclusion as well as the structural indicators to be produced for the annual synthesis report increase the need for comparable and timely cross-sectional and longitudinal data on income distribution and on the level and composition of poverty and social exclusion for establishing reliable and relevant comparisons between the Member States.
- (3) Decision No 50/2002/EC of the European Parliament and of the Council of 7 December 2001 establishing a programme of Community action to encourage cooperation between Member States to combat social exclusion ⁽⁴⁾ has established, under Action 1.2 of Strand 1 concerning the 'analysis of social exclusion', the necessary conditions in relation to the funding of measures concerning the collection and dissemination of comparable statistics and in particular supporting the improvement of surveys and analysis of poverty and social exclusion.

(4) The best method of assessing the situation as regards income, poverty and social exclusion is to compile Community statistics using harmonised methods and definitions. Some Member States may require additional time to adapt their systems to these harmonised methods and definitions.

(5) To reflect changes taking place in the distribution of income and in the level and composition of poverty and social exclusion, the statistics need to be updated annually.

(6) To investigate major issues of social concern, especially new issues requiring specific research, the Commission needs cross-sectional and longitudinal micro-data at household and personal level.

(7) Priority should be given to the production of timely and comparable annual cross-sectional data on income, poverty and social exclusion.

(8) Flexibility in terms of data sources, in particular the use of existing national data sources, whether they be surveys or registers, and national sample designs should be encouraged and the integration of the new source(s) into established national statistical systems should be promoted.

(9) Commission Regulation (EC) No 831/2002 of 17 May 2002 implementing Council Regulation (EC) No 322/97 on Community statistics, concerning access to confidential data for scientific purposes ⁽⁵⁾ has established, for the purpose of enabling statistical conclusions to be drawn for scientific purposes, the conditions pursuant to which access to confidential data transmitted to the Community authority may be granted.

(10) The production of specific Community statistics is governed by the rules set out in Council Regulation (EC) No 322/97 of 17 February 1997 on Community Statistics ⁽⁶⁾.

⁽¹⁾ OJ C 103 E, 30.4.2002, p. 198, and amended proposal of 15 November 2002.

⁽²⁾ OJ C 149, 21.6.2002, p. 24.

⁽³⁾ Opinion of the European Parliament of 14 May 2002 (not yet published in the Official Journal), Council Common Position of 6 March 2003 (OJ C 107 E, 6.5.2003, p. 26) and Decision of the European Parliament of 13 May 2003 (not yet published in the Official Journal).

⁽⁴⁾ OJ L 10, 12.1.2002, p. 1.

⁽⁵⁾ OJ L 133, 18.5.2002, p. 7.

⁽⁶⁾ OJ L 52, 22.2.1997, p. 1.

- (11) The measures necessary for the implementation of this Regulation should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽¹⁾.
- (12) The Statistical Programme Committee (SPC) has been consulted in accordance with Article 3 of Council Decision 89/382/EEC, Euratom ⁽²⁾,

HAVE ADOPTED THIS REGULATION:

Article 1

Aim

The aim of this Regulation shall be to establish a common framework for the systematic production of Community statistics on income and living conditions (hereinafter referred to as EU-SILC), encompassing comparable and timely cross-sectional and longitudinal data on income and on the level and composition of poverty and social exclusion at national and European levels.

Comparability of data between Member States shall be a fundamental objective and shall be pursued through the development of methodological studies from the outset of EU-SILC data collection, carried out in close cooperation between the Member States and Eurostat.

Article 2

Definitions

For the purpose of this Regulation, the following definitions shall apply:

- (a) 'Community statistics' shall have the meaning assigned to it in Article 2 of Regulation (EC) No 322/97;
- (b) 'production of statistics' shall have the meaning assigned to it in Article 2 of Regulation (EC) No 322/97;
- (c) 'year of survey': means the year in which the survey-data collection, or most of the collection, is carried out;
- (d) 'fieldwork period': means the period of time in which the survey component is collected;
- (e) 'reference period': means the period of time to which a particular item of information relates;
- (f) 'private household': means a person living alone or a group of people who live together in the same private dwelling and share expenditures, including the joint provision of the essentials of living;
- (g) 'cross-sectional data': means the data pertaining to a given time or a certain time period. Cross-sectional data may be extracted either from a cross-sectional sample survey with or without a rotational sample or from a pure panel sample survey (on condition that cross-sectional representativeness is guaranteed); such data may be combined with register data (data on persons, households or dwellings compiled from a unit-level administrative or statistical register);

- (h) 'longitudinal data': means the data pertaining to individual-level changes over time, observed periodically over a certain duration. Longitudinal data may come either from a cross-sectional survey with a rotational sample where individuals once selected are followed up or from a pure panel survey; it may be combined with register data;
- (i) 'sample persons': means the persons selected to constitute the sample in the first wave of a longitudinal panel. They may comprise all members of an initial sample of households, or a representative sample of individuals in a survey of persons;
- (j) 'target primary areas': means the subject areas for which data are to be collected on an annual basis;
- (k) 'target secondary areas': means the subject areas for which data are to be collected every four years or less frequently;
- (l) 'gross income': means the total monetary and non-monetary income received by the household over a specified 'income reference period', before deduction of income tax, regular taxes on wealth, employees', self-employed and unemployed (if applicable) persons' compulsory social insurance contributions and employers' social insurance contributions, but after including inter-household transfers received;
- (m) 'disposable income': means gross income less income tax, regular taxes on wealth, employees', self-employed and unemployed (if applicable) persons' compulsory social insurance contributions, employers' social insurance contributions and inter-household transfers paid.

Article 3

Scope

The EU-SILC shall cover cross-sectional data on income, poverty, social exclusion and other living conditions as well as longitudinal data restricted to income, labour and a limited number of non-monetary indicators of social exclusion.

Article 4

Time reference

1. The cross-sectional and longitudinal data shall be produced annually as from 2004. In any given Member State, the timing of collection shall be kept the same from one year to the next as far as possible.

2. By way of exception to paragraph 1, Germany, the Netherlands and the United Kingdom may start the annual cross-sectional and longitudinal data collection in 2005. This will be the case provided that those Member States supply comparable data for the year 2004 for the cross-sectional common European Union indicators, which have been adopted by the Council before 1 January 2003 in the context of the open method of coordination and which can be derived on the basis of the EU-SILC instrument.

⁽¹⁾ OJ L 184, 17.7.1999, p. 23.

⁽²⁾ OJ L 181, 28.6.1989, p. 47.

3. The income reference period shall be a 12-month period. This may be a fixed 12-month period (such as the previous calendar or tax year) or a moving 12-month period (such as the 12 months preceding the interview) or be based on a comparable measure.

4. If a fixed income reference period is used, fieldwork for the survey component shall be carried out over a limited period as close as possible to the income reference period or to the tax declaration period so as to minimise time lag between income and current variables.

Article 5

Characteristics of the data

1. In order to permit multi-dimensional analysis at the level of households and persons and in particular investigation of major issues of social concern that are new and require specific research, all household and individual data shall be linkable in the cross-sectional component.

Similarly, all household and personal data shall be linkable in the longitudinal component.

Longitudinal micro-data do not need to be linkable with cross-sectional micro-data.

The longitudinal component shall cover at least four years.

2. In order to reduce response burdens, to help in income imputation procedures and to test data quality, the national authorities shall have access to relevant administrative data sources in accordance with Regulation (EC) No 322/97.

Article 6

Data required

1. The target primary areas and corresponding reference periods to be covered by the cross-sectional and the longitudinal components are laid down in Annex I.

2. Target secondary areas shall be included every year starting from 2005 only in the cross-sectional component. They shall be defined in accordance with the procedure referred to in Article 14(2). One secondary area shall be covered each year.

Article 7

Collection unit

1. The reference population for the EU-SILC shall be all private households and their current members residing in the territory of the Member State at the time of the data collection.

2. The main information collected shall pertain to

- (a) private households, including data on household size, composition and basic characteristics of its current members; and
- (b) persons aged 16 and over.

3. The collection unit, together with the mode of collection for household and personal information, shall be as laid down in Annex I.

Article 8

Sampling and tracing rules

1. Cross-sectional and longitudinal data shall be based on nationally representative probability samples.

2. By way of exception to paragraph 1, Germany shall supply cross-sectional data based on a nationally representative probability sample for the first time for the year 2008. For the year 2005, Germany shall supply data of which 25 % shall be based on probability sampling and 75 % shall be based on quota samples, the latter to be progressively replaced by random selection so as to achieve fully representative probability sampling by 2008.

For the longitudinal component, Germany shall supply for the year 2006 one third of longitudinal data (data for years 2005 and 2006) based on probability sampling and two thirds based on quota samples. For the year 2007, half of the longitudinal data relating to years 2005, 2006 and 2007 shall be based on probability sampling and half on quota samples. After 2007 all longitudinal data shall be based on probability sampling.

3. In the longitudinal component, individuals included in the initial sample, that is to say, sample persons, shall be followed over the duration of the panel. Every sample person who has moved to a private household within the national boundaries shall be followed up to the new location in accordance with tracing rules and procedures to be defined under the procedure referred to in Article 14(2).

Article 9

Sample sizes

1. On the basis of various statistical and practical considerations and the precision requirements for the most critical variables, the minimum effective sample sizes to be achieved shall be as set out in the table in Annex II.

2. Sample size for the longitudinal component refers, for any pair of consecutive years, to the number of households successfully interviewed in the first year in which all or at least a majority of the household members aged 16 or over are successfully interviewed in both the years.

3. Member States using registers for income and other data may use a sample of persons rather than a sample of complete households in the interview survey. The minimum effective sample size in terms of the number of persons aged 16 or over to be interviewed in detail shall be taken as 75 % of the figures shown in columns 3 and 4 of the table in Annex II, for the cross-sectional and longitudinal components respectively.

Information on income and other data shall also be collected for the household of each selected respondent and for all its members.

Article 10

Transmission of data

1. Member States shall transmit to the Commission (Eurostat) in the form of micro-data files weighted cross-sectional and longitudinal data which has been fully checked, edited and imputed in relation to income.

Member States shall transmit the data in electronic form, in conformity with an appropriate technical format to be adopted in accordance with the procedure referred to in Article 14(2).

2. Regarding the cross-sectional component, Member States shall transmit the micro-data files relating to year of survey N to the Commission (Eurostat), preferably within 11 months after the end of the data collection. The extreme deadline for the transmission of micro-data to Eurostat shall be 30 November (N+1) for Member States where data are collected at the end of year N or through a continuous survey or through registers and 1 October (N+1) for other Member States.

Together with the micro-data files, Member States shall transmit social cohesion indicators based on the cross-sectional sample of year N which will be included in the annual Spring report of year (N+2) to the European Council.

The dates of transmission of data also apply for the transmission of comparable data for cross-sectional common EU indicators for those Member States which start annual collection of data after 2004 in accordance with Article 4(2).

3. As for the longitudinal component, Member States shall transmit the micro-data files up to year N to the Commission (Eurostat) preferably within 15 months after the end of the fieldwork. The mandatory deadline for the transmission of micro-data to Eurostat shall be the end of March (N+2), each year starting from the second year of EU-SILC.

The first transmission of data, covering longitudinally linked data for:

- the survey years 2004 and 2005, in the case of Member States starting annual data collection in 2004, shall take place by the end of March 2007; and
- the survey years 2005 and 2006, in the case of Member States starting annual data collection in 2005, shall take place by the end of March 2008.

The next transmission shall cover the first three survey years 2004-2006 (2005-2007) and shall take place respectively by the end of March 2008 and 2009.

Thereafter, each year longitudinal data shall be provided covering the preceding four survey years (revised from previous releases as necessary).

Article 11

Publication

For the cross-sectional component, the Commission (Eurostat) shall publish an annual cross-sectional report at Community level by the end of June N+2, based on the data collected during year N.

For those Member States which start annual data collection after 2004 in accordance with Article 4(2) the cross-sectional report for 2004 shall include the common cross-sectional EU indicators.

As from 2006, the cross sectional report shall include the available results of methodological studies referred to in Article 16.

Article 12

Access for scientific purposes to EU-SILC confidential data

1. The Community authority (Eurostat) may grant access on its premises to confidential data or release sets of anonymised micro-data from the EU-SILC source, for scientific purposes and under the conditions laid down in Regulation (EC) No 831/2002.

2. For the cross-sectional component, micro-data files at Community level for data collected during year N shall be made available for scientific purposes by the end of February N+2.

3. For the longitudinal component, micro-data files at Community level for data collected up to year N shall be made available for scientific purposes by the end of July N+2.

The first issue of longitudinal micro-data files for those Member States which start data collection in 2004 shall cover the years 2004 and 2005 and shall take place at the end of July 2007.

The second issue in July 2008 shall cover the years 2004-2006, for those Member States which start the data collection in 2004, and the years 2005 and 2006, for those Member States which start data collection in 2005.

The third issue in July 2009 shall cover the years 2004-2007, for those Member States which start the data collection in 2004, and the years 2005-2007 for those Member States which start data collection in 2005.

Thereafter, each July release shall cover longitudinal data at Community level for the four most recent years for which data are available.

4. Reports produced by the Scientific Community based on cross-sectional micro-data files for data collected during year N shall not be disseminated before July N+2.

Reports produced by the Scientific Community based on longitudinal micro-data files in relation to the year of the survey N shall not be disseminated before July N+3.

*Article 13***Financing**

1. For the first four years of data collection in each Member State, that Member State shall receive a financial contribution from the Community towards the cost of the work involved.
2. The amount of the appropriations allocated annually for the financial contribution referred to in paragraph 1 shall be fixed as part of the annual budgetary procedures.
3. The budget authority shall grant the appropriations available for each year.

*Article 14***Committee**

1. The Commission shall be assisted by the Statistical Programme Committee, set up by Decision 89/382 (EEC/Euratom).
2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its rules of procedure.

*Article 15***Implementing measures**

1. The measures necessary for the implementation of this Regulation, including measures to take account of economic and technical changes, shall be taken, at least 12 months before the beginning of the year of the survey, in accordance with the procedure referred to in Article 14(2).
2. Such measures shall concern:
 - (a) the definition of the list of target primary variables to be included in each area for the cross-sectional component and the list of target variables included in the longitudinal component, including the specification of variable codes and the technical format of transmission to Eurostat;
 - (b) the detailed content of both intermediate and final quality reports;
 - (c) the definitions and the updating of the definitions, in particular the bringing into operation of the income definitions given in points (l) and (m) of Article 2 (including the timetable for the inclusion of the various components);
 - (d) the sampling aspects, including tracing rules;
 - (e) the fieldwork aspects and the imputation procedures;
 - (f) the list of target secondary areas and variables.

3. By way of exception, the measures, including those which take into account economic and technical changes, necessary for the implementation of this Regulation regarding the 2004 data collection, shall relate only to points (a) to (e) of paragraph 2 and shall be taken at least six months before the beginning of the year of the survey.

4. In each Member State the total duration of the interview relating to the target primary and target secondary variables of the cross-sectional component, including household and individual interviews, shall not exceed one hour on average.

*Article 16***Reports and studies**

1. Member States shall produce by the end of the year N+1 an intermediate quality report relating to the common cross-sectional EU indicators based on the cross-sectional component of year N.

Member States shall produce by the end of year N+2, final quality reports that cover both cross-sectional and longitudinal components in relation to the year of the survey N, focusing on the internal accuracy. By way of exception, the 2004 report (for Member States starting data collection in 2004) and 2005 report (for Member States starting data collection in 2005) shall only cover the cross-sectional component.

Small departures from common definitions, such as those relating to private household definition and income reference period, shall be allowed, provided they affect comparability only marginally. The impact on comparability shall be reported in the quality reports.

2. The Commission (Eurostat) shall produce by the end of June N+2 a comparative intermediate quality report relating to the common cross-sectional EU indicators of year N.

The Commission (Eurostat) shall produce by 30 June N+3 a comparative final quality report that covers both cross-sectional and longitudinal components in relation to the year of the survey N. By way of exception, the 2004 report (for those Member States starting data collection in 2004) and the 2005 report (for those Member States starting data collection in 2005) shall cover only the cross-sectional component.

3. No later than 31 December 2007, the Commission will submit a report to the European Parliament and the Council on the work done under this Regulation.

4. The Commission (Eurostat) shall organise from 2004 methodological studies to estimate the impact on comparability of the national data sources used and to identify best practices to be followed. The results of these studies shall be included in the report referred to in paragraph 3.

*Article 17***Entry into force**

This Regulation shall enter into force on the 20th day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Luxembourg, 16 June 2003.

For the European Parliament

The President

P. COX

For the Council

The President

G. PAPANDREOU

ANNEX I

PRIMARY AREAS COVERED IN THE CROSS-SECTIONAL COMPONENT AND AREAS COVERED IN THE LONGITUDINAL COMPONENT

1. Household information

Unit (Persons or households)	Mode of collection	Domains	Areas	Reference period	Cross-sectional (X) and/or longitudinal (L) area
Household	Information collected from a household member aged 16 or over or extracted from registers	Basic data	Basic household data including degree of urbanisation	Current	X, L
		Income	Total household income (gross ⁽¹⁾ and disposable)	Income reference period	X, L
			Gross income components at household level	Income reference period	X, L
		Social exclusion	Housing and non-housing related arrears	Last 12 months	X, L
			Non-monetary household deprivation indicators, including problems in making ends meet, extent of debt and enforced lack of basic necessities	Current	X, L
			Physical and social environment	Current	X
		Labour information	Child care	Current	X
		Housing	Dwelling type, tenure status and housing conditions	Current	X, L
			Amenities in the dwelling	Current	X
			Housing costs	Current	X

⁽¹⁾ Gross income components shall cover gross employee and self-employment income (monetary and non-monetary), gross employer's social insurance contributions, imputed rent, property income, gross current transfers received, other gross income and interest payments.

Non-monetary components of employee (with the exception of company cars that is to be calculated as from the first year of the survey) and self-employed income, imputed rent and interest payments shall be optional from the first year of the survey and compulsory from 2007.

Gross employer's social insurance contributions shall only be included from 2007 if results of feasibility studies are positive.

Variables required for calculating imputed rent will be collected as from the first year of data collection for each Member State (2004 or 2005).

2. Personal information

Unit (Persons or households)	Mode of collection	Domains	Areas	Reference period	Cross-sectional (X) and/or longitudinal (L) area
All persons aged under 16	Personal information collected from a household member aged 16 or over or extracted from registers	Basic data	Demographic data	Current	X, L
Former household members			Demographic data	Income reference period	L
All persons aged 16 or over in the household	Personal information collected from all household members aged 16 or over (proxy as an exception for persons temporarily away or incapacitated) or extracted from registers	Income	Gross personal income, total and components at personal level	Income reference period	X, L
		Basic data	Basic personal data	Current	X, L
			Demographic data	Current	X, L
		Education	Education, including highest ISCED level attained	Current	X, L
		Labour information	Basic labour information on current activity status and on current main job, including information on last main job for unemployed	Current	X, L
			Basic information on activity status during income reference period	Income reference period	X
			Total number of hours worked on current second/third ... jobs	Current	X
At least one household member aged 16 or over (the selected respondent)	Personal information collected from individual(s) (proxy as an exception) or extraction from registers	Health	Health, including health status and chronic illness or condition	Current	X, L
			Access to health care	Past 12 months	X
		Labour information	Detailed labour information	Current	X, L
			Activity history	Working life	L
			Calendar of activities	Income reference period	L

ANNEX II

Minimum effective sample sizes

	Households		Persons aged 16 or over to be interviewed	
	Cross-sectional	Longitudinal	Cross-sectional	Longitudinal
	1	2	3	4
EU Member States				
Belgium	4 750	3 500	8 750	6 500
Denmark	4 250	3 250	7 250	5 500
Germany	8 250	6 000	14 500	10 500
Greece	4 750	3 500	10 000	7 250
Spain	6 500	5 000	16 000	12 250
France	7 250	5 500	13 500	10 250
Ireland	3 750	2 750	8 000	6 000
Italy	7 250	5 500	15 500	11 750
Luxembourg	3 250	2 500	6 500	5 000
Netherlands	5 000	3 750	8 750	6 500
Austria	4 500	3 250	8 750	6 250
Portugal	4 500	3 250	10 500	7 500
Finland	4 000	3 000	6 750	5 000
Sweden	4 500	3 500	7 500	5 750
United Kingdom	7 500	5 750	13 750	10 500
Total of EU Member States	80 000	60 000	156 000	116 500
Iceland	2 250	1 700	3 750	2 800
Norway	3 750	2 750	6 250	4 650
Total including Iceland and Norway	86 000	64 450	166 000	123 950

Note: The reference is to the effective sample size which is the size required if the survey were based on simple random sampling (design effect in relation to the 'risk of poverty rate' variable = 1,0). The actual sample sizes will have to be larger to the extent that the design effects exceed 1,0 and to compensate for non-response of all kinds. Furthermore, the sample size refers to the number of valid households which are households for which, and for all members of which, all or nearly all the required information has been obtained.



Statistics in focus

POPULATION AND SOCIAL CONDITIONS

THEME 3 – 8/2003

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Poverty and social exclusion in the EU after Laeken-part 1

Ian Dennis and Anne-Catherine Guio

Common indicators for social inclusion

At the Nice European Council in December 2000, Heads of State and Government re-confirmed and implemented their March 2000 (Lisbon) decision that the fight against poverty and social exclusion would be best achieved by means of the open method of co-ordination. Key elements of this approach are the definition of commonly-agreed objectives for the European Union (EU) as a whole, the development of appropriate national action plans to meet these objectives, and the periodic reporting and monitoring of progress made.

It is in this context that the Laeken European Council in December 2001 endorsed a first set of 18 common statistical indicators for social inclusion, which will allow monitoring in a comparable way of Member States' progress towards the agreed EU objectives. These indicators need to be considered as a consistent whole reflecting a balanced representation of EU social concerns. They cover four important dimensions of social inclusion (financial poverty, employment, health and education), which highlight the "multidimensionality" of the phenomenon of social exclusion. The present publication provides an overview of the monetary indicators adopted in Laeken, which have all been calculated on the basis of the European Community Household Panel (ECHP). A second publication will present the non-monetary indicators.

15% of EU citizens at risk of poverty

15% of the EU population were at risk of poverty in 1999, i.e. living in households with an "equivalised disposable income" (see methodological notes, page 7) below 60% of the median equivalised income of the country they live in. This figure, calculated as a weighted average of national results (where each country receives a weight that equals its total population), masks considerable variation between Member States – with the share of the population at risk of poverty ranging from 9% in Sweden to 21% in Greece and Portugal (see Figure 1 below and the statistical appendix).

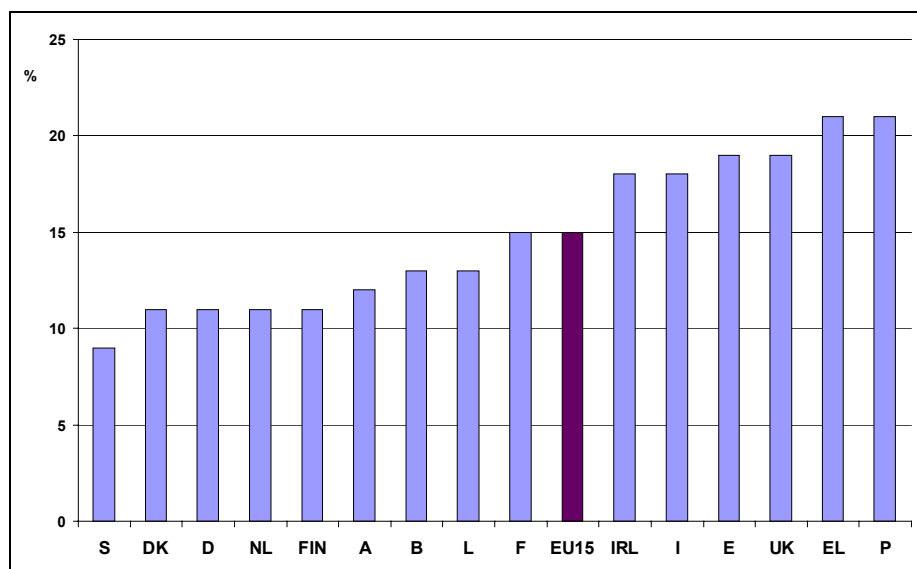


Figure 1: At-risk-of-poverty rate for 1999

Poverty risk is a relative concept

The “at-risk-of-poverty threshold” is fixed, for each country, at 60% of the national median equivalised income. The focus is therefore on the relative rather than absolute risk of poverty: this risk is indeed defined in relation to the general level of prosperity in each country and is expressed on the basis of a central value of the income distribution (a key advantage of the median is that it is not influenced by extreme values, i.e. extremely low or high incomes).

National thresholds are computed for the population as a whole and are expressed in terms of equivalised income to take account of household size and composition. For a given household type, a national threshold can then be converted from “equivalised” into “unequivalised” money by multiplying it by the “equivalent size” of that household (see methodological notes).

To illustrate the relative dimension of this threshold and help understand its actual meaning, Figure 2 shows its monetary value in Purchasing Power Standards (PPS, see methodological notes) for a 2 adults-2 children household for each Member State.

Values range from 61% of the EU-average in Portugal to 173% in Luxembourg, i.e. a ratio of 2.8 that highlights the differences between national standards of living. Apart from these extreme values, most national thresholds are between 70% and 130% of the EU-mean, which is 15,252 PPS (calculated as a population-weighted average of national thresholds). For a one-person household, the EU-mean is 7,263 PPS per year (see the statistical appendix).

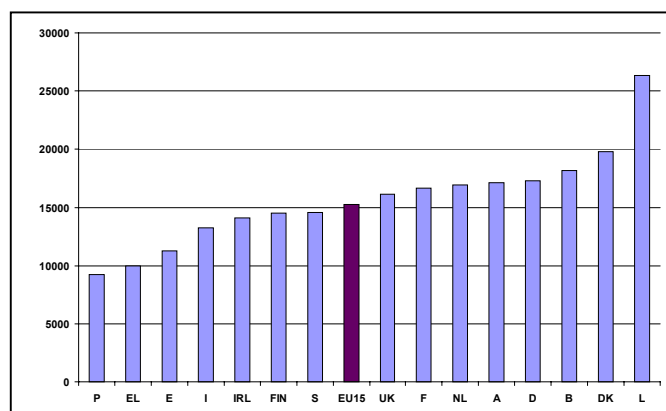


Figure 2: Illustrative value of the at-risk-of-poverty threshold for a 2 adults-2 children household for 1999

The choice of 60% of national median equivalised income is conventional, although statistical considerations have guided this selection. To examine the sensitivity of the risk of poverty to the choice of alternative thresholds, three additional thresholds have been considered: 40%, 50% and 70% of median equivalised income.

At the EU level, the likelihood of being at risk of poverty varied in 1999 from 5% to 23% for thresholds set at 40% and 70% of the median respectively; it is 9% if a 50% cut-off is used (see statistical appendix).

Figure 3 shows national and EU-wide rates of poverty-risk at these three alternative thresholds, expressed as a percentage of the at-poverty-risk rate at 60%.

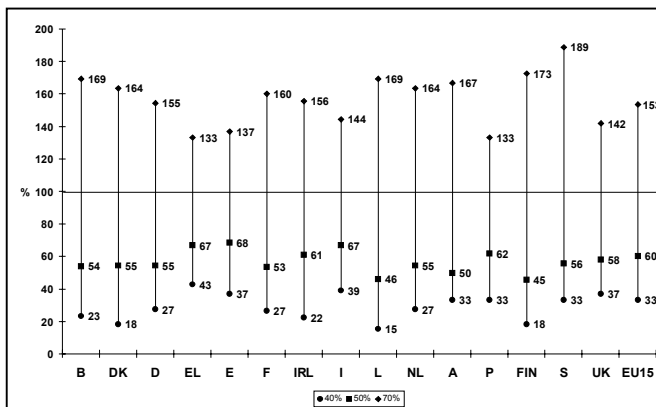


Figure 3: Dispersion around the at-risk-of-poverty threshold 40% 50% 70% for 1999 (in proportion to the 60% rate)

The results displayed in this Figure reflect the shape of the income distribution around the 60% threshold. If a lot of people are located just below (above) the 60% threshold, the 50% (70%) rate will be much lower (higher) than the 60% rate. So, the longer a bar for a given country, the higher the concentration of individuals around the 60% threshold. For example, in Luxembourg and Finland, only around 45% of those who are at risk of poverty at the 60% threshold are also at risk of poverty at the 50% threshold. This means that more than half the people at risk of poverty according to the standard definition have an equivalised income between 50% and 60% of the median equivalised income. By contrast, in Spain, Greece and Italy, a higher proportion of the poor are lying below the 50% (and, though to a lesser extent the 40%) threshold.

This indicator provides a first insight into the depth of poverty. An indicator that explicitly measures how far below the threshold the income of people at-risk-of-poverty is, i.e. “how poor the poor are”, is the at-risk-of-poverty gap.

Median at-risk-of-poverty gap

In 1999 the median gap (i.e. the difference between the median equivalised income of the poor and the 60% threshold), expressed as a percentage of this threshold, was 22% at EU level. In other words, half of those at-risk-of-poverty had an equivalised income below 78% of the at-risk-of-poverty threshold (i.e. below $78\% \times 60\% = 47\%$ of median equivalised income). The gap was higher in Greece, Spain and Italy and lower in Luxembourg and Finland (Figure 4).

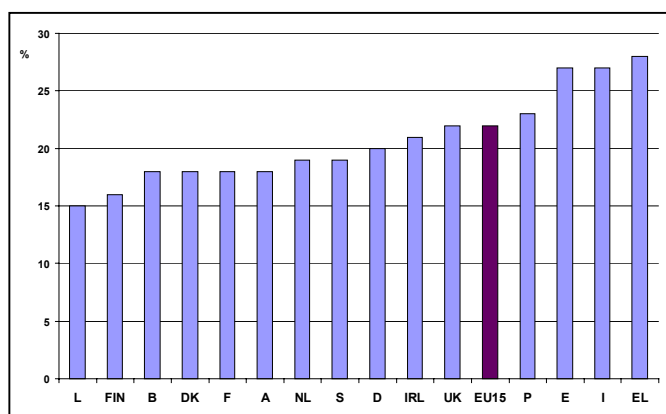


Figure 4: Relative median at-risk-of-poverty gap for 1999

Persistent risk of poverty

The share of the population living on a low income for an extended period of time is of particular policy concern, which is why another measure of poverty risk retained in the Laeken list of indicators for social inclusion is the persistence of this risk. Figure 5 displays 1999 national figures for both this indicator and the standard at-risk-of-poverty rate already discussed above.

9% of the EU population were persistently at-risk-of-poverty in 1999, i.e. had an equivalised income below the 60% threshold in that year but also in at least two of the preceding three years (1996-1998). This average again masks wide variation between Member States, with the persistent-risk-of-poverty rate varying from 5% in Denmark, Finland and the Netherlands, to 14% in Portugal.

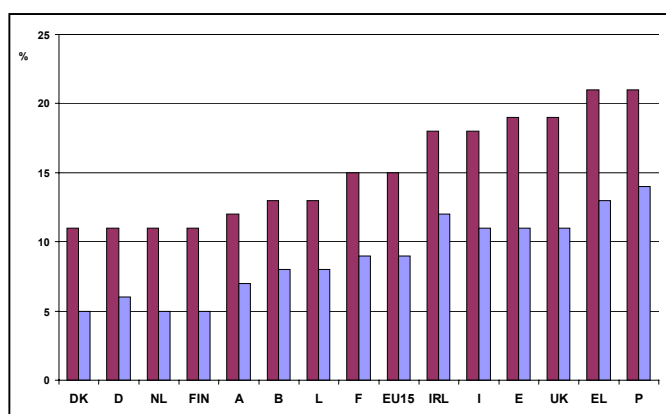


Figure 5: Persistent risk-of-poverty rate for 1996-1999 (right) and at-risk-of-poverty rate (left) for 1999

By contrasting both persistent and current poverty risk, Figure 5 shows that in 1999, at EU level, well over half the total number of people at risk of poverty were persistently at risk of poverty. This share was highest in Ireland and Portugal and lowest in Denmark, the Netherlands and Finland.

Changing the risk-of-poverty threshold over time

It is also interesting to calculate the at-risk-of-poverty rates for a threshold that is kept fixed in real terms over the period under examination (1996-1999). To do this, the 1996 threshold is used throughout the period simply by up-rating it for inflation in each year.

Figure 6 compares the standard at-risk-of-poverty rate with this new at-risk-of-poverty-rate “anchored” in 1996.

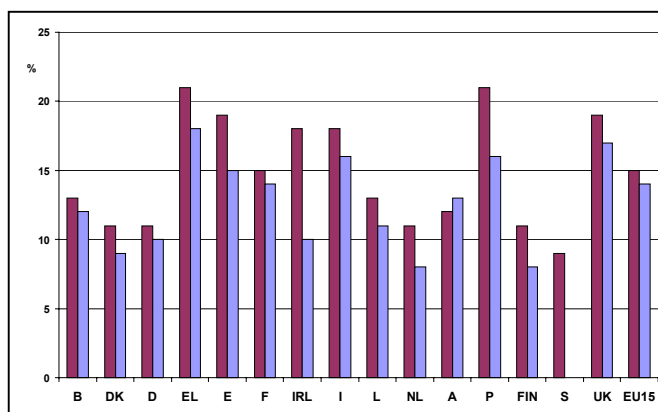


Figure 6: At-risk-of-poverty rate for 1999 (left) and at-risk-of-poverty rate anchored at 1996 for 1999 (right)

Results suggest that this approach does not yield significantly different results for the EU as a whole (1999 threshold: 15%, 1996 indexed threshold: 14%), whereas the difference in some countries is considerable. In Ireland, the indexation approach gives an at-risk-of-poverty rate of 10% (as opposed to 18%) and in Portugal 16% (instead of 21%), which suggests that over the 4-year period considered the rise in median income has been much faster than the inflation rate in these countries.

Some countries have a more equal distribution of income than others

The focus of all the indicators presented so far is on the bottom part of the income distribution. It can also be interesting to look at the relative position of the bottom group with regard to that of the top group.

This can be illustrated by the S80/S20 ratio. For each country, this ratio compares the total equivalised income received by the top income quintile (20% of the population with the highest equivalised income) to that received by the bottom income quintile (20% with lowest equivalised income).

The EU average is 4.6 in 1999, which means that the wealthiest quintile had 4.6 times more income than the poorest. Ratios range from 3.2 in Denmark and Sweden to 6.4 in Portugal.

S80/S20 is only responsive to changes in top and bottom quintiles. The Gini coefficient allows one to take into account the full distribution of income.

If there was perfect equality (i.e. each person receives the same income), the Gini coefficient would be 0%; it would be 100% if the entire national income were in the hands of only one person. In 1999, the calculated coefficient for the EU was 29%. National Gini coefficients vary between 23% (Denmark, Sweden) and 36% (Portugal). The rankings of national Gini coefficients and S80/S20 ratios are quite similar as can be seen in Figure 7.

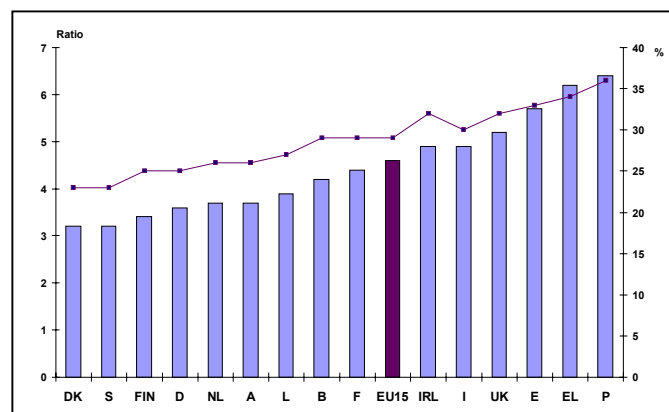


Figure 7: Income share ratio (left hand scale; bars) and Gini Coefficient (right hand scale; line) for 1999

Re-distributive effect of social transfers

After having examined the phenomenon of poverty risk and income distribution, it is important to start assessing the role of policy in lifting people out of the poverty risk. ECHP data allow us to look at the re-distributive effect of social transfers (i.e., old-age and survivors' pensions, unemployment benefits, invalidity payments, family allowances...) and their role in alleviating the risk of poverty. However it does not allow us to look at alternative policy measures such as tax credits and tax allowances as well as social transfers in kind.

A comparison between the standard at-risk-of-poverty rate and the hypothetical situation where social transfers are absent, shows that such transfers have an important re-distributive role.

In the absence of all social transfers, the poverty risk for the EU population as a whole would be considerably higher than it is in reality (40% instead of 15%). It can be argued that the prime role of old age (and survivors') pensions is not to re-distribute income across individuals but rather over the life-cycle of individuals. If, therefore, pensions are considered as primary income rather than social transfers, the at-risk-of-poverty rate without all other social transfers is 24%.

Figure 8 compares the different rates after and before social transfers for all the countries in 1999. These rates

are calculated with exactly the same threshold, namely the 60% threshold calculated on the basis of *total* household income, i.e. including all social transfers.

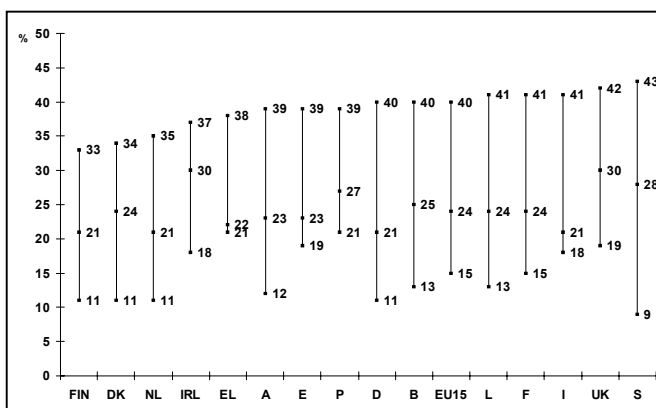


Figure 8: At-risk-of-poverty rate for 1999 before any social transfers (top), after pensions (middle) and after all social transfers (bottom)

To assess more explicitly the effect of social transfers excluding pensions (still considered as primary income), Figure 9 shows the drop of the at-risk-of-poverty rate calculated before and after these transfers for 1999 (expressed as a percentage of the "before transfers" rate). This drop is lowest in Greece (5%: from 22% to 21%), Italy, Spain and Portugal. It is highest in Denmark and Sweden, suggesting a high re-distributive impact of social transfers or a higher level of social expenditure in these countries.

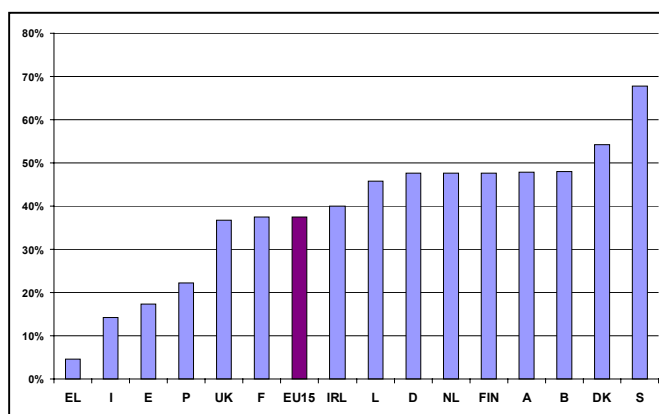


Figure 9: Impact of social transfers (excluding pensions) on the at-risk-of-poverty rate before transfers for 1999

More about the *Laeken indicators*...

As mentioned above, in total eighteen indicators were agreed at Laeken, grouped into ten primary indicators to cover the most important elements identified as leading to social exclusion, and eight secondary indicators to describe other dimensions of the problem. They now form a key basis for EU policy-making in the social area, given that Member States will include them from 2003 onwards in their National Action Plans on social inclusion that will be submitted every second year. They will also be used by both Member States and the Commission in their Joint Report on Social Inclusion as from 2003.

Member States will also be encouraged to supplement these common indicators in their National Action Plans on social inclusion with a third level of indicators to reflect specific national circumstances and to help interpret the primary and secondary indicators; these indicators need not necessarily be harmonised at EU level. For example, even though there is not yet a proposal for common indicators on housing, an important agreement has been reached on a common approach to be followed for this key area: Member States will also be invited to report on decent housing conditions, housing costs and homelessness in their National Action Plans on social inclusion as from 2003.

The 18 Laeken indicators were proposed by the Indicators Sub-Group of the EU Social Protection Committee that met for the first time in February 2001, and in which Eurostat is an active participant. They take account of in-depth methodological research commissioned by the Belgian Presidency of the EU for this specific purpose (see Atkinson T., Cantillon B., Marlier E. and Nolan B., 2002, *Social*

Indicators: The EU and Social Inclusion, Oxford University Press, Oxford). The report on indicators for social inclusion prepared by the Social Protection Committee and endorsed in Laeken can be found on the web-site of Directorate General *Employment and Social Affairs* of the European Commission (www.europa.eu.int).

This year, the Indicators Sub-Group is planning to refine and develop the agreed list of indicators further, to include extra dimensions recognised as relevant for social inclusion, and to expand the geographical coverage to Candidate countries (a similar analysis for the Candidate countries will be published shortly).

The present publication focused on the nine Laeken income indicators (see definitions in table below); a second report will discuss the remaining nine indicators. Indicators in this report were only provided at the level of the total population and for the latest data available (ECHP, 1999). The full series of data according to the breakdowns agreed in Laeken (by age and gender, activity status, household type and tenure status) can be found on the Eurostat New Cronos website, (Theme 3, Domain "ILC").

It should be noted that the work of the Indicators Sub-Group of the Social Protection Committee to establish the Laeken indicators has built on the European Commission's exercise launched in the year 2000 to agree a list of structural indicators in the field of social cohesion for inclusion in the annual Commission Report to the Spring European Council. The structural indicators on social cohesion that the Commission will use in its 2003 *Spring report* are a selection of the Laeken indicators, thereby ensuring full consistency between the different processes.

<i>'Income' must be understood as equivalised disposable income. It is defined as the household's total disposable income divided by its "equivalent size", to take account of the size and composition of the household, and is attributed to each household member.</i>	
Primary Indicators	Definition
At-risk-of-poverty rate after transfers	The share of persons with an income below 60% national median income. Breakdowns by age and gender, by most frequent activity status, by household type, by tenure status + At-risk-of-poverty threshold (illustrative values)
Inequality of income distribution	S80/S20 income quintile share ratio: Ratio of total income received by the 20% of the country's population with the highest income (top quintile) to that received by the 20% of the country's population with the lowest income (lowest quintile).
Persistent risk-of-poverty rate (60% median)	The share of persons with an income below the risk-of-poverty threshold in the current year and in at least two of the preceding three years. Gender breakdown + total
Relative median at-risk-of-poverty gap	Difference between the median income of persons below the at-risk-of-poverty threshold and the at-risk-of-poverty threshold, expressed as a percentage of the at-risk-of-poverty threshold. Gender breakdown + total
Secondary Indicators	
Dispersion around the risk-of-poverty threshold	The share of persons with an income below 40%, 50% and 70% national median income.
At-risk-of-poverty rate anchored at a moment in time	For a given year (in this publication: 1999), the "at-risk-of-poverty rate anchored at a moment in time (here: 1996)" is the share of the population whose income in that given year is below a risk-of-poverty threshold calculated in the standard way (here for 1996) and then up-rated for inflation (here, the period concerned is 1996-1999, but the inflation rate to be applied is that for the period 1995-1998 because the income reference year in the ECHP is the year prior to the survey)
At-risk-of-poverty rate before transfers	At-risk-of-poverty rate where income is calculated as follows: 1. Primary income, i.e. income excluding all social transfers 2. Primary income plus old-age and survivors' pensions 3. Total income, i.e. including all social transfers Gender breakdown + total
Gini coefficient	The relationship of cumulative shares of the population arranged according to the level of income, to the cumulative share of the total income received by them.
Persistent risk-of-poverty rate (50% median)	The share of persons with an income below the 50% risk-of-poverty threshold in the current year and in at least two of the preceding three years. Gender breakdown + total

Statistical appendix

1999	EU15	B	DK	D	EL	E	F	IRL
At-risk-of-poverty rate (%)								
After social transfers (60% threshold)	15	13	11	11	21	19	15	18
Before social transfers (income including pensions)	24	25	24	21	22	23	24	30
Before social transfers (income excluding pensions)	40	40	34	40	38	39	41	37
40% threshold	5	3	2	3	9	7	4	4
50% threshold	9	7	6	6	14	13	8	11
70% threshold	23	22	18	17	28	26	24	28
At-risk-of poverty threshold (PPS)								
One adult household	7,263	8,659	9,414	8,236	4,753	5,347	7,944	6,721
2 adults -2 children household	15,252	18,184	19,769	17,296	9,981	11,229	16,682	14,114
Relative median at-risk-of-poverty gap (%)	22	18	18	20	28	27	18	21
Persistent risk-of-poverty rate % (60% threshold)	9	8	5	6	13	11	9	12
Persistent risk-of-poverty rate % (50% threshold)	4	3	1	3	8	6	3	5
At-risk-of-poverty rate anchored at 1996 (%)	14	12	9	10	18	15	14	10
Income distribution (income quintile share ratio)	4.6	4.2	3.2	3.6	6.2	5.7	4.4	4.9
Gini Coefficient (%)	29	29	23	25	34	33	29	32
1999	I	L	NL	A	P	FIN	S	UK
At-risk-of-poverty rate (%)								
After social transfers (60% threshold)	18	13	11	12	21	11	9	19
Before social transfers (income including pensions)	21	24	21	23	27	21	28	30
Before social transfers (income excluding pensions)	41	41	35	39	39	33	43	42
40% threshold	7	2	3	4	7	2	3	7
50% threshold	12	6	6	6	13	5	5	11
70% threshold	26	22	18	20	28	19	17	27
At-risk-of poverty threshold (PPS)								
One adult household	6,305	12,532	8,067	8,158	4,400	6,921	6,942	7,694
2 adults -2 children household	13,241	26,317	16,941	17,132	9,240	14,534	14,578	16,157
Relative median at-risk-of-poverty gap (%)	27	15	19	18	23	16	19	22
Persistent risk-of-poverty rate % (60% threshold)	11	8	5	7	14	5	:	11
Persistent risk-of-poverty rate % (50% threshold)	6	2	2	3	8	2	:	5
At-risk-of-poverty rate anchored at 1996 (%)	16	11	8	13	16	8	:	17
Income distribution (income quintile share ratio)	4.9	3.9	3.7	3.7	6.4	3.4	3.2	5.2
Gini Coefficient (%)	30	27	26	26	36	25	23	32

: No information available

Source: Eurostat, ECHP-UDB, version December 2002

Notes: Data for Spain are provisional: The Spanish National Statistical Institute will revise the weights applied to the data for the next ECHP data releases. The EU averages are calculated as a weighted average of national results (where each country receives a weight that equals its total population).

► ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Data used

Figures presented in this publication come from the December 2002 version of the European Community Household Panel (ECHP) users' database (UDB). This is considered to be the best source of comparable data currently available.

The ECHP is a survey based on a standardised questionnaire. It involves annual interviewing of a representative panel of households and individuals, covering a wide range of topics: income (including the various social benefits), health, education, housing, demographics and employment characteristics. The longitudinal structure of the ECHP makes it possible to follow up and interview the same households and individuals over several consecutive years. The general impact of attrition rates over time has been reasonably low. The ECHP, like other household surveys, does not cover persons living in collective households, homeless persons or other difficult to reach groups. Furthermore, there are concerns about data quality for those at the lower end of the income distribution.

The first wave of the ECHP was conducted in 1994 in the then twelve EU Member States, on a sample of some 60,500 households (about 170 000 individuals). Austria joined the project in 1995 and Finland in 1996. The original samples were designed to achieve a high degree of national representativity. Even though Sweden is not taking part in the ECHP, comparable micro data from the Swedish survey on living conditions are included in the ECHP user's database from 1997 onwards. For the UK there is a break in series between 1996 and 1997. Until 1996, data from the original ECHP survey was used. From 1997 onwards, data from the national panel was transformed and used as the ECHP. For Germany, there is a break in the series between 1994 and 1995. From 1995 onwards, an additional sample of immigrants was added to the survey sample. In consequence, indicators calculated for years including 1994 are not consistent with those using data for 1995 and subsequent years. This particularly applies to the at-risk-of-poverty rate. The available data for Finland and France only permit adjustment for social transfers on a gross basis, which may affect the accuracy of the at-risk-of-poverty indicator before social transfers.

The current version of the ECHP UDB differs from previous versions in some aspects: In addition to the updating of income data by some countries, two methodological aspects have been substantially revised: a) an improved weighting procedure is applied to the ECHP data; in order to avoid extreme weights; and b) a new method to adjust for 'within household non-response' is used. The impact of these two substantial modifications in the production of the ECHP UDB is twofold. Firstly, the micro-data contain now less extreme weights and better income information. Secondly, there are some major changes in the estimates of important indicators based on the ECHP. These methodological changes can be regarded as a major revision and an improvement in the accuracy of ECHP estimates and will therefore be kept until the end of the ECHP. Please note that the Spanish Statistical Institute will revise the weights in the next releases.

Disposable Income

Data on income from the ECHP relate to the year immediately preceding the survey (e.g. 1998 for wave 6 conducted in 1999), whereas the household composition and the socio-demographic characteristics of household members are those registered at the moment of the survey. Household's total disposable income is taken to be total net monetary income received by the household and its members at the time of the survey interview – namely all income from work (employee wages and self-employment earnings), private income from investment and property, plus all social transfers received directly including old-age pensions, net of any taxes and social contributions paid. However, no account is taken of indirect social transfers, loans interest payment, transfers paid to other households, receipts in kind and imputed rent for owner-occupied accommodation. The last component in particular can have a significant impact for certain countries. In order to reflect differences in household size and composition, the income figures are given per "equivalent adult". In other words, the total household income is divided by its equivalent size using the so-called "modified OECD" equivalence scale. This scale gives a weight of 1.0 to the first adult, 0.5 to any other household member aged 14 and over and 0.3 to each child. The resulting figure is attributed to each member of the household, whether adult or children. The equivalent size of a household that consists of 2 adults and 2 children below the age of 14 is therefore: $1.0 + 0.5 + (2 \times 0.3) = 2.1$.

Purchasing Power Parities (PPP) and Purchasing Power Standards (PPS)

PPPs are a fictitious currency exchange rate, which eliminate the impact of price level differences. Thus 1 PPS will buy a comparable basket of goods and services in each country. For ease of understanding they are scaled at EU level. In consequence the PPS can be thought of as the Euro in real terms.

The detailed methodology of the monetary Laeken indicators presented in this publication is available on the Eurostat CIRCA website or from the authors on request.

Further information:

➤ Reference publications

Title Income, poverty and social exclusion (2000)
Catalogue No KS-29-00-181-EN-C Price EUR 14.50

➤ Databases

NewCronos, Theme 3, Domain ILC

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Poverty and social exclusion in the EU after Laeken – part 2

Ian Dennis and Anne-Catherine Guio

Agreement reached on a set of common indicators

At the Nice European Council in December 2000, Heads of State and Government confirmed and implemented their March 2000 (Lisbon) decision that the fight against poverty and social exclusion would be best achieved by means of the open method of coordination. Key elements of this approach are the definition of commonly-agreed objectives for the European Union (EU) as a whole, the development of appropriate national action plans to meet these objectives, and the periodic reporting and monitoring of progress made. In this context, the Laeken European Council in December 2001 formally adopted a first set of 18 common statistical indicators in the field of social inclusion. These indicators should be considered as a consistent whole, reflecting a balanced consideration of EU social concerns. They cover four important dimensions of social cohesion: financial poverty, employment, health and education – highlighting the multi-dimensional nature of social inclusion. The present publication provides an overview of the non-monetary indicators adopted at Laeken, for each Member State and the EU as a whole. This publication follows a first one dealing with monetary indicators.

Employment and social inclusion

Labour market participation is widely recognised as an important factor for social inclusion. One reason for this is the obvious link between work and income, even though it would be wrong to assume that the absence of a job automatically leads to financial poverty or that having a job is a sufficient condition for escaping from poverty. Apart from the financial aspect, employment can also be an essential means of social participation and personal development, albeit the absence of a job does not necessarily imply poor social integration, and not all jobs offer scope for social inclusion and personal well being. This explains why four out of the 18 *Laeken indicators* relate to employment: long term unemployment rate, long term unemployment share, very long term unemployment rate and persons living in jobless households.

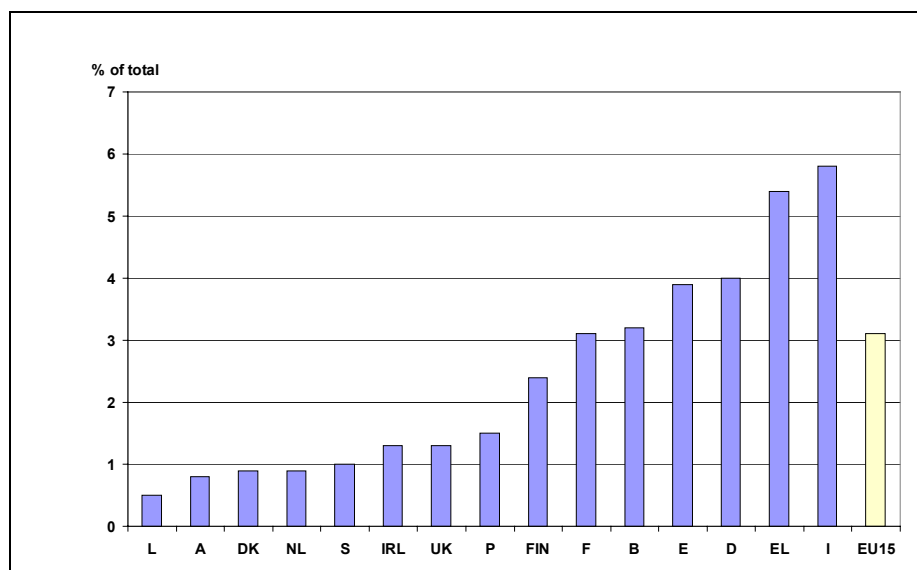


Figure 1: Ranking by long-term unemployment rate for 2001
(Except D,L 2000)

Source: EU Labour Force Survey – annual averages.

Long term unemployment in the EU

As employment is a key mechanism for social inclusion, unemployment raises particular concerns, especially if it persists for a long period of time. Using figures from the Labour Force Survey and applying the standard ILO definition of unemployment, the long term unemployment rate, i.e. the share of the total active population (which consists of both people at work and the unemployed) that has been unemployed for at least 12 months stood at 3% for the EU as a whole in 2001 (the EU percentage is calculated as a weighted average of national results, with each country receiving a weight equal to its total population). Data for Germany and Luxembourg relate to 2000.

This rate ranged from less than 1% in Austria, Denmark, the Netherlands and Luxembourg (2000 data) to 6% in Italy (see Figure 1 and statistical appendix). Furthermore, there are important gender differences (women being more likely to be unemployed for a long time) – particularly in Greece, Spain and Italy (see statistical appendix). Expressed as a share of total unemployment rather than total activity, the long-term unemployed represented a high proportion of 41% at EU level in 2001 (see Figure 2). Values ranged from 20% in Denmark to more than 60% in Italy. Data for Netherlands relate to 1999.

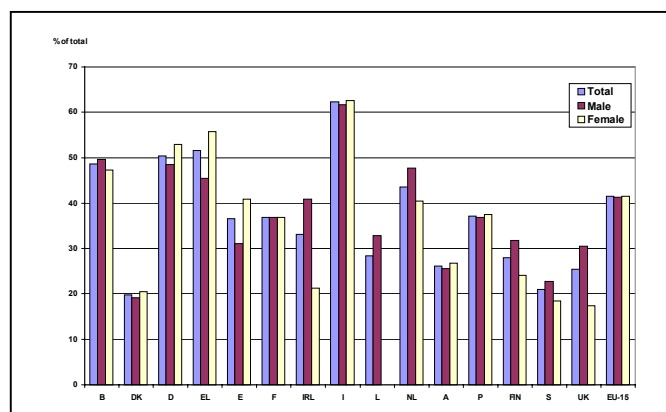


Figure 2: Long-term unemployment share for 2001
(Except NL - 1999)

Source: EU Labour Force Survey – annual averages.

'Long-term' often means 'very-long-term'

The longer the period of unemployment, the greater the risk of social exclusion, which is why the Laeken European Council has also selected the very-long-term unemployment rate as one of the EU indicators of social inclusion. In 2001, this indicator (see figure 3) had a value of 2% for the EU as a whole, showing that 2% of the active population had been unemployed for at least the last 24 months using the standard ILO definition (see methodological appendix). This implies that about two thirds of the long-term unemployed had in fact been unemployed for a very long time. There are important gender differences, with the situation being almost twice as bad for women in Greece, Spain and Italy as it was

for men (see statistical appendix). Data for Germany and Luxembourg are for 2000.

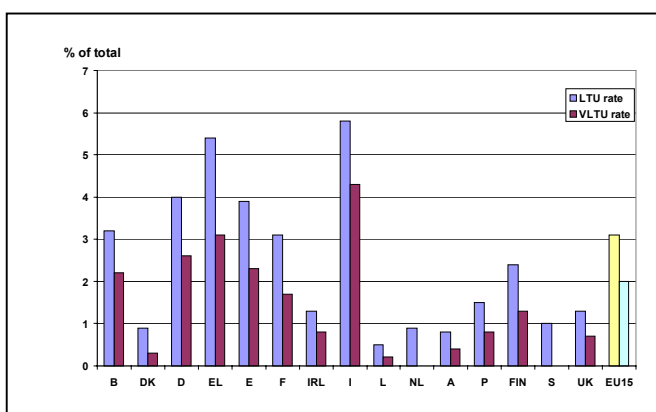


Figure 3: Very long-term unemployment rate and long term unemployment rate for 2001

(Except D, L, 2000)

Source: EU Labour Force Survey – annual averages.

Many people live in jobless households

The well being of individuals depends not only on their own labour market position but more broadly on the degree of contact with the world of work of their household. Another indicator covering the employment dimension of social exclusion is the proportion of persons living in jobless households. More precisely, this indicator measures the proportion of people living in "active age" households, i.e. households where one could expect (on age grounds) at least one member to be economically working, but where no one works. The focus of this indicator is therefore on the cumulative negative impact, at household level, of lacking contact with the world of work.

The specific objective of this indicator requires that eligible households, i.e. "active age" households, be first correctly identified. Eligible households are those households where at least one member does not fall in any of the following categories: children aged less than 18 years old; persons aged 18-24 in education and inactive; and persons aged over 65 and not working. To take account of the different retirement ages (legal or effective) across Member States, an alternative threshold for defining the elderly population (60) has also been retained. The indicator is then calculated as the share of people living in eligible households who are aged 0-65 (respectively 0-60) and who live in a household where no one is working.

For the EU as a whole, 12% of people living in eligible households were in that situation in 2001; this figures drops to 9% if a reference age of 60 instead of 65 is used for defining the elderly population (see Figure 4 below and statistical appendix). The EU percentage masks some considerable variation between Member States - with national figures ranging from 5% (3% with the 60 years threshold) in Portugal to 16% (13% for 0-60) in Belgium.

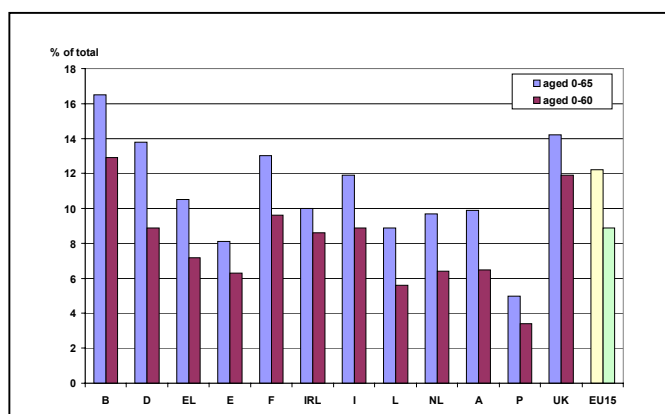


Figure 4: Persons living in jobless households for 2001

Source: EU labour Force Survey – Spring data.

Regional cohesion

With the aim to measure social cohesion across regions, a specific indicator provides the dispersion (coefficient of variation) of employment rates at NUTS2 level, using data from the Labour Force Survey. For 2001, this indicator suggests that regional cohesion is lowest in Italy and Spain and highest in the Netherlands and Austria (see Figure 5 and statistical appendix). This indicator is not applicable in Denmark, Ireland and Luxembourg as NUTS2 and national levels are similar.

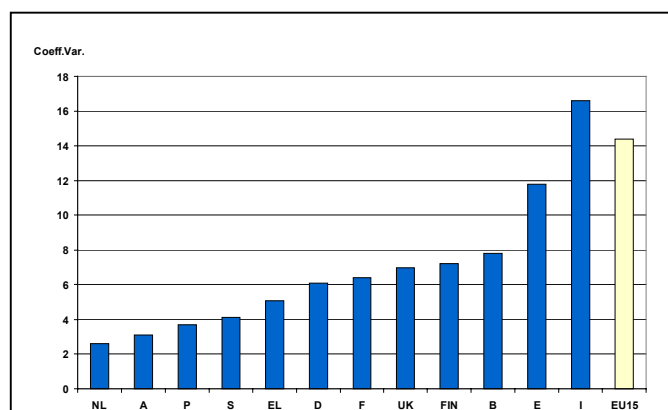


Figure 5: Dispersion of regional employment for 2001

Source: EU Labour Survey – Spring data.

19% leave school with low qualifications

If education is obviously a critical explanatory factor in determining entry into and positioning within the labour market, it also plays a major role in terms of participation in society and personal development.

In particular, the proportion of persons with low educational attainment among the age group 18 to 24 just leaving the education system is an important indicator of the efficiency of this system, but also a predictor of the future ability of the society to fight poverty and improve social cohesion.

2001 Labour Force Survey data (see figure 6) shows that 19% of all 18-24 year olds had only lower education

level or less (i.e. a school-leaving qualification of maximum ISCED'97 level 2; see methodological annex) and were not currently attending education or training (this latter filter is necessary to exclude people who are still attending courses which may increase their qualification level). Values ranged from 10% in Austria to 45% in Portugal.

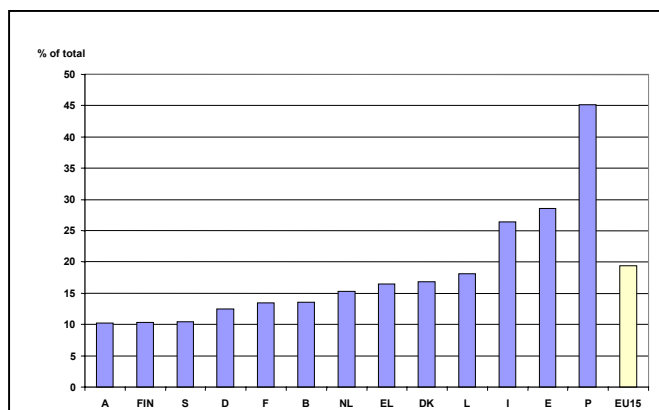


Figure 6: Early school leavers not in education or training in 2001

Source: EU Labour Force Survey – Spring data.

Improving educational attainment levels

To complement the foregoing indicator, a useful stock indicator on the educational level of the working age population aged 25-64 years has also been endorsed: the percentage of persons aged 25-64 who have only lower secondary education or less (see figure 7).

When broken down into 10-year age bands, it shows the extent to which general educational attainment levels are changing over time. At EU level for 2001, the proportion of the older generation (55-64) falling in this category is approximately twice that of the younger generation (25-34), suggesting a significant improvement over time.

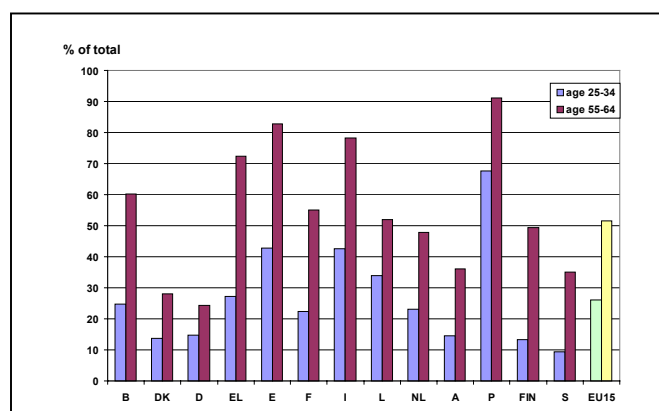


Figure 7: Persons with low educational attainment in 2001 (aged 25-34 and aged 55-64)

Source: EU Labour Force Survey – Spring data.

High life expectancy

The general social cohesion in terms of health in the EU as a whole rather than in individual Member States can be assessed by looking at the life expectancy figures, i.e. the number of years which a person may be expected to live at birth. Figure 8 shows that on average, in 2001 the life expectancy of Europeans was around 78 years, varying from 76 (in Ireland) to 80 (in Italy and Sweden).

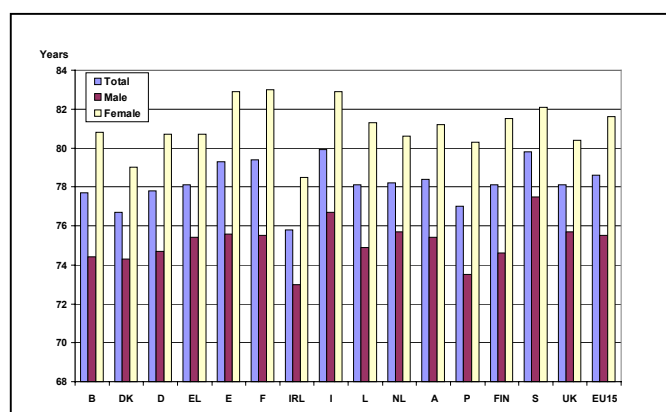


Figure 8: Life expectancy at birth for 2001

Except 2000 (L, A, B (male)), 1999 (D).

Source: Demographic statistics.

Wide variation of health status by income

It is often recognised that health is closely linked to social inclusion. The way to interpret the linkage between bad health and poverty is twofold. Bad health can lead to exclusion from the labour market and cause poverty. Poverty can also generate bad health, due to poor living and housing conditions or difficulties of access to health care.

In the absence of comparable objective health data (like premature mortality) by socio-economic groups, self-defined health status allows a first useful investigation of a particularly important aspect of social inclusion. The subjective nature of this indicator needs, however, to be kept in mind due to the problems of interpretation.

An indicator of health inequality by income was tentatively adopted in Laeken, calculated as the ratio of the proportions in the bottom and top income quintile groups of the population aged 16 and over who classify themselves as in a bad or very bad state of health. However, Eurostat is still undertaking research into the feasibility and suitability of this indicator, in collaboration with the Indicators Sub-Group. For this reason, provisional figures derived from the European Community Household Panel (ECHP) are not presented here.

Indicators discussed in this publication

As mentioned above, altogether eighteen indicators were agreed at Laeken, grouped into ten primary indicators to cover the most important elements identified as leading to social exclusion, and eight secondary indicators to describe other dimensions of the problem. They now form a key basis for EU policy-making in the social area, given that Member States will include them as from 2003 in their National Action Plans on social inclusion that are to be submitted every second year. They will also be used by both Member States and the Commission in their Joint Report on Social Inclusion as from 2003.

Member States will also be encouraged to supplement these common indicators in their National Action Plans on social inclusion with a third level of indicators to reflect specific national circumstances and to help interpret the primary and secondary indicators; these indicators need not necessarily be harmonised at EU level. More information about the Laeken indicators can be found in the part 1 of this two-part publication.

Indicators of monetary poverty derived from the European Community Household Panel are discussed in part 1 of this two-part publication. The remaining indicators can be found in the present publication. The indicators in this report (graphs and statistical appendix) are presented for a single year, either at the level of the total population or with a breakdown by gender or age. Related data can be found on the Eurostat New Cronos website in the following tables:

Indicator	New Cronos
Persons living in Jobless Households	Theme 3 Domain LFS Collection LFS-IND Table LFS-IND Indicator SC071, 072
Long-term unemployment rate	Theme 3 Domain EMPL Collection INDIC_Y Table LTU_ACT-RT
Long-term unemployment share	Theme 3 Domain LFS Collection UNEMPL Table UPGAL Indicator Y15MAX
Very long-term unemployment rate	Indicator not published. For absolute numbers of persons, see: Theme 3 Domain LFS Collection UNEMPL Table UGAD Indicator Y15MAX

Indicator	New Cronos
Regional cohesion	Theme 1 Domain REGIO Collection LFS-R Table LFOCVERT
Early school leavers not in education or training	Theme 3 Domain LFS Collection LFS-IND Table LFS-IND Indicator SC051, 052, 053
Persons with low educational attainment	Indicator not published. For absolute numbers of persons, see: Theme 3 Domain LFS Collection POPHOUSE Table PGAED
Life expectancy at birth	Theme 3 Domain DEMO Collection DMOR Table MLEXPEC
Self-defined health status by income level	Indicator not published. For status, see: Theme 3 Domain HEALTH Collection PUBLIC Group HSTATUS Table SPHL

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Jobless households, long-term unemployment rate, long-term unemployment share, very-long-term unemployment rate

The **total active population** or labour force is the total population at work and the unemployed population. **Unemployed** persons are those aged 15-64, not living in collective households who are without work throughout the reference period, are available to start work within the next two weeks and are taking active steps to find work (have actively sought employment at some time during the previous four weeks or are not seeking a job because have already found a job to start later).

The **long term unemployment rate** is the total number of long-term unemployed (at least 12 months) as a percentage of the total active population aged 15-64. (Gender breakdown + total)

The **long term unemployment share** is the total number of long-term unemployed (at least 12 months) as a percentage of the total number of unemployed. (Gender breakdown + total)

The **very long term unemployment rate** is the total number of very long-term unemployed (at least 24 months) as a percentage of the total active population aged 15-64. (Gender breakdown + total)

Population living in **jobless households** is calculated by dividing the number of persons aged 0-65 (and additionally 0-60) living in households where no one is working out of the persons living in eligible households. Eligible households are all households except those where everybody falls in one of these categories:

- aged less than 18 years old
- aged 18-24 in education and inactive
- aged 65 (60) and over and not working

The data presented in this publication for 2001 and earlier years come from the Labour Force Survey (available data for individual indicators shown in statistical appendix). Fig.4 (jobless households): no comparable data are yet available for Denmark, Finland and Sweden. The target population is all persons aged 15+ living in private households, and the survey covers around 1,200,000 such individuals (550,000 households) across Europe.

Data are only presented in this publication for the EU15 member states. Comparable data are also available for EFTA countries (Switzerland, Iceland and Norway) and Candidate Countries for accession to the European Union. No comparable data are available for USA or Japan. Indicators established for individual countries using alternative data sources and methodologies may differ from the LFS-

derived results presented in this publication. The EU-15 average is calculated as a population weighted average of the available individual national values, with national weights equal to national populations.

Early school leavers not in education or training, Persons with low educational attainment

Early school leavers are the proportion of persons aged 18 to 24 who have only lower secondary education (their highest level of education or training attained is ISCED 0, 1 or 2) and have not received education or training in the four weeks preceding the survey.

Persons with low educational attainment: Proportion of people aged 25-64 (by ten year age band) whose highest level of education or training is ISCED 0, 1 or 2 in the total population of the same age group.

ISCED 97 is the 1997 International Standard Classification of Education.

The data presented in this publication also come from the Labour Force Survey. Interviewees are asked whether they have participated in education and training during the preceding 4 weeks. This includes any forms of education, whether for general interest, academic or vocational reasons. Coding of educational level is according to the 1997 International Standard Classification of Education. Agreement has not yet been reached with the UK on the definition of upper secondary attainment. Comparable data are therefore not currently available for this country. The EU-15 average is calculated as a population weighted average of the available individual national values, with national weights equal to national populations.

Regional cohesion

The **regional cohesion** indicator is the coefficient of variation of employment rates at NUTS (Nomenclature of Territorial Units for Statistics) level 2. It is calculated separately for each country and gives a measure of the regional spread of employment rates.

The source of data for this indicator is the Labour Force Survey. For individual countries, the limitation to NUTS 2 level (c.200 locations) reduces the number of observations considerably by comparison to NUTS 3 level (c.1100 locations), which makes the indicator more sensitive to any changes. Data are not applicable for Denmark, Ireland or Luxembourg as NUTS2 level is close to national level. The EU-15 estimate is calculated using data for all regions in all countries (including Denmark, Ireland and Luxembourg).

Life expectancy at birth

The **life expectancy at birth** is the number of years a person may be expected to live, starting at age 0. (Gender breakdown + total)

The source of data for this indicator is the periodic census (currently 1991, given that 2001 results are not yet final), which is then adjusted for available information on subsequent births, deaths and migration. Data are collected for males and females: figures for the total population are estimated as a weighted arithmetic mean. The EU-15 estimate is calculated as a population weighted average of the individual national values. Data are only presented in this publication for the EU15 member states. Comparable data are also available for EFTA countries (Switzerland, Iceland and Norway), the Candidate Countries for accession to the European Union, USA and Japan.

Self-perceived health status by income

The **'self-perceived health by income'** indicator compares (a) the percentage of individuals aged 16 and over with an equalised total net household income in the 'richest' income quintile group who classify themselves as having a 'bad' or 'very bad' state of health according to the WHO definition with (b) the percentage of individuals aged 16 and over with an equalised total net household income in the 'poorest' income quintile group who classify themselves as having a 'bad' or 'very bad' state of health according to the WHO definition. (Gender breakdown + total)

Data are not presented in this publication, pending the result of ongoing research into the feasibility and suitability of this Indicator. If retained, information would come from the latest wave of the European Community Household Panel (ECHP) users' database.

Statistical Appendix

Indicator	Unit	Period	EU15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Persons living in Jobless Households ¹ , aged 0-65	%	2001	12,2 e	16,5	:	13,8	10,5	8,1	13,0	10,0	11,9	8,9	9,7	9,9	5,0	:	:	14,2
Persons living in Jobless Households ¹ , aged 0-60	%	2001	8,9 e	12,9	:	8,9	7,2	6,3	9,6	8,6	8,9	5,6	6,4	6,5	3,4	:	:	11,9
Long-term unemployment rate ² , Total	%	2001	3,1 e	3,2	0,9	4,0	5,4	3,9	3,1	1,3	5,8	0,5	0,9	0,8	1,5	2,4	1,0	1,3
Long-term unemployment rate ² , Male	%	2001	2,7 e	2,9	0,8	3,8	3,2	2,3	2,5	1,6	4,4	0,5	0,7	0,7	1,2	2,5	1,2	1,7
Long-term unemployment rate ² , Female	%	2001	3,7 e	3,5	1,0	4,3	8,7	6,3	3,7	0,8	8,1	0,6	1,0	0,9	1,9	2,3	0,9	0,8
Long-term unemployment share ³ , Total	%	2001	41,4 e	48,6	19,7	50,4	51,6	36,6	36,8	33,1	62,2	28,4	43,5	26,1	37,2	27,9	20,9	25,4
Long-term unemployment share ³ , Male	%	2001	41,3 e	49,7	19,1	48,4	45,5	31,0	36,9	40,8	61,7	32,8	47,7	25,5	36,9	31,8	22,8	30,4
Long-term unemployment share ³ , Female	%	2001	41,4 e	47,3	20,5	52,9	55,7	40,9	36,8	21,3	62,5	:	40,4	26,7	37,5	24,1	18,4	17,4
Very long-term unemployment rate ² , Total	%	2001	2 e	2,2	0,3	2,6	3,1	2,3	1,7	0,8	4,3	0,2	:	0,4	0,8	1,3	:	0,7
Very long-term unemployment rate ² , Male	%	2001	1,7 e	2,0	0,3	2,3	1,7	1,3	1,4	1,0	3,3	0,2	:	0,4	0,5	1,5	:	1,0
Very long-term unemployment rate ² , Female	%	2001	2,4 e	2,4	0,3	2,9	5,1	3,9	2,1	0,4	5,9	0,3	:	0,4	1,1	1,1	:	0,4
Regional cohesion ¹ , Total	%	2001	14,4 e	7,8	:	6,1	5,1	11,8	6,4	:	16,6	:	2,6	3,1	3,7	7,2	4,1	7,0
Regional cohesion ¹ , Male	%	2001	10,9 e	6,4	:	7,1	3,8	8,3	4,5	:	9,2	:	2,4	2,8	2,3	6,7	3,9	6,7
Regional cohesion ¹ , Female	%	2001	21,7 e	10,2	:	6,4	9,2	18,6	9,1	:	28,7	:	3,9	4,8	6,8	8,1	4,5	7,6
Early school leavers not in education or training ¹ , Total	%	2001	19,4 e	13,6	16,8	12,5	16,5	28,6	13,5	:	26,4	18,1	15,3	10,2	45,2	10,3	10,5	:
Early school leavers not in education or training ¹ , Male	%	2001	21,9 e	15,0	16,9	12,2	20,4	34,9	15,0	:	30,2	19,0	16,5	9,7	52,3	13,0	11,3	:
Early school leavers not in education or training ¹ , Female	%	2001	16,8 e	12,3	16,7	12,8	13,0	22,2	12,0	:	22,6	17,2	14,1	10,7	38,0	7,7	9,7	:
Persons with low educational attainment ¹ , aged 25-34	%	2001	26,1 e	24,9	13,7	14,8	27,3	42,8	22,3	:	42,6	34,0	23,1	14,6	67,6	13,2	9,3	:
Persons with low educational attainment ¹ , aged 35-44	%	2001	31,4 e	37,6	19,6	14,6	39,6	55,0	33,4	:	50,7	37,4	29,0	18,2	80,4	16,0	13,8	:
Persons with low educational attainment ¹ , aged 45-54	%	2001	40,2 e	46,3	19,6	17,1	56,8	71,4	42,4	:	61,5	45,4	37,8	26,5	86,3	30,8	21,8	:
Persons with low educational attainment ¹ , aged 55-64	%	2001	51,6 e	60,3	28,1	24,3	72,3	82,7	54,9	:	78,2	52,1	47,8	36,1	91,2	49,3	35,1	:
Life expectancy at birth ⁴ , Total	%	2001	78,6 e	77,7 e	76,7 e	77,8 e	78,1 e	79,3 e	79,4 e	75,8 e	79,9 e	78,1 e	78,2 e	78,4 e	77,0 e	78,1 e	79,8 e	78,1 e
Life expectancy at birth ⁴ , Male	%	2001	75,5 e	74,4	74,3	74,7	75,4	75,6	75,5	73,0	76,7	74,9	75,7	75,4	73,5	74,6	77,5	75,7
Life expectancy at birth ⁴ , Female	%	2001	81,6 e	80,8	79,0	80,7	80,7	82,9	83,0	78,5	82,9	81,3	80,6	81,2	80,3	81,5	82,1	80,4

Source:

1. Eurostat, LFS, Spring 2002
2. Eurostat, LFS, Spring 2002. Annual averages for 2001 except D and L (2000)
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Monetary poverty in EU Acceding and Candidate Countries

Ian Dennis and Anne-Catherine Guio

Common indicators for social inclusion

At the Laeken European Council in December 2001, European Union (EU) Heads of State and Government endorsed a first set of 18 common statistical indicators of social exclusion and poverty. Indicators are an essential element in the Open Method of Co-ordination to monitor progress of Member States in the fight against poverty and social exclusion. A selection of the 18 Laeken indicators have also been used as structural indicators by the European Commission in its Synthesis Report to the 2003 Spring European Council meeting.

To highlight the multidimensional nature of the phenomenon of social exclusion, the indicators cover four important areas: financial poverty, employment, health and education. The present report provides an overview of the indicators relating to monetary aspects of poverty, as calculated for Acceding and Candidate Countries on the basis of national statistical sources. An equivalent report, published in April 2003 gives the same overview for the Member States and more information on the political background.

Comparability of indicators between Candidate and Acceding Countries and with the EU

The methodology employed to calculate the indicators for Acceding and Candidate countries is, as far as possible, the same as the one used for Member States. In particular, every effort has been made to ensure that the definition of income used is as comparable as possible to the European Community Household Panel (ECHP) definition, which is the database used for Member States.

In spite of these harmonisation efforts, the indicators for Candidate and Acceding Countries cannot be considered to be fully comparable with those for EU countries, or even across the participant Candidate and Acceding Countries, due to the differences of underlying data sources. In particular, surveys can have different income reference periods (monthly, yearly, current or previous), which may have an impact on the value of the indicators. Furthermore, within a country, the income variable may not be fully comparable between subsamples if the survey is conducted at different periods of the year (i.e. in continuous surveys for which the income reference period is the current one). In this case, the income distribution (and the results in terms of poverty risk) can be biased by the variability of seasonal income components (such as income from agriculture). Another factor that can affect the comparability of the results is the fact that, although 1999 is the reference year for most of the countries, there are some exceptions (i.e., Cyprus (1997), Czech Republic (1996), Estonia (2000), Malta (2000) and Turkey (1994)). For a review of the underlying data sources and their income reference period, see methodological notes, page 7.

For all the indicators in the current publication, the “ACC” mean is a weighted average of national results (where each country receives a weight that equals its total population), computed for the eight Acceding Countries for which we have information, i.e. all except Hungary and Slovak Republic. For the latter two countries some questions remain about the consistency of the results and efforts are ongoing to identify and solve these issues in time to include indicators in a follow-up exercise. Results for the three Candidate Countries (Romania, Bulgaria and Turkey) are also presented. Due to the missing longitudinal dimension in the underlying data sources, persistent risk-of-poverty rates (50% and 60% threshold) could not be calculated for any country.

When comparing the results, it is important to keep in mind that participant countries have had different social, historical and economic experiences in recent years (contrast, for example, Eastern and Central European Countries with Mediterranean Islands, Turkey and Slovenia).

In spite of all the above methodological difficulties, the indicators presented provide a valuable (and previously unpublished) comparative information on poverty and in Candidate and Acceding Countries and the EU.

Population at-risk-of poverty

Figure 1 shows the proportion of the population who were at risk of poverty in each country in 1999, i.e. living in households with an “equivalised disposable income” (see methodological notes, page 7) below 60% of the national median equivalised income.

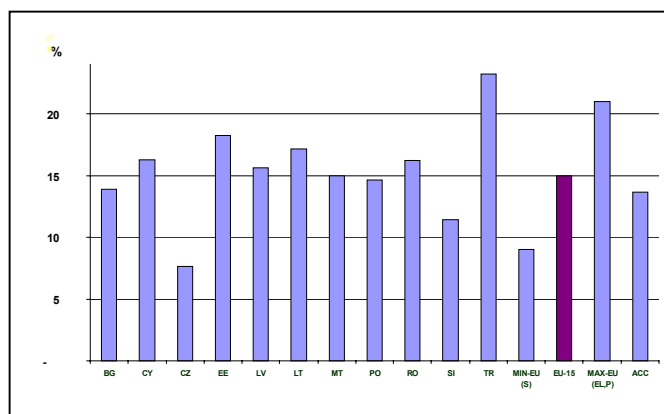


Figure 1: At-risk-of-poverty rate for 1999 except CY (1997), CZ (1996), EE (2000), MT (2000), TR (1994).

Acceding and Candidate countries and the existing EU Member States (on average) seem to have a very similar performance in terms of exposure to poverty risk. Apart from the extreme positions occupied by Czech Republic (8%) and Turkey (23%), the values range from 11% (Slovenia) to 18% (Estonia).

Poverty is measured as a relative concept

The “at-risk-of-poverty threshold” is fixed, for each country, at 60% of the national median equivalised income. The focus is therefore on the *relative* rather than absolute risk of poverty: this risk is defined in relation to the general level of prosperity in each country and is expressed with reference to a central value of the income distribution (a key advantage of the median is that it is not influenced by extreme values, i.e. extremely low or high incomes).

The main advantage of the relative poverty line is that it is based on the living standard of each country and does not require a universal definition of the minimum living standards below which one individual should be considered at risk of poverty. However, this method does not appear fully adapted for a comparative analysis of poverty and social exclusion in the context of the enlarged Union. The level of the at-risk-of-poverty threshold in Candidate and Acceding Countries is very low compared to the EU average, whereas their distribution of income is relatively narrow. This can almost certainly be explained by historical circumstances (income distribution policies in socialist economies and the different evolutions following liberalisation), by difficulties in capturing information about income from the hidden economy; and to the fact that extreme incomes (very poor or very rich people) are often misrepresented in the surveys. Be it as it is, this is an argument for complementing the relative poverty indicator with additional measures (absolute or non-monetary) in the future.

The comparative analysis of the national thresholds helps to illustrate the different level of economic well-being across countries (even again if it should be kept in mind that different reference years can influence the results). Figure 2 shows the annual monetary value of the at-risk-of-poverty threshold for a single-person household, in Purchasing Power Standards (PPS, see methodological notes) and for each country, as well as for the EU and ACC means.

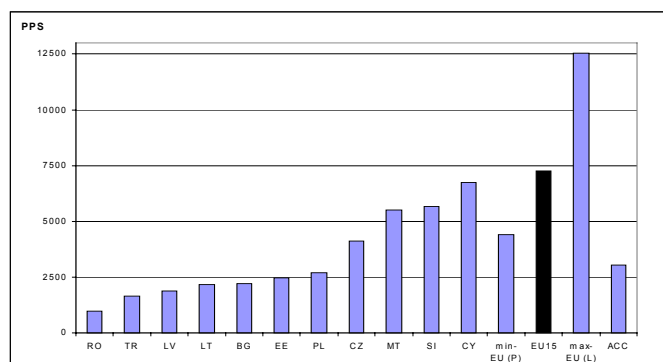


Figure 2: At-risk-of-poverty threshold for a single person household in 1999, except CY (1997), CZ (1996), EE (2000), MT (2000), TR (1994)

For all Candidate and Acceding Countries, the difference between the national threshold and EU one (weighted mean of the EU national values) is quite large, as national threshold values range from 16% of the EU-average in Romania to 98% in Cyprus. To illustrate further the magnitude of the threshold, we can compare the Laeken relative threshold to the World Bank \$AD cut-off line, which is an *absolute* level of income and is generally recognised as very low (see box, p. 5).

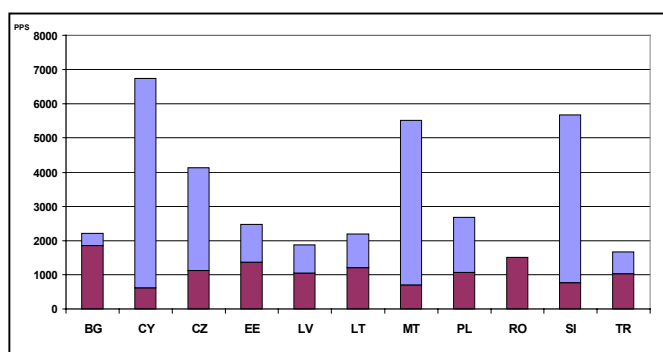


Figure 3: Comparison of 'Laeken' relative threshold and World Bank 'absolute' threshold in PPP terms, 1999 except CY(1997), CZ(1996), EE(2000), MT (2000), TR(1994)

The depth of poverty

The choice of 60% of national median equivalised income is conventional, although statistical considerations have guided this selection. To examine the sensitivity of the risk of poverty to the choice of alternative thresholds, three different thresholds have been considered: 40%, 50% and 70% of median equivalised income.

At the ACC average level, the likelihood of being at risk of poverty varied in 1999 from 4% to 21% for thresholds set at 40% and 70% of the median respectively; it is 8% if a 50% cut-off is employed (see statistical appendix).

Figure 4 shows national rates of poverty-risk at these four different thresholds in proportion of the rate at the 60% threshold. The results displayed in this Figure reflect the shape of the income distribution around the 60% threshold. If a lot of people are located just below (above) the 60% threshold, the 50% (70%) rate will be much lower

(higher) than the 60% rate. So, the longer a bar for a given country, the higher the concentration of individuals around the 60% threshold. For example, in the Czech Republic, the low 60% rate is relativised by the fact that far more people than in other countries are located between the 60% and the 70% threshold. At the same time, only around 40% of those who are at risk of poverty at the 60% threshold are also at risk of poverty at the 50% threshold. By contrast, in Turkey, a higher proportion of the poor (69%) are lying below the 50% threshold, and 40% of those who were at risk-of-poverty had actually an equivalised income below the 40% threshold.

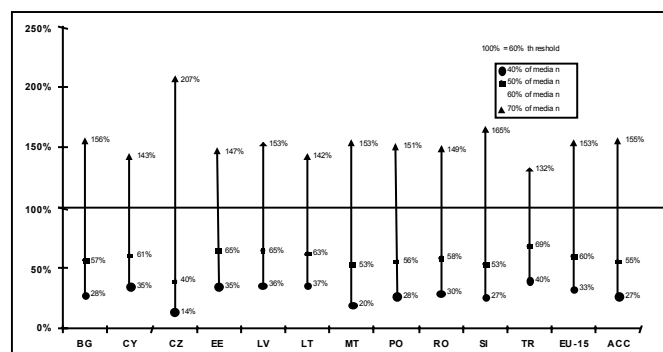


Figure 4: Dispersion around the at-risk-of-poverty threshold 40% (bottom) 50% (middle) 70% (top) as proportion of 60% rate for 1999, except CY (1997), CZ (1996), EE (2000), MT (2000), TR (1994).

This indicator provides a first insight into the depth of poverty risk. One Laeken indicator that explicitly measures how far below the threshold the income of people at risk of poverty is, i.e. "how poor the poor are", is the at-risk-of-poverty gap.

In 1999 the median gap (i.e. the difference between the 60% threshold and the median equivalised income of the poor), expressed as a percentage of this threshold, was 19% at ACC level. In other words, half of those at-risk-of-poverty had an equivalised income below 81% of the at-risk-of-poverty threshold (or below $81\% \times 60\% = 48.6\%$ of median equivalised income). The gap was higher in Turkey, the Baltic States and Cyprus. Among Candidate Countries, Romania and Bulgaria have a gap below the EU mean, whereas Turkey displays the highest gap among the Candidate and Acceding Countries (Figure 5).

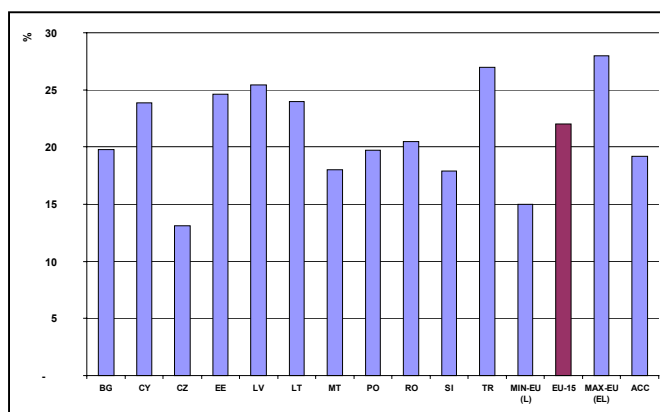


Figure 5: Relative median at-risk-of-poverty gap for 1999, except CY (1997), CZ (1996), EE (2000), MT (2000), TR (1994).

Equality of the distribution of income

The focus of all the indicators presented so far is on the bottom part of the income distribution. It can also be interesting to look at the overall income distribution. This can be illustrated by the S80/S20 ratio. For each country, this ratio compares the total equivalised income received by the top income quintile (20% of the population with the highest equivalised income) to that received by the bottom income quintile (20% with lowest equivalised income).

While the S80/S20 ratio is only responsive to changes in top and bottom quintiles, the Gini coefficient allows taking into account the full distribution of income. If there was perfect equality (i.e. each person receives the same income), the Gini coefficient would be 0%; it would be 100% if the entire national income were in the hands of only one person.

The rankings of national Gini coefficients and S80/S20 ratios are quite similar, as can be seen in Figure 6.

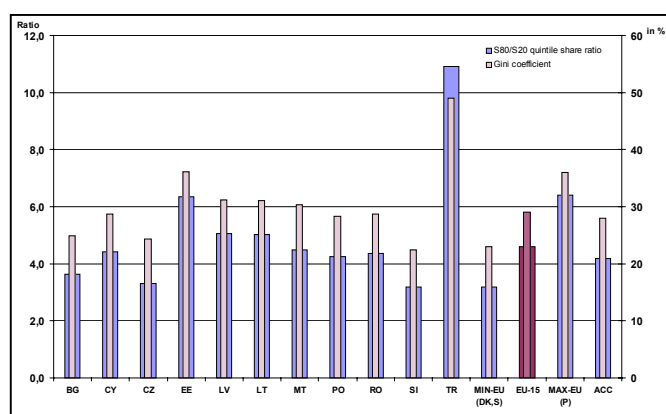


Figure 6: Income quintile share ratio (left) and Gini coefficient (right) for 1999, except CY (1997), CZ (1996), EE (2000), MT (2000), TR (1994).

Due to the relative narrowness of the income distribution, most Candidate and Acceding Countries have a S80/S20 ratio or a Gini coefficient that is close to the EU-15 mean, or even lower. In 1999, the mean S80/S20 ratio for the eight Acceding Countries for which data are available was 4.2, which means that the wealthiest quintile had 4.2 times more income than the poorest. The values ranged from 3.2 in Slovenia to 6.3 in Estonia. The mean Gini coefficient for the ACC was 28%. National Gini coefficients varied between 22% (Slovenia) and 36% (Estonia). Among the Candidate Countries, Turkey has the less equal distribution of income, as the S80/S20 attained 10.9 and its Gini coefficient 49%.

Re-distributive effect of social transfers

After having examined the phenomenon of poverty risk and the underlying income distribution, it is important to start assessing the role of policy in lifting people out of the poverty risk. A comparison between the standard at-risk-of-poverty rate and the hypothetical situation where social transfers are absent *ceteris paribus* shows that such transfers have an important re-distributive effect. Figure 7

compares the different at-risk-of-poverty rates after and before social transfers for all the countries in 1999. These rates are calculated with exactly the same threshold, namely the 60% threshold calculated on the basis of total household income, i.e. including all social transfers.

An analysis of social transfers goes beyond the scope of this note, but Figure 7 shows that in the absence of all social transfers, the mean poverty risk for Accession Countries would be considerably higher than it is in reality (mean rate of 43% instead of 14%). For the EU as a whole, the indicator would rise from 15% to 40%.

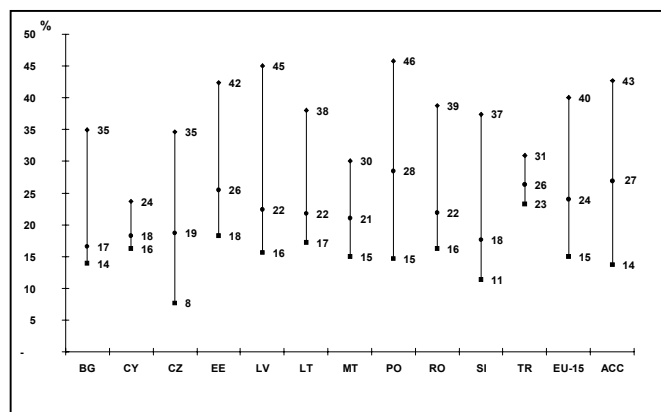


Figure 7: At-risk-of-poverty rate before any social transfers (top), after pensions (middle) and after all social transfers (bottom) for 1999, except CY (1997), CZ (1996), EE (2000), MT (2000), TR (1994).

It can be argued that the prime role of old age (and survivors') pensions is not to re-distribute income across individuals but rather over the life-cycle of individuals. If, therefore, pensions are considered as primary income rather than social transfers, the at-risk-of-poverty rate without all other social transfers is 27% for ACC (24% for the EU). The at-risk-of-poverty rate before all social transfers is very low in Cyprus. For a rate after transfers comparable to the EU (16% vs 15%), the rate before all transfers is far lower in Cyprus (24%) than in the EU (40%). The same pattern is also true for Turkey, even if the risk of poverty rate is quite higher. For all other Candidate and Acceding Countries, the effect of social transfers is important and decreases substantially the level of poverty.

More about the Laeken indicators...

The present publication focused on the Laeken indicators of monetary poverty (see definitions in table below) in Candidate and Acceding Countries. Indicators in this report were only provided at the level of the total population and for 1999, when possible. The full series of data with the breakdowns agreed in Laeken (by age and gender, activity status, household type and tenure status) can be found on the Eurostat New Cronos website, theme 3, domain ILC.

'Income' must be understood as equivalised disposable income. It is defined as the household's total disposable income divided by its "equivalent size", to take account of the size and composition of the household, and is attributed to each household member.

Primary Indicators	Definition
At-risk-of-poverty rate after transfers	The share of persons with an income below 60% national median income. Breakdowns by age and gender, by most frequent activity status, by household type, by tenure status + At-risk-of-poverty threshold (illustrative values)
Inequality of income distribution	S80/S20 income quintile share ratio: Ratio of total income received by the 20% of the country's population with the highest income (top quintile) to that received by the 20% of the country's population with the lowest income (lowest quintile).
Persistent risk-of-poverty rate (60% median)	The share of persons with an income below the risk-of-poverty threshold in the current year and in at least two of the preceding three years. Gender breakdown + total <i>Missing due to missing longitudinal dimension in the underlying data sources.</i>
Relative median at-risk-of-poverty gap	Difference between the median income of persons below the at-risk-of-poverty threshold and the at-risk-of-poverty threshold expressed as a percentage of the at-risk-of-poverty threshold. Gender breakdown + total
Secondary Indicators	
Dispersion around the risk-of-poverty threshold	The share of persons with an income below 40%, 50% and 70% national median income.
At-risk-of-poverty rate anchored at a moment in time	For a given year (in this publication: 1999), the "at-risk-of-poverty rate anchored at a moment in time (here: 1996)" is the share of the population whose income in that given year is below a risk-of-poverty threshold calculated in the standard way (here for 1996) and then up-rated for inflation (here, the period concerned is 1996-1999, but the inflation rate to be applied is that for the period 1995-1998 because the income reference year in the ECHP is the year prior to the survey)
At-risk-of-poverty rate before transfers	At-risk-of-poverty rate where income is calculated as follows: 1. Primary income, i.e. income excluding all social transfers 2. Primary income plus old-age and survivors' pensions 3. Total income, i.e. including all social transfers Gender breakdown + total
Gini coefficient	The relationship of cumulative shares of the population arranged according to the level of income, to the cumulative share of the total income received by them.
Persistent risk-of-poverty rate (50% median)	The share of persons with an income below the 50% risk-of-poverty threshold in the current year and in at least two of the preceding three years. Gender breakdown + total <i>Missing due to missing longitudinal dimension in the underlying data sources.</i>

Methodological note: the World Bank poverty threshold

The World Bank poverty \$AD (Dollar-A-Day) threshold (ie. annual value \$365.25) was established in 1985 and updated in 1993. It was calculated as an average of the thresholds for the lowest income countries in the world in PPP terms at that point in time. As the available data does not permit the updating of the PPP-based threshold in a fully theoretically correct way, for the purposes of the current publication the \$AD value has instead been taken as a nominal amount in 1985. To maintain purchasing power of this nominal amount over time, the value was updated using US consumer price indices from 1985 to the year when each candidate country conducted its' survey, then converted into local currency using exchange rates for that year.

Statistical appendix

			BG	CY	CZ	EE	LV	LT	MT
			1999	1997	1996	2000	1999	1999	2000
S80/S20 quintile share ratio			3.6	4.4	3.3	6.3	5.1	5.0	4.5
Gini coefficient			25	29	24	36	31	31	30
Risk-of-poverty threshold (illustrative values)	1 person household	NAT	1231	3095	52943	17880	589	4091	2036
		EUR	630	5313	1537	1143	942	960	5038
		PPS	2199	6733	4127	2464	1879	2182	5511
	2 adults 2 dep. children	NAT	2586	6500	111180	37548	1236	8591	4276
		EUR	1323	11157	3227	2400	1976	2015	10581
		PPS	4618	14140	8665	5175	3942	4582	11573
	Dollar-a-day	NAT	1038	280	14453	9902	332	2263	256
		EUR	531	480	419	633	531	531	633
		PPS	1853	609	1126	1365	1059	1207	692
Dispersion around the risk-of-poverty threshold	40% of median		4	6	1	6	6	6	3
	50% of median		8	10	3	12	10	11	8
	60% of median		14	16	8	18	16	17	15
	70% of median		22	23	16	27	24	24	23
Risk-of-poverty rate	Before all transfers		35	24	35	42	45	38	30
	Including pensions		17	18	19	26	22	22	21
	Including all transfers		14	16	8	18	16	17	15
Relative risk-of-poverty gap			20	24	13	25	25	24	18

			PL	RO	SI	TR	EU-15	ACC
			1999	1999	1999	1994	1999	1999
S80/S20 quintile share ratio			4.2	4.4	3.2	10.9	4.6	4.2
Gini coefficient			28	29	22	49	29	28
Risk-of-poverty threshold (illustrative values)	1 person household	NAT	5654	5654208	762391	24321369	:	:
		EUR	1338	346	3921	685	7334	1488
		PPS	2683	985	5677	1665	7263	3032
	2 adults 2 dep. children	NAT	11873	11873837	1601022	51074875	:	:
		EUR	2809	727	8233	1438	15401	3124
		PPS	5633	2068	11922	3496	15252	6367
	Dollar-a-day	NAT	2243	8673125	103192	15028457	:	:
		EUR	531	531	531	423	531	514
		PPS	1064	1510	768	1028	531	1072
Dispersion around the risk-of-poverty threshold	40% of median		4	5	3	9	5	4
	50% of median		8	9	6	16	9	8
	60% of median		15	16	11	23	15	14
	70% of median		22	24	19	31	23	21
Risk-of-poverty rate	Before all transfers		46	39	37	31	40	43
	Including pensions		28	22	18	26	24	27
	Including all transfers		15	16	11	23	15	14
Relative risk-of-poverty gap			20	21	18	27	22	19

: No data available

Source: see Methodological notes.

Notes: The ACC and EU-15 means are population weighted averages for countries for which the indicator is available.

PPP estimates at the level of final consumption at households from the European Comparison Programme are used (except CZ, TR : PPP at level of total GDP)

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Data used

Figures presented in this publication come from National Surveys for Candidate and Acceding Countries and, for the EU mean, from the European Community Household Panel (ECHP) users' database, version of December 2002 wave 6 conducted in 1999). The table presents the different sources and their income reference period.

COUNTRY	Source	Income reference period	Continuous survey
Bulgaria	Household Budget Survey (1999)	Year of the survey	No
Cyprus	Family expenditure survey (1997)	Last twelve months	No
Czech Republic	Microcensus (1996)	Last twelve months	No
Estonia	Household Budget Survey (2000)	Month of the survey	Yes
Latvia	Household Budget Survey (1999)	Month of the survey	Yes
Lithuania	Household Budget Survey (1999)	Month of the survey	Yes
Malta	Household Budget Survey (2000)	Year before the survey	No
Poland	Household Budget Survey (1999)	Month of the survey	Yes
Romania	Household Integrated Survey (1999)	Month of the survey	Yes
Slovenia	Household Budget Survey (1999)	Last twelve months	Yes
Turkey	Household Income Distribution Survey (1994)	Calendar Year	No

Disposable Income

For the EU Countries, as measured in the ECHP, household total disposable income is taken to be all net monetary income received by the household and its members at the time of the survey interview – namely all income from work (employee wages and self-employment earnings), private income from investment and property, plus all social transfers received directly including old-age pensions, net of any taxes and social contributions paid. However, no account is taken of indirect social transfers, loans interest payment, transfers paid to other households, and imputed rent for owner-occupied accommodation.

For Candidate and Acceding Countries, in order to approximate as closely as possible to the ECHP income definition, components such as the following were excluded: lottery winnings, insurance claim receipts, non-regular gifts (although regular transfers received from other households were included), all transfers paid to other households, sales of property (for example houses or cars). The impact of these adjustments on reported values can be significant by comparison with the income definitions used in these countries and based on the Household budget surveys.

Furthermore, for Candidate and Acceding Countries, income-in-kind was included in the total income definition, as it is considered to be a more substantial subcomponent of the disposable income for these countries than is the case for EU Member States, and its exclusion would significantly underestimate the actual situation. 'Income in kind' involves goods produced directly by the household through either a private or a professional activity (e.g. own production of food from a farming household, or a household whose leisure activity is connected with agriculture; products from hunting or fishing; withdrawals from stocks by tradespeople etc.). These services obtained free of charge as part of a professional activity are also classified as 'benefits in kind' (e.g. provision of housing, company vehicle, crèche facilities, free meals at work, etc.). However, collecting information regarding 'income-in-kind' can involve a number of difficulties, due to the different methods of estimating 'income-in-kind', and due to the different relative importance of this income in the different countries, as well as within countries. At the moment, these components are not included in the ECHP and only the value of a company car for private use is planned to be included as a mandatory requirement from the beginning of the EU-SILC (other elements will become mandatory from 2007).

Please also note that self-employment income is acknowledged to be difficult to collect whatever the survey. The way that the surveys take self-employment income into account differs greatly.

Once total household income is collected, the figures are given per "equivalent adult", in order to reflect differences in household size and composition. In other words, the total household income is divided by its equivalent size using the so-called "modified OECD" equivalence scale. This scale gives a weight of 1.0 to the first adult, 0.5 to any other household member aged 14 and over and 0.3 to each child. The resulting figure is attributed to each member of the household, whether adult or children. The equivalent size of a household that consists of 2 adults and 2 children below the age of 14 is therefore: $1.0 + 0.5 + (2 \times 0.3) = 2.1$.

Purchasing Power Parities (PPP) and Purchasing Power Standards (PPS)

PPP are a fictitious currency exchange rate, which eliminate the impact of price level differences across countries. Thus 1 PPS will buy a comparable basket of goods and services in each country. For ease of understanding they are scaled at EU level. **The detailed methodology of the monetary Laeken indicators presented in this publication is available on the Eurostat CIRCA website or from the authors on request.**

Further information:

➤ Reference publications

Title Income, Poverty & Social Exclusion: 2nd report
Catalogue No KS-BP-02-008-EN-C Price EUR 28

➤ Databases

NewCronos, Theme 3, Domain ILC

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“THE DYNAMICS OF POVERTY: SOCIAL OMNIBUS OR UNDERCLASS WAGON?”

Conference Central European University, Budapest, May 24-25, 2002

Measuring Poverty and Social Exclusion in Britain

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Introduction

Poverty and social exclusion have recently been measured in a major British study - the *Poverty and Social Exclusion Survey* (PSE). This is one of the largest poverty surveys ever carried out in Britain. Many people were involved in this work and this paper describes the combined efforts of researchers at the University of Bristol, a team at the University of York and at the Universities of Loughborough and Heriot Watt. The survey itself was carried out by the Office for National Statistics - in particular, the Omnibus Team and staff involved in the General Household Survey (GHS). The survey is of a particularly high quality because it was carried out as a follow-up to the GHS which has the highest response rates of any government social survey.

The PSE covered a lot of different aspects of poverty and social exclusion. It is the first time any attempt has been made to operationalise - to go out and directly measure - social exclusion. The survey also asked questions about ‘absolute’ and ‘overall’ poverty, the necessities of life, intra-household poverty, social networks and support, perceptions of poverty, local services, poverty and time, health, housing, crime and a whole range of other subjects.

It is not possible, in a few thousand words, to discuss all the findings from the PSE so this paper will concentrate on theoretical and measurement issues, particularly where they concern the dynamics of poverty.

Social exclusion was not a major research topic in Britain until the election of a Labour Government in May 1997. There had been some social exclusion work done in other European countries but there was very little academic or governmental research into poverty until that time. One of the reasons for the change was a speech made by Prime Minister Tony Blair in 1997, where he set out this commitment:

“And I will set out our historic aim that ours is the first generation to end child poverty forever, and it will take a generation. It is a 20-year mission but I believe it can be done.”

Our plans will start by lifting 700,000 children out of poverty by the end of the parliament. Poverty should not be a birthright. Being poor should not be a life sentence. We need to sow the seeds of ambition in the young. Our historic aim will be for ours to be the first generation to end child poverty, and it will take a generation. It is a 20-year mission but I believe it can be done.”

This is the first time that a British Government has ever committed itself to ending child poverty *forever* – and with a specific timetable (see Walker, 1999, for discussion). However, it is important to understand how the Government defines and measures poverty. Firstly, there is no ‘official’ definition of poverty. When the Minister for Social Security was last asked, he said that he did not need a definition because he knew what poverty was when he saw it. However, despite the lack of an official definition in the UK, there are a number of international agreements and definitions which the UK Government has signed up to.

European Union definitions of poverty and social exclusion

The European Union (EU) definition of poverty is one of the most longstanding and widely known. First adopted by the Council of Europe in 1975, it defines those as in poverty as: “*individuals or families whose resources are so small as to exclude them from a minimum acceptable way of life in the Member State in which they live.*” (EEC, 1981). The concept of ‘resources’ was further defined as: “*goods, cash income, plus services from other private resources*”.

On the 19 December 1984, the European Commission extended the definition as:

“*the poor shall be taken to mean persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member State in which they live.*” (EEC, 1985).

These are clearly *relative* definitions of poverty in that they all refer to poverty not as some ‘absolute basket of goods’ but in terms of the minimum acceptable standard of living applicable to a certain Member State and within a person’s own society. They are similar to the relative poverty definition devised by Peter Townsend (1979), one of the people who has worked on the PSE project. However, they differ quite substantially from the definitions of poverty that were being used when the UK Welfare State was first established. The ‘subsistence’ idea, used by Beveridge (1942), was based on the minimum standards to maintain physical efficiency. It developed from the work of researchers such as Rowntree (1901) in his famous study of poverty in York at the turn of the century (see Bradshaw, 1993, for discussion). A minimum basket of goods was costed, for emergency use over a short period of time, with 6% extra added for inefficiencies in spending patterns, in order to draw up the National Assistance rate. Atkinson (1990, p10) defines a subsistence standard of poverty by the formula:

$$(1 + h) p.x^*$$

where:

x^* is a vector denoting a basket of goods,

p is the price of the basket, and

h is a provision for inefficient expenditure or waste

Subsistence rates were designed to be an emergency level of income and never meant to keep a person out of poverty for any length of time. However, these rates became enshrined into the Social Security legislation.

The ‘modern’ definitions of poverty are very different to those used when European welfare states were first being established, particularly in that they deliver much higher poverty lines. They are also concerned with participation and membership within a society and not just inadequate income.

In Europe, during 2001, considerable scientific efforts were made to improve the measurement of poverty and social exclusion (Atkinson *et al*, 2002)¹ and the proposed new set of statistics and indicators will be a major improvement on previous EU analyses (Atkinson, 2000; Eurostat, 1990; 1998; 2000; Hagenaars *et al*, 1994; Mejer and Linden, 2000; Mejer and Siermann, 2000).

Absolute and overall poverty

There has been much debate about ‘absolute’ and ‘relative’ definitions of poverty and the difficulties involved in comparing poverty in industrialised countries with that in the developing world. However, these debates were resolved in 1995 at the UN World Summit on Social Development. At this Summit, the governments of 117 countries - including the UK Government - agreed on two definitions of poverty – *absolute* and *overall* poverty. They adopted a declaration and programme of action which included commitments to eradicate absolute poverty by 2015 and also reduce overall poverty, by at least half, by the same year (UN, 1995).

Overall and absolute poverty were defined as:

“Poverty has various manifestations, including lack of income and productive resources sufficient to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments; and social discrimination and exclusion. It is also characterised by a lack of participation in decision-making and in civil, social and cultural life. It occurs in all countries: as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets.”

Women bear a disproportionate burden of poverty and children growing up in poverty are often permanently disadvantaged. Older people, people with disabilities, indigenous people, refugees and internally displaced persons are also particularly vulnerable to poverty. Furthermore, poverty in its various forms represents a barrier to communication and access to services, as well as a major health risk, and people living in poverty are particularly vulnerable to the consequences of disasters and conflicts. Absolute poverty is a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services.”

Income is important but access to public goods – safe water supply, roads, healthcare, education – is of equal or greater importance, particularly in developing countries. These are the views of the governments of the world and poverty measurement clearly needs to respond to these views.

Both the Copenhagen agreements and the EU definitions of poverty are accepted by the UK Government. All these definitions highlight the need to measure poverty using a combination of both low income and low standard of living.

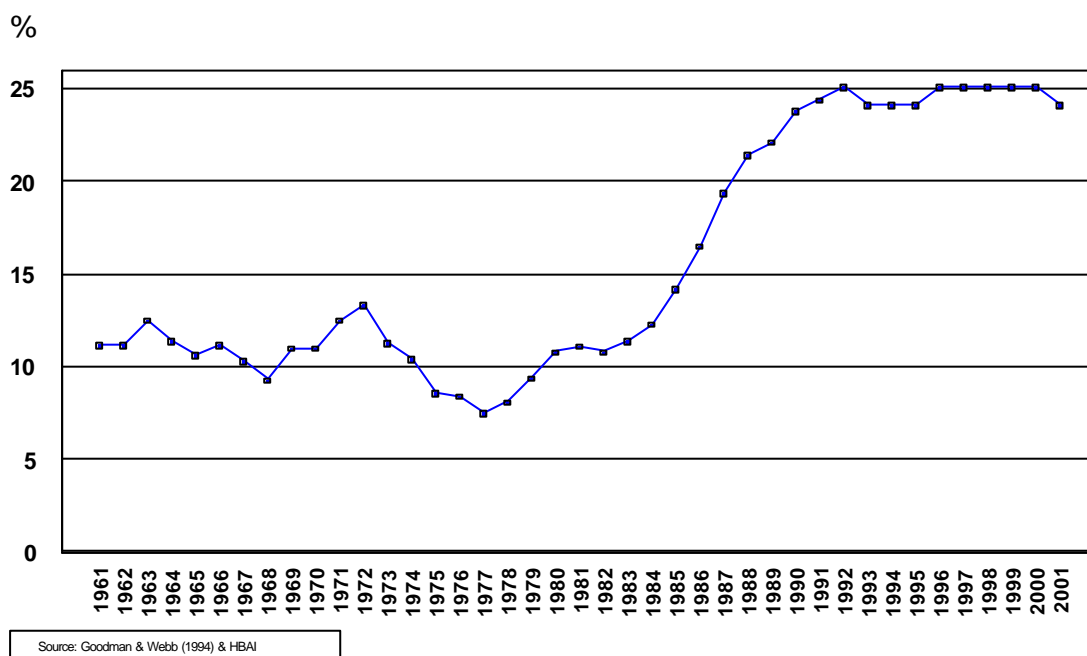
¹ see <http://vandenbroucke.fgov.be/Europe%20summary.htm> for a summary of the new EU poverty and social exclusion indicators and <http://www.vandenbroucke.fgov.be/T-011017.htm> for discussion.

Households Below Average Income (HBAI)

The UK Government operationalised these definitions using a relative income line - the percent of people living in households whose income is below half the average (50%). This is about to change to 60% of the median income but it effectively yields the same result.

In the 1960s, about 11-12% of people were living in households with below half average income. This figure rose slightly in early 1970s, during the Conservative 'Heath' Government and oil price inflation. In the mid-70s, a series of progressive policies ensured that the figure dropped to about 8%. Policies pursued by successive Conservative governments throughout the 1980s and 1990s led to a massive increase in the number of low-income households and families. Poverty effectively tripled rising from 7-8% to 25-26%. During the 1990s, it has been in the region of 25%.

Figure 1: Percent of the population below half average incomes 1961 to 2001 (after housing costs)



Comparative data with other EU Member States on low income is available - for the mid 1990s - from the European Community Household Panel Survey (ECHP). An estimate can be arrived at of the number of people living in households with below half average income in all the EU Member States (using slightly different definitions to the HBAI). The last comparative figures are for 1994 (Table 1) and these show that the UK does lead Europe in one thing - its number of poor households (Gordon and Townsend, 2000).

Table 1: Number and percentage of the population living on incomes below half the average in 14 European countries, 1994

Country	Number of people below half average income	Percentage of the population below half average income
United Kingdom	11,427,000	20
Germany	11,328,000	14
Italy	9,322,000	17
France	7,950,000	14
Spain	7,196,000	19
Portugal	2,425,000	25
Greece	2,042,000	20
Belgium	1,474,000	15
Netherlands	1,275,000	8
Austria	1,108,000	14
Ireland	837,000	23
Denmark	386,000	7
Finland	192,000	4
Luxembourg	57,000	14

Despite the fact that Germany has a much bigger population than the UK, the latter has more low-income households. According to the EU, the total number is nearly 11.5 million and this gives some kind of idea of the scale of the problem the British Government faces if it wants to eliminate poverty *using these definitions*. A look at the comparative circumstances of children shows that the situation is even worse. Using the same European data - but for a previous year (1993) - the UK has, by far and away, the highest percentage of children living in poverty of any EU Member State (HM Treasury, 1999).

A recent analysis by UNICEF (the United Nations Children's Organisation) of the OECD countries shows that, in a ranking of all the industrialised countries, Britain now ranks below Turkey and just above Mexico and the United States in having a higher rate of child poverty (Figure 2). There are not many social indicators where Britain ranks below Turkey – and so this is quite shocking. Britain's position is due to a tripling of poverty or low income in the 1980s.

Figure 2: UNICEF Child Poverty League Table
 (% of children living in households with income below 50% of the national median)

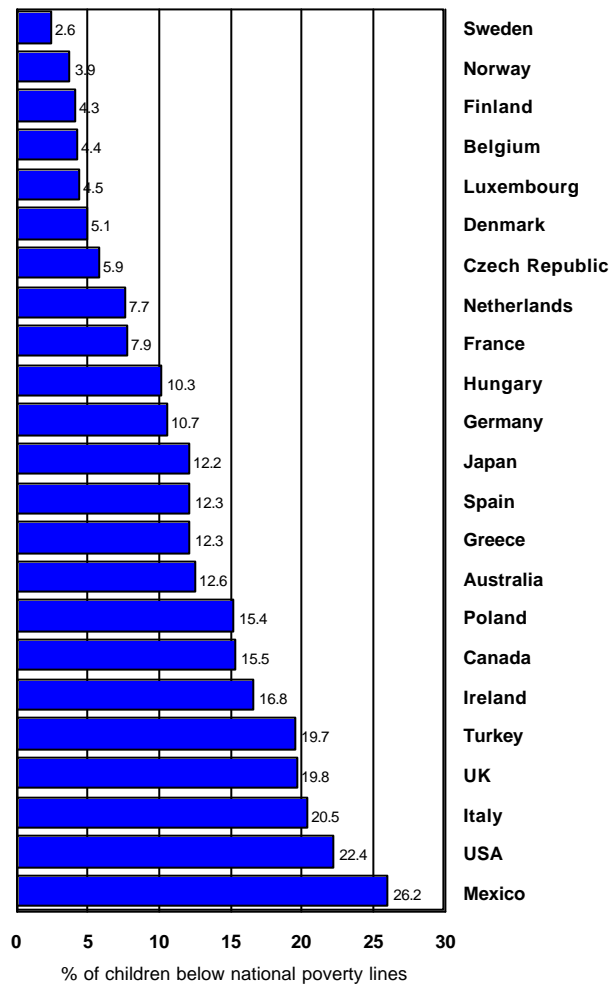


Table 2: Change in real median weekly incomes 1979 to 1996 by decile group at April 1998 prices (after housing costs)

Income Decile	1979 £	1996 £	Change %
Bottom 10%	81	71	-12
10-20%	104	106	+2
20-30%	121	132	+9
30-40%	139	164	+18
40-50%	157	200	+27
50-60%	177	236	+33
60-70%	199	277	+39
70-80%	227	327	+44
80-90%	263	402	+53
Top 10%	347	582	+68
Total population (mean)	185	264	+43

Table 2 (above) shows the redistribution of incomes that occurred during the period of Conservative Government in Britain where the existence of poverty was continuously denied (1979 to 1997). The population has been ranked into 10 income decile groups. In real terms, the lowest/poorest 10% of the population was £10 a week worse off in 1996 than they were in 1979. Their incomes had fallen by 12% in real terms. The richest 10% of the population's income went up by 68%. They were £240 richer. There was a huge redistribution of wealth from the poor bottom half of society to the top half of society.

This redistribution has had dramatic consequences for society because poverty is a causal factor for a large number of social ills - of which one of the most striking is poor health. Comparison of Parliamentary Constituencies (in Britain) which contain the million people who have the highest death rates and the Parliamentary Constituencies which contain the million people who are most healthy shows that the highest death rates are to be found in the constituencies in the poorest areas - Glasgow, Manchester, Liverpool, Tyneside and inner London. However, the people with the lowest death rates are almost all concentrated in the Home Counties - the wealthiest areas. As poverty has widened so has the health gap between the top and bottom half of society (Shaw *et al*, 1999). Whether you look at mortality or morbidity; whether you look at individuals or areas, the gap between the rich and poor in terms of health is bigger now than at any time since the NHS began 50 years ago (Townsend *et al* 1992; Whitehead, 1988; Acheson, 1998; Gordon *et al*, 1999).

There are problems with the way the Government measures poverty - using below half average income statistics. First, they just look at income rather than the effects of income. At any given time, there are many people who are on a low income. They may be self-employed and setting up a new business or they may be temporarily unemployed for a short period of time or have recently become a student.. They do not immediately sink into poverty. So there is not as high a correlation as might be expected between current income and people actually living in poverty and considering themselves to be living in poverty. Accurate academic and scientific study requires not just the examination of current income but also at how people live, their standard of living, if they are deprived or not, whether they can participate in society or not.

A second problem is that income statistics have to be adjusted for household size and composition. It is self evident that a three-person household needs more money than a one-person household to have the same standard of living. Unfortunately, the UK Government's calculations (McClements Equivalisation scale) assume that seven babies cost less than one adult. If your brother and sister came to live with you it would cost you more than if you had seven new born babies! The effect of this is that the income statistics do not show families with young children as living in poverty whereas they often are. This can lead to bad policy when targeting resources at child poverty. They tend to get aimed at those with teenage children rather than young children. However, it is families with young children who often are the poorest and in the most financial difficulty.

Therefore the PSE survey used measures of both low income and low standard of living to measure poverty. It also used the latest available budget standards information to adjust income for household size and composition.

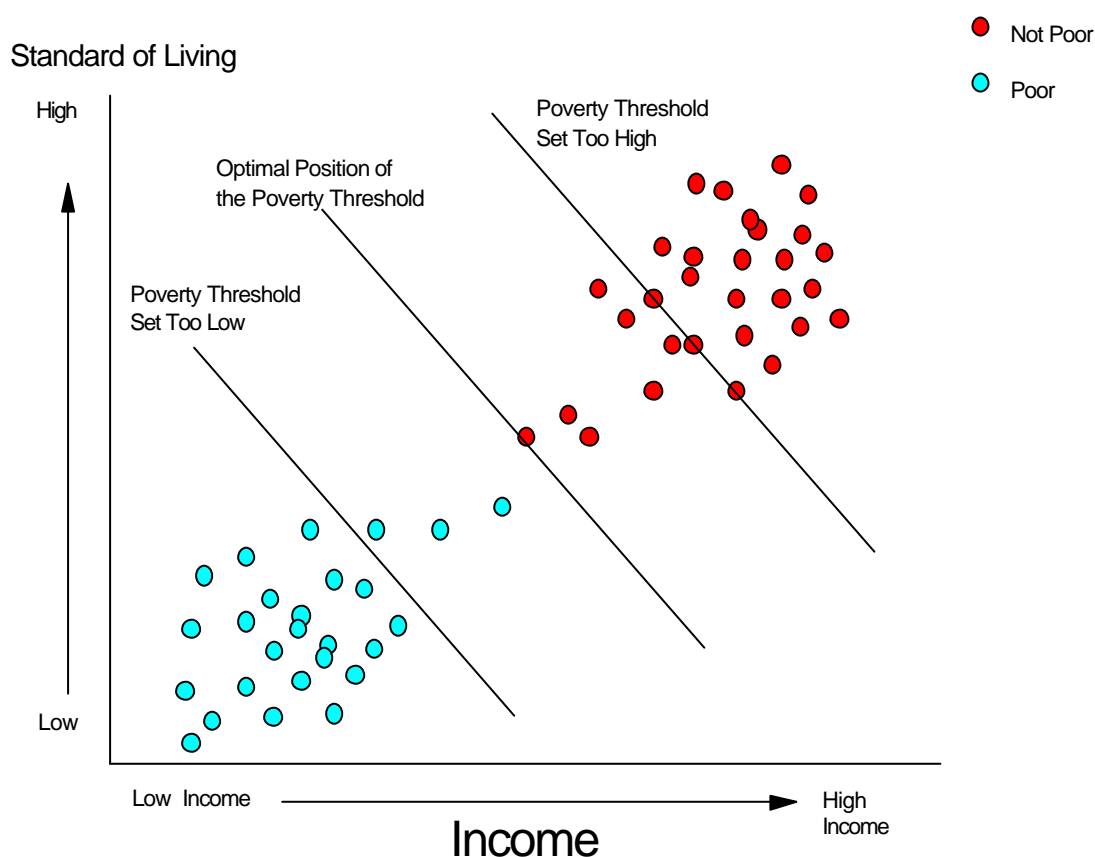
Scientific definitions of poverty

Poverty is a widely used and understood concept but its definition is highly contested. The term 'poverty' can be considered to have a cluster of different overlapping meanings depending on what subject area or discourse is being examined (Gordon and Spicker, 1998). For example, poverty - like evolution or health - is both a scientific and a moral concept. Many of the problems of measuring

poverty arise because the moral and scientific concepts are often confused. In scientific terms, a person or household in Britain is 'poor' when they have both a low standard of living *and* a low income. They are not poor if they have a low income and a reasonable standard of living or if they have a low standard of living but a high income. Both low income and low standard of living can only be accurately measured relative to the norms of the person's or household's society.

A low standard of living is often measured by using a deprivation index (high deprivation equals a low standard of living) or by consumption expenditure (low consumption expenditure equals a low standard of living). Of these two methods, deprivation indices are more accurate since consumption expenditure is often only measured over a brief period and is obviously not independent of available income.

Figure 3: Scientific definition of poverty



The 'objective' poverty line/threshold is shown in Figure 3. It can be defined as the point that maximises the differences *between* the two groups ('poor' and 'not poor') and minimises the differences *within* the two groups ('poor' and 'not poor'). Unfortunately, this can best be done using multivariate statistics (which makes it hard to explain) since there are no accurate equivalisation scales (Whiteford, 1985; Bradbury, 1989; Canberra Group, 2001). Therefore, dummy variables for each different household type have to be put into the model (Townsend and Gordon, 1989). Usually some variant of the General Linear Model is used, such as, Discriminant Analysis, MANOVA or Logistic Regression, depending on the nature of the data (Gordon *et al*, 2000).

This 'scientific' concept of poverty can be made universally applicable by using the broader concept of resources instead of just monetary income. It can then be applied in developing countries where barter and 'income in kind' can be as important as cash income. When the definition of income is

extended operationally to include the value of assets and receipt of goods and services in kind, the correlation between income and standard of living increases (see, for example, Townsend, 1979, p.1176). Standard of living includes varied elements. It includes both the material and social conditions in which people live and their participation in the economic, social, cultural and political life of the country.

Despite the theoretical advantages of measuring poverty using both low income *and* deprivation, most studies of poverty in Europe are restricted solely to the use of low income due to the lack of suitable deprivation measures.

Consensual/social indicators in the PSE Survey

The consensual approach to defining poverty is also known as the deprivation indicator approach to distinguish it from the other empirical approaches based on the public perception of poverty, such as the Income Proxy or subjective approach (see Veit-Wilson, 1987). The deprivation indicator approach aims to discover if there are people living below the minimum publicly-accepted standard. It defines poverty from the viewpoint of the public's perception of minimum necessities which no one should be without:

*"This study tackles the questions 'how poor is too poor?' by identifying the minimum acceptable way of life for Britain in the 1980's. Those who have no choice but to fall below this minimum level can be said to be 'in poverty'. This concept is developed in terms of those who have an enforced lack of **socially perceived** necessities. This means that the 'necessities' of life are identified by public opinion and not by the views of experts or, on the other hand, the norms of behaviour per se."* (Mack and Lansley, 1985).

The approach is based on three steps:

The first step was taken by building up a long list of ordinary household goods and activities. Respondents to the Office for National Statistics *Omnibus Survey* in June 1999 were asked to indicate which items they thought were necessities which no household or family should be without in British society. The second step was to ask people what items they already had or wanted but could not afford. Items defined as *necessities* by more than 50% of the population but which were lacked because of a shortage of money were then used to construct an initial deprivation index. The deprivation index was then refined using standard scientific methods to ensure that all the components were both valid and reliable and added up.(see Gordon and Pantazis, 1997: Gordon *et al*, 2000, for details).

The third step, finding the poverty threshold, was taken by using multivariate methods to determine the income for each kind of household that maximised the differences between the 'poor' and 'not poor' and minimised the differences within the two groups ('poor' and 'not poor'). This is the 'objective' poverty line and households which have to survive on this low level of income for any appreciable length of time are highly likely to suffer from multiple deprivations.

At the end of the Millennium in Britain, 95% of people thought that 'beds and bedding for everyone in the household' was a necessity of life that everybody should be able to afford. Conversely, at the other end of the scale, only 5% of people thought a satellite TV was a necessity of life (Table 3) .

Table 3: Perception of adult necessities and how many people lack them

	Omnibus Survey: Items considered		Main Stage Survey: Items that respondents	
	Necessary	Not necessary	Don't have don't want	Don't have can't afford
Beds and bedding for everyone	95	4	0.2	1
Heating to warm living areas	94	5	0.4	1
Damp free home	93	6	3	6
Visiting friends or family in hospital	92	7	8	3
Two meals a day	91	9	3	1
Medicines prescribed by doctor	90	9	5	1
Refrigerator	89	11	1	0.1
Fresh fruit and vegetables daily	86	13	7	4
A warm waterproof coat	85	14	2	4
Replace broken electrical goods	85	14	6	12
Visits to friends or family	84	15	3	2
Celebrations on special occasions	83	16	2	2
Money to keep home decorated	82	17	2	14
Visits to school e.g. sports day	81	17	33	2
Attending weddings, funerals	80	19	3	3
Meat, fish or vegetarian equivalent	79	19	4	3
Insurance of contents of dwelling	79	20	5	8
A hobby or leisure activity	78	20	12	7
A washing machine	76	22	3	1
Collect children from school	75	23	36	2
Telephone	71	28	1	1
Appropriate clothes for job interviews	69	28	13	4
Deep freezer/fridge freezer	68	30	3	2
Carpets in living rooms and bedrooms	67	31	2	3
Regular savings for rainy days	66	32	7	25
Two pairs of all weather shoes	64	34	4	5
Friends or family round for a meal	64	34	10	6
Money to spend on self weekly	59	39	3	13
A television	56	43	1	1
A roast joint/vegetarian equivalent weekly	56	41	11	3
Presents for friends/family yearly	56	42	1	3
A holiday away from home	55	43	14	18
Replace worn out furniture	54	43	6	12
A dictionary	53	44	6	5
An outfit for social occasions	51	46	4	4
<i>New, not second hand, clothes</i>	48	49	4	5
<i>Attending place of worship</i>	42	55	65	1
<i>A car</i>	38	59	12	10
<i>Coach/train fares to visit friends/family</i>	38	58	49	16
<i>A evening out once a fortnight</i>	37	56	22	15
<i>A dressing gown</i>	34	63	12	6
<i>Having a daily newspaper</i>	30	66	37	4
<i>A meal in a restaurant/pub monthly</i>	26	71	20	18
<i>Microwave oven</i>	23	73	16	3
<i>Tumble dryer</i>	20	75	33	7
<i>Going to the pub once a fortnight</i>	20	76	42	10
<i>A video cassette recorder</i>	19	78	7	2
<i>Holidays abroad once a year</i>	19	77	25	27
<i>CD player</i>	12	84	19	7
<i>A home computer</i>	11	85	42	15
<i>A dishwasher</i>	7	88	57	11
<i>Mobile phone</i>	7	88	48	7
<i>Access to the Internet</i>	6	89	54	16
<i>Satellite television</i>	5	90	56	7

Note: All figures show % of adult population.

When poverty is measured using a low income and a low standard of living in this scientific way, the results showed that, at the turn of the 21st Century, just over 25% of people were suffering from both multiple deprivation and low income – they were poor. These percentages translate into a staggering 14.5 million people living in poverty in Britain at the turn of the 21st Century.

Roughly nine and a half million people cannot afford adequate housing conditions, cannot afford to keep their home adequately heated, free of damp or in a decent state of decoration. Eight million cannot afford one or more household goods like a fridge, telephone or carpet. They cannot afford to mend any electrical goods or replace worn out furniture. Seven and a half million people are too poor to engage in common social activities. They cannot afford to attend weddings or funerals, visit family or friends or hold celebrations or buy presents for their children on birthdays. A third of British children go without at least one of the things their parents think they need. Six and a half million adults do not have essential clothing, four million are not properly fed and over 10.5 million people suffer financial insecurity and cannot afford to insure the contents of their home.

We can compare how poverty has changed over the 1980s in a much more rigorous way than was done for HBAI statistics. This is because there have been all kinds of changes to the way that data has been collected over the years, making them not strictly comparable over time. We can compare both standards of living and income over time and found that, between 1983 and 1990, the number of *households* living in poverty increased by half – from 14% to 21%. During the 1990s, this figure slowly crept up to over 24% of household by 1999. The rapid increase in poverty occurred at the same time that the majority of the population was becoming better off. For the past 20 years, Britain has become wealthier and wealthier and we are now richer than at any other time in our history.

Definitions of social exclusion

The PSE survey also attempted to define and measure social exclusion, firstly by looking at the academic literature to see what groups were socially excluded according to various authors.

Socially Excluded Groups?

The long term or recurrently unemployed;
Those employed in precarious and unskilled jobs, especially older workers or those unprotected by labour regulations;
The low paid and the poor;
The landless;
The unskilled, the illiterate and school drop-outs;
The mentally and physically handicapped and disabled;
Addicts;
Delinquents, prison inmates and persons with criminal records;
Single parents;
Battered or sexually abused children, those who grew up in problem households;
Young people, those lacking work experience or qualifications;
Child workers;
Women;
Foreigners, refugees, immigrants;
Racial, religious and ethnic minorities;
The disenfranchised;
Beneficiaries of social assistance;
Those in need but ineligible for social assistance;

Residents of rundown housing, disreputable neighbourhoods;
Those with consumption levels below subsistence (the hungry, the homeless, the Fourth World);
Those whose consumption, leisure or other practices (drug or alcohol abuse, delinquency, dress, speech, mannerism) are stigmatised or labelled as deviant;
The downwardly mobile;
The socially isolated with friends or family;

Source: Studies on specific social categories in the research literature on social exclusion compiled by Silver (1994: p548-9)

If all the groups listed by Silver (1994) are *socially excluded*, then the only person in Britain who was not socially excluded under these definitions was Prince Philip. For example, the Queen herself is a woman and she is also a pensioner, so these were not particularly useful definitions. We applied what we called the 'Lady Di' test to the definition of social exclusion. Any theory that would have included Lady Diana as socially excluded, because she was a lone parent with mental health problems, probably was not very useful because we took it as axiomatic that she was not. We were therefore able to discard most of the literature on social exclusion.

We decided that social exclusion was an inability to participate in social activities that the majority of people think of as necessary. There are four dimensions:

1. *Impoverishment* – not being able to participate because of poverty.
2. *Labour market exclusion* – because exclusion from the labour market is a very important concept to social exclusion and also causes poverty.
3. *Service exclusion*
4. *Exclusion from social relationships*. Social exclusion has to be related to the 'social', if you are isolated and alone, do not have any friends or family and no one to call on for support when needed, then you are excluded from social relationships.

Labour market exclusion

Most of the debate in Europe and in Britain has defined social exclusion in terms of those excluded from the labour market. However, 43% of adults have no paid work: they are doing other things: looking after children and families or they are pensioners. Most of these people are not socially excluded *per se*. Over half the population in some countries does not participate in paid labour for good reason and no one would expect them to which illustrates the difficulties of attempting to end poverty and social exclusion just through full employment. Most of the 43% are outside the labour market through choice. They have unpaid labour that they have to do. If they do not do that unpaid labour, somebody else is going to have to. Others do not want to participate in the labour market – they are too old or too young.

There is another aspect to this. The first reason given why people don't participate in 'necessary' social activities - like attending weddings and funerals - is because of lack of money. They simply cannot afford it. The next most popular reason given was lack of interest, followed by lack of time due to childcare responsibilities. People also said that they were too old and ill or did not have enough time because of *paid work*. Therefore, it appears that paid work itself can cause social exclusion if you have a job with long hours. Just being in paid work does not mean you are not socially excluded or that you can participate in society the way you would like to.

Service exclusion

Similarly, the PSE examined exclusion from a range of public and private services. For example, libraries are a public service where cost is not a barrier to use. However, unavailability tends to be a barrier to use for 9% of people. When we looked at service exclusion in aggregate for a whole range of both public *and* private services, we found that 9% of people were excluded (these are ones that are necessary public services according to the majority of the population). Nine percent were excluded because of poverty and 41% were excluded because at least one of the services was unavailable (Table 4). Unavailability of essential services, particularly in rural areas, is a bigger barrier to use.

Table 4: Percentages lacking different numbers of services because unaffordable and/or unavailable in Britain (1999)

	Lacking none	Lacking 1	Lacking 2+
	(%)	(%)	(%)
<i>Public services</i>			
Number of public services can't afford/unavailable	69	21	10
Number of public services can't afford	95	3	1
Number of public services unavailable	72	20	8
<i>Private services</i>			
Number of private services can't afford/unavailable	70	16	14
Number of private services can't afford	93	4	2
Number of private services unavailable	75	15	11
<i>Both public and private</i>			
Number public/private services can't afford/unavailable	54	22	24
Number public/private services can't afford	91	5	4
Number public/private services unavailable	58	23	18

Services are very important in combating poverty, particularly free or subsidised services. The bottom 20% of households have an income around £1,500. They tend to get another £1,500 worth of benefit in aggregate and their income goes up another £3,000 from the value of the services they receive (Gordon and Townsend, 2000). To the poorest groups, services are worth twice as much as they earn. The Welfare State is a very effective mechanism for combating poverty. It tends to multiply the income of the bottom 20% four fold through welfare benefits and, more importantly, through the income benefit of services received (income in-kind). To end poverty forever, this would probably have to be increased to a five fold multiplication.

The dynamics of poverty

Since the work of Townsend in 1968 (Townsend, 1979) many researchers in European countries have scientifically measured poverty in terms of both low income and deprivation. However, in all these cross-sectional studies, there exists a relatively large group of people/households that have a low income but do not have a low standard of living – this phenomena has puzzled many commentators. The explanation lies in the dynamics of poverty.

People/households in these poverty surveys with a high income and a high standard of living are not poor whereas those with a low income and a low standard of living are poor. However, two other groups of people/households that are 'not poor' can also be identified in a cross-sectional (one point in time) survey, such as the *Poverty and Social Exclusion Survey*:

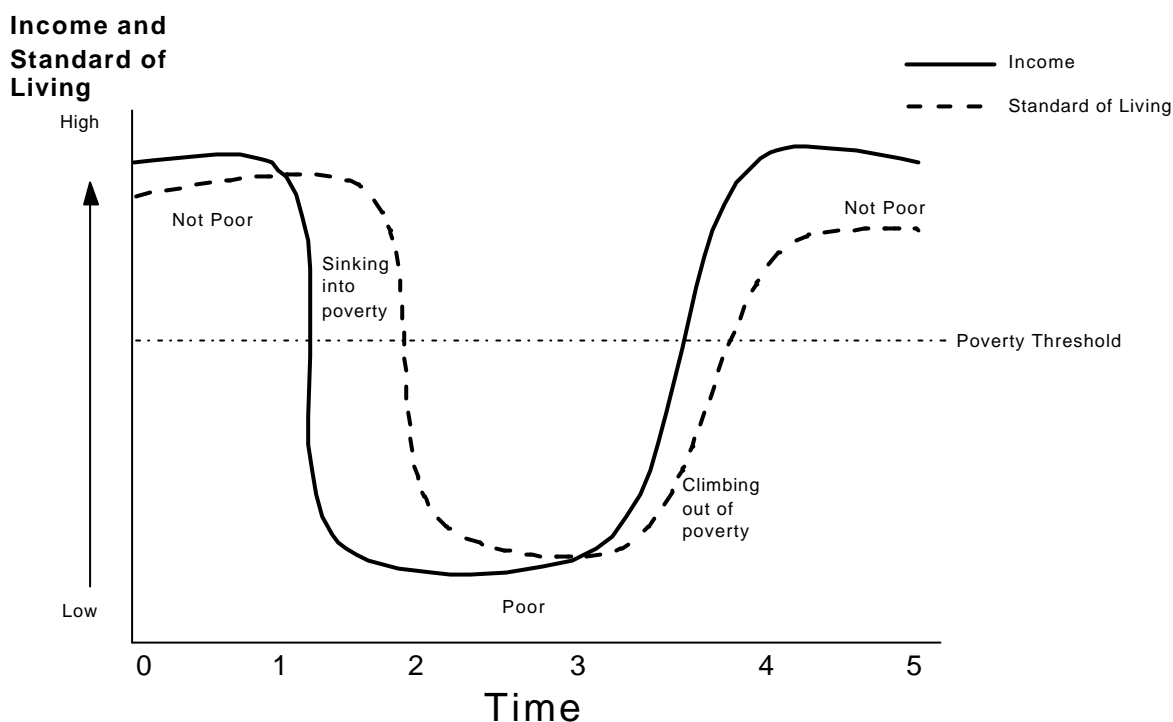
1. *People/households with a low income but a high standard of living.* This group is not currently poor but if their income remains low they will become poor - they are currently sinking into poverty. This situation often arises when income falls rapidly (e.g. due to job loss) but people manage to maintain their life style, for at least a few months, by drawing on their savings.
2. *People/households with a high income but a low standard of living.* This group is currently 'not poor' and if their income remains high their standard of living will rise – they have risen out of poverty. This group is in the opposite situation to the previous group. This situation can arise when the income of someone who is poor suddenly increases (e.g. due to getting a job), however, it takes time before they are able to buy the things that they need to increase their standard of living. Income can both rise and fall faster than standard of living.

These two groups have been found in both British poverty surveys and Irish and Swedish studies (Callan *et al*, 1993, Saunders *et al*, 1993; Halleröd 1994, 1995, 1996; Nolan and Whelan, 1996a, 1996b). A cross-sectional 'poverty' survey can provide some limited but useful information on the dynamics of poverty since it is possible not only to identify the 'poor' and the 'not poor' but also those sinking into poverty (i.e. people/households with a low income but a high standard of living) and those escaping from poverty (i.e. people/households with a high income but a low standard of living).

Poverty is, by definition, an extremely unpleasant situation to live in so it is not surprising that people go to considerable lengths to avoid it and try very hard to escape from poverty once they have sunk into it. Therefore, a cross-sectional poverty survey ought to find that the group of households sinking into poverty was larger than the group escaping from poverty since, when income falls people will try to delay the descent into poverty, but if the income of a poor person increases she will quickly try to improve her standard of living.

Figure 4 (overleaf) illustrates this concept:

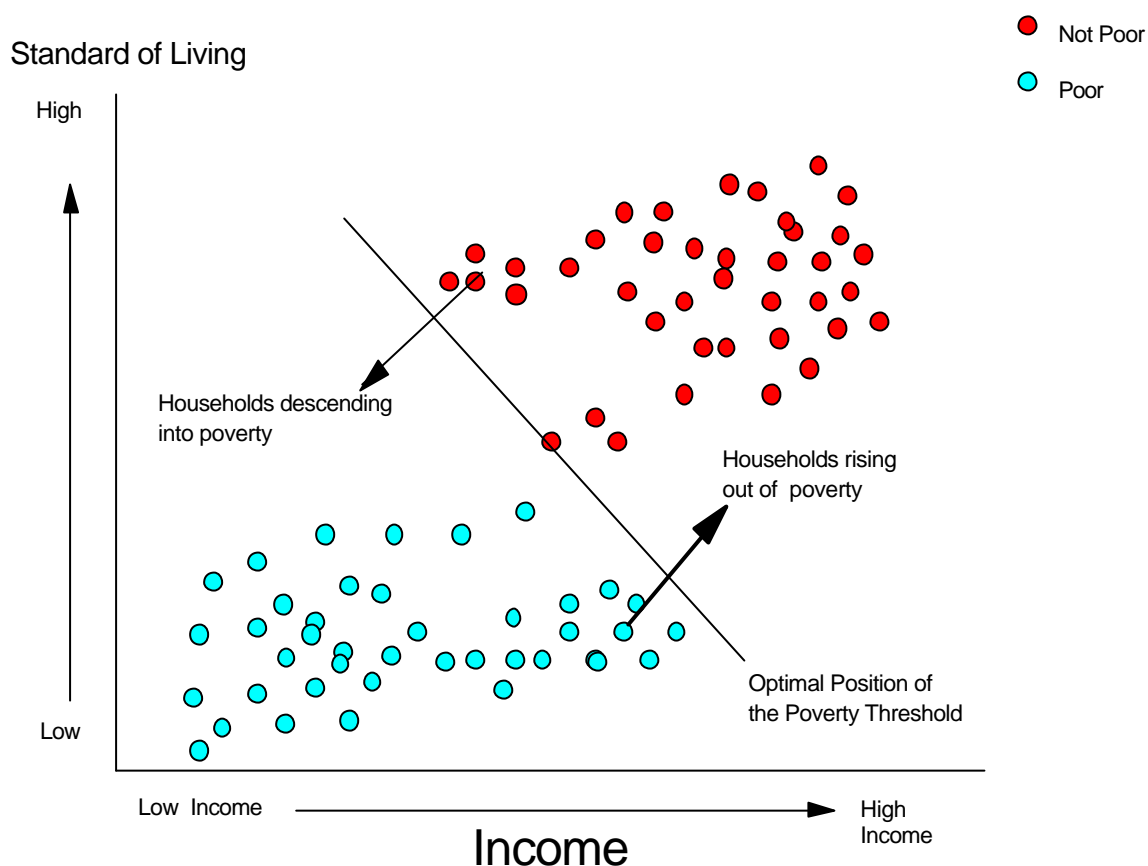
Figure 4: The dynamics of poverty



Between time 0 and 1, the household has both a high standard of living (dotted line) and a high income (solid line): it is 'not poor'. At time 1, there is a rapid reduction in income (e.g. due to job loss, the end of seasonal contract income, divorce or separation, etc), however, the household's standard of living does not fall immediately. It is not until time 2 that the household's standard of living has also fallen below the 'poverty' threshold. Therefore, between time 1 and time 2, the household is 'not poor' but is sinking into poverty (i.e. it has a low income but a relatively high standard of living). Between time 2 and time 3, the household is living in poverty, they have both a low income and a low standard of living. At time 3, income begins to rise rapidly, although not as fast as it previously fell. This is because rapid income increases usually result from gaining employment but there is often a lag between starting work and getting paid. Standard of living also begins to rise after a brief period as the household spends its way out of poverty. However, this lag means that there is a short period when the household has a high income but a relatively low standard of living. By time 5, the household again has a high income and a high standard of living.

On the basis of this discussion, it is possible to update Figure 1 to give a more realistic picture of movements into and out of poverty. Figure 5 illustrates this:

Figure 5: Movements into and out of poverty



In Figure 5, the sizes of the groups moving into and out of poverty have been exaggerated for clarity. However, it is clear that movements into and out of poverty tend to occur close to the X and Y axes and there is little movement across the poverty threshold at the centre of the graph. Households in Britain typically become poor when their income falls precipitously followed by a gradual decline in their standard of living. Households rarely slide into poverty because their income and standard of living declines gradually together. Similarly, moves out of poverty tend to follow a rise in income followed by a rise in standard of living. It would be rarer for both income and standard of living to rise gradually together.

People become 'poor' after their income has dropped catastrophically. However, they usually successfully manage to maintain a reasonable standard of living for a period after this drop in income. Similarly, people stop being poor usually after a substantial rise in income (e.g. after finding a job, new partner, etc.). The major causes of poverty in Britain - job loss, family break-up, retirement, severe ill health, etc - are all typified by rapid declines in income. Relatively few people in Britain experience a simultaneous decline or rise in both their standard of living and income which leads to a gradual decent into or rise out of poverty. Some pensioners who are supplementing their pension by drawing on a declining amount of capital may experience a simultaneous decline in both income and standard of living. However, this situation is comparatively rare compared with the other causes of poverty in Britain.

The benefits system in Britain also operates in a manner that accentuates the existence of poverty threshold/line. There is a large literature that identifies the numerous 'poverty traps' in the British benefits system, which result in 90% or even over 100% marginal 'tax' rates for people whose

income rise slightly above the Income Support standard. Steep tapers in Housing Benefit and the withdrawal of other ‘passported’ benefits results in there being a relatively large number of people with incomes on or just below the Income Support standard but relatively few people whose incomes are just above this level e.g. there are a lot of people/households whose income is 100% of the ‘benefit standard’ but relatively few people/households with incomes of 105% or 110% of the ‘benefit standard’.

People typically escape from the benefits system when they gain a new job which often pays substantially more than State Benefits. Therefore, there is a gap between the incomes of those living on benefits and those in work. This gap has widened over the 1980s and 1990s in Britain due to the removal of the link between State Benefits and average earnings. This and the inadequacy of State Benefits has accentuated the poverty threshold/line in Britain.

The dynamic poverty groups in Britain

The PSE survey allowed the estimation of the relative sizes of these four ‘dynamic’ poverty groups discussed above. These groups are, the *poor*, *those who have risen out of poverty*, *those who are currently vulnerable to poverty* and the *not poor*.

Table 5: Classification of the PSE respondents by dynamic poverty grouping

Poverty Groups	Percent of respondents in each group	Percent of group saying their income or standard of living had risen in the recent past
Poor	25	29
Rising out of poverty	2	56
Vulnerable to poverty	11	29
Not poor	62	44
Total	100	

Table 5 shows that, at the turn of the 21st Century, just over 25% of people were suffering from both multiple deprivation and low income – they were poor. A further 11% had low incomes but were not yet suffering from multiple deprivation. Two percent were on their way out of poverty pretty fast and 62%, the overwhelming majority, were not living in poverty and not in danger of poverty.

The four dynamic poverty groups were identified solely by multi-variate statistical methods, however it is possible to get an indication of the validity of these statistical methods from the perceptions of respondents about recent changes in their circumstances. The second column in Table 5 shows the percentage of respondents who said that their incomes or standard of living had increased in the recent past. If the theoretical dynamic poverty groupings are valid then it would be expected that higher percentages of the ‘rising out of poverty’ and ‘not poor’ groups would have witnessed recently improved circumstances than the ‘poor’ and ‘vulnerable to poverty’ groups. The results shown in Table 5 are consistent with the predictions of the theoretical poverty dynamics model presented in this paper.

In order to test this poverty dynamics model, further longitudinal income and deprivation data are needed. This work is currently being undertaken using the first five waves of the European Community Household Panel survey.

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FINAL DRAFT

The Distribution of Child Poverty in the Developing World

Report to UNICEF

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The first priority was to review direct and indirect information about children and find the strengths and weaknesses of existing data about children's conditions and needs. While a great deal of national and international research on Articles in the Convention on the Rights of the Child has been completed, the relationship between child poverty and child rights had not been fully explored. Thanks are due to Jo Beall, Jonathan Bradshaw, Meghnad Desai and David Piachaud, John Micklewright, Giovanni Andrea Cornia and Jane Falkingham for the ideas being developed and especially the comparative studies on the Transition Countries of Eastern Europe published by the Innocenti Research Centre in Florence. The valuable assistance, in the early weeks, of Ceema Namazie in reviewing child data in Kyrgyz is gratefully acknowledged. We would also like to thank Enrique Delamonica and Bill O'Neil for their very helpful comments on the first draft. Jan Vandemoortele also provided us with considerable help, support and encouragement.

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Chapter 1

Child Rights and Child Poverty in Developing Countries

Introduction

This research report presents the first ever scientific measurement of the extent and depth of child poverty in all the developing regions of the world. This measurement of child poverty is based upon internationally agreed definitions arising from the international framework of child rights. In successive annual reports, UNICEF has argued that poverty is one of the greatest obstacles to the survival and development of children. The near-consensus reached by all national governments in framing the 1989 Convention on the Rights of the Child gave momentum to serious and effective work to reduce violations of a number of rights relevant to the reduction of child poverty in different countries.

Poverty denies children their fundamental human rights. Severe or extreme poverty can cause children permanent damage physically and mentally, stunt and distort their development and destroy opportunities of fulfilment, including the roles they are expected to play successively as they get older in family, community and society. Both research and administrative data show that investment in basic social services for children is a key element to ensure success in alleviating their poverty. It also shows that a minimal level of family resources to enable parents to meet the needs of their children are required - even when families are prepared to put their own needs or the needs of work and other social claims upon them second. If there are insufficient resources to satisfy children's needs - however hard parents can be shown to try - then this can cause other obligations and relationships to crumble. This is why UNICEF insists that *"poverty reduction begins with children"*.

The World Declaration and Plan of Action adopted by the World Summit for Children in 1990 set forth a vision of a 'first call' for children by establishing seven major and 20 supporting goals that were quantifiable and considered achievable by the year 2000.

UNICEF has reported on progress towards these goals¹. In 2000, it was found that some of the trends in the 1980s and 1990s had deepened rather than lifted public concern. Since 1987, the number of people in developing countries, other than in East Asia and the Pacific, with less than \$1 a day, had increased by 12 million a year. In many countries, the extreme poor had been *"left further behind."* And *"the evidence is compelling that the 1990s saw a widening in the gap between rich and poor countries as well as between rich and poor people within countries, both in terms of incomes and social outcomes."* (UNICEF, 2000a, pp9, 17 and 45).

In a statement prepared for the end-of-the-decade review, planned for September 2001 but postponed until May 2002, the Executive Director of UNICEF, Carol Bellamy, was obliged to call attention to the *"mixture of conspicuous achievement and dispiriting failure"* for children. Most governments had not lived up to the promises made at the 1990 World Summit for Children. Despite some progress, stronger leadership and more sustained policies were required (UNICEF, 2002a).

¹ In 2000, an exhaustive and exacting end-of-decade review of progress towards the Summit goals was undertaken, drawing on a range of sources not previously available, from data collected in the Multiple Indicator Cluster Surveys (MICS), the Demographic and Health Surveys (DHS) and national progress reports from nearly 150 countries (UNICEF, 2002c).

At the United Nations General Assembly's Special Session on Children in September 2002, the latest information was debated. The ten years since the 1990 World Summit for Children were found to have yielded mixed results. Three million fewer children under five now died each year, due in large part to immunization programmes and the dedicated efforts of families and communities. In developing countries, 28 million fewer children under five suffered the debilitating effects of malnutrition. More than 175 countries were polio-free and 104 had eliminated neonatal tetanus. Yet, despite these gains, more than 10 million children still died each year from mostly preventable diseases, 150 million were estimated to be malnourished, some 600 million children still lived in poverty and more than 100 million - the majority of them girls - were not in school. The number of children orphaned by AIDS had grown from 1.2 million to 10.4 million and under five mortality from AIDS was expected to double by the year 2010 (UN, 2002 and see also UNICEF, 2002b).

UNICEF has strengthened its work on poverty. It has actively participated in international conferences and government exchanges and published documents and promoted policies - many aimed to reduce child poverty. Its report *Poverty Reduction Begins with Children* was of prime concern at the special session of the UN General Assembly in Geneva in June 2000. The reports from the UNICEF Innocenti Research Centre cover a wide range of research into child rights and development in both rich and poor countries, especially that affecting child poverty, including, for example, *A League Table of Child Poverty in Rich Nations* (UNICEF Innocenti Research Centre, 2000) and extensive work on poverty in the transition economies and on the problems of child labour in India, Sub-Saharan Africa and Latin America, and the ramifying problems of children caught up in armed conflict.

The authors of this report seek to contribute to the consolidation and extension of this work to include all the developing regions of the world.

The special objective: reviewing the concept and measurement of child poverty

What are the lessons that may be learned from both the evolution of UNICEF's programme and the 'End-of-Decade' reviews? The authors of the present report have a special objective but, in reaching it, a general objective must be pursued as well. These two will be explained in turn.

The special objective of this report is to provide a firm conceptual foundation for defining and measuring child poverty and its dimensions in developing regions of the world. There are currently no consistent estimates of the extent or severity of child poverty in developing countries. Many countries have detailed anti-poverty strategies and statistics on child poverty but the figures are usually rough estimates derived from different sources about the distribution and trends in total of household income. These estimates tend to use different methods and definitions of poverty that makes the necessary task of comparing countries extremely difficult.

Should child poverty be defined independently or should it be defined in relation to adults? During the last 50 years, the choice of the former method has attracted a growing number of adherents. Theoretically, a more independent definition of poverty means treating children as objects of knowledge in a number of key respects independently of adults, including their parents. Technically, this means finding criteria of measurement of child poverty that are direct rather than indirect, that is, statistical indicators of the conditions and experiences of children, not of the families or households in which they happen to live. The *Universal Declaration of Human Rights* represented a major international step after the 1939-45 war in agreeing measures for human development but, as the title shows, it was addressed to humankind as a whole rather than to particular categories of population (United Nations General Assembly, 1948). Gradually, people came to believe that the needs and

rights of children had to be separately distinguished if progress in acting upon and meeting human rights as well as human needs was to be achieved.

In 1989, four decades after the Universal Declaration of Human Rights, the Convention on the Rights of the Child (CRC) was adopted by governments across the world. The CRC has been quickly ratified by more nations than has any other charter or convention. The process of distinguishing children routinely from adults in recommending international action on rights has still to be matched in the treatment of the concepts of poverty and development.

Child-centred or family-centred?

The model of the Convention on the Rights of the Child suggests that the question of whether the corresponding conceptualisation of child poverty should be child - or family - centred must be decided in favour of the former. Children's needs are different in degree and kind from those of adults. Their experience of violations of normative behaviour can be distinct from the experience of their parents and other adults. They may not get an equal share of consideration or resources within household and family. What applies to adult members of household or family cannot be assumed automatically to apply to them. It is evident from individual illustrations that children are sometimes in poverty when their parents are not and vice versa.

This argument, of course, accepts that there are areas of 'overlap' between children and parents in unravelling the particular conditions and experiences of each. Inevitably, many questions will be posed about procedure in developing separate detailed definitions and measures for child and adult. This applies to each of the key related concepts of rights, development, poverty, deprivation and social exclusion. It is sometimes difficult (if not impossible) to separate children's conditions and experiences from those of adults in the same family or household. Sharing a group of rooms is an example. However, even in such an instance, accommodation can be used differently by adult and child, with prohibitions about, or freedom of access to, different spaces and facilities.

There is no dispute that the CRC gives children the rights to survive, develop, participate and be protected – and that the international problem is how to put such ideals or aspirations into practice. The concept of child poverty could be defined in relation to specified rights to “*freedom from material and social deprivation*” – premature death, hunger, malnutrition, and lack of access to clean water, sanitation, education, health care and information. It could also be defined in relation to specified rights to “*freedom from insufficient resources*” – namely access to an “*adequate standard of living*” and the right to “*social security*.” Certain articles in the CRC can be usefully grouped together. Representative information about their fulfilment is available and information about the fulfilment of one article can sometimes be properly combined with information about another. Thus, measures of multiple deprivation can provide even sharper evidence about progress in fulfilling child rights than separate measures of deprivation treated separately or singly.

Should the criterion for child poverty be 'insufficient resources' or 'multi-dimensional deprivation'?

In the present circumstances, there is confusion about what is the appropriate conceptualisation of poverty for scientists and agencies to use and develop. There is no doubt that there can be alternative choices of the 'core' of meaning that may be turned into good operational science and practical construction of policy. So far as possible, the choice has to follow criteria of scientific coherence, reproducibility and validity but also be distinguishable from other closely related concepts – in this case, material and/or social deprivation, social exclusion and, more restrictedly, malnutrition. Establishing a 'core' of meaning in one case carries the implication of establishing such a core for other related and even overlapping concepts. In separating the meaning of the different key terms,

the likelihood of using one term to mean another is thereby reduced and one source of confusion eliminated.

The recent history of the debate shows that any success in achieving the millennium goal of halving extreme poverty in the world by the year 2015 will depend, at least in part, upon achieving scientific and political consensus about meaning. The arguments and the possible conclusion around which consensus might be built, are set out in two reports (Gordon and Townsend, 2000, especially Chapters 4, 5 and 18; Townsend and Gordon, 2002, especially Chapters 3 and 14). The conclusion of these reports is that the core of meaning must be '*insufficient resources*' but its acceptance must also depend on two associated conclusions:

- i) that the right threshold of sufficiency must be demonstrated in relation to all forms of resources and not just income, and
- ii) that the level at which resources can be demonstrated to become insufficient must depend on evidence about the links between resources and external criteria, such as type and degree of material and social deprivation, or low standard of living - to avoid circularity of reasoning, i.e. the resources must be insufficient to achieve an adequate standard of living.

The reasons for reaching this conclusion may be illustrated from history of World Bank practice since the 1939-45 war. The basis of the Bank's use of a "*dollar-a-day per person*" as the poverty line has not been securely established, even in the Bank's own terms. For example, the annual reports in both 1990 and 2000 were taken up with poverty eradication issues and have been very influential. The Bank sought to develop a poverty line that permits "*cross-country comparison and aggregation*" (World Bank, 1990, p27). Poverty is defined as "*the inability to attain a minimal standard of living*" (*ibid*, p26). Despite the difficulties of counting the contribution to living standards of public goods and common-property resources in fixing a poverty line, the World Bank chose a 'consumption-based' standard that was supposed to comprise:

"two elements: the expenditure necessary to buy a minimum standard of nutrition and other basic necessities and a further amount that varies from country to country, reflecting the cost of participating in the everyday life of society." (World Bank, 1990, p26).

The first of these elements was believed to be "*relatively straightforward*" because it could be calculated by "*looking at the prices of the foods that make up the diets of the poor*" (*ibid*, p26-27). But the second element was "*far more subjective; in some countries indoor plumbing is a luxury, but in others it is a 'necessity'*" (*ibid*, p27)². The second element was set aside and not considered at any length (although it should be pointed out that the example of plumbing is not only open to question as a 'luxury' in some countries but as a 'material' instead of 'social' illustration of "*the cost of participating in the everyday life of society*"). The conceptual and operational possibilities of constructing the second element of the Bank's poverty line have not since been seriously discussed. The case for including this element could be said to be stronger now than it was said to be originally by the Bank. Without that element, the Bank's poverty line lacks scientific justification and popular credibility. In particular, this formulation of the poverty line is not one that is applicable cross-nationally – with relevance to rich and poor countries – like other thresholds of risk, for example,

² For extended discussion, see Townsend and Gordon (2002, pp62-3 and pp356-364).

environmental pollution, radiation and malnutrition.³ Moreover, if the poverty line excludes one of the two elements supposed to make it viable, the result must be to underestimate the level of income and other resources required to escape poverty.

The answer given to the question raised in this section of the report paves the way for a more exact appraisal of child poverty. For example, children's share of overall resources needs to be established – rather than assumed to be 'equal per capita' in the World Bank's poverty formulation. Similarly, children's direct rather than indirect experience of different forms of deprivation has to be calculated in scale and severity to help to establish an appropriate poverty line for households including children. It is also of crucial importance to know the extent and nature of children's deprivation in order to target anti-poverty policies effectively.

Income- or expenditure-based measure of child poverty?

There is a continuing debate between advocates of income and advocates of expenditure as the basis for measuring poverty. The debate has existed for many years (Townsend, 1970a). The reason for concern in making the right choice is that the measures of poverty on one basis rather than the other produces much larger differences for developing than for industrialised countries. The issue is two-fold. Applying one measure rather than the other may greatly change the numbers found to be in poverty in rich compared with poor countries. Equally, it may greatly change the numbers found to be in poverty in rural compared with urban areas.

Recently, Hussain concluded, for urban China, that poverty was much greater when measured by expenditure than it was when measured by income (see Hussain, in Townsend and Gordon, 2002, pp300-302). He believed that much of the difference was due to incomes being in part committed to saving rather than to expenditure. The problem is different for predominantly rural regions and countries. Unless income is broadly defined to include income in kind from growth of food for family consumption and exchange of produce or barter, resources can be seriously under-estimated. There are other equally important issues. In rich countries, free or subsidised public services enhance real income or standard of living and can be a form of "*income in kind*" as substantial as is the value of home-produced crops in rural countries and regions. Much special research indicates that the concepts of income and expenditure are not easy to operationalise in practice or reconcile. However, a more comprehensive definition of income⁴, combined with care over time (at least several weeks) in arriving at reliable data about 'real' expenditure, seems to bring some degree of convergence in the calculations by statisticians of total income and total expenditure and of the respective distribution of the two.

For children, their share of income can be estimated by finding:

- what cash income they receive, plus
- what share of income is spent solely on their behalf, plus
- what 'income' in kind they receive privately and from public services and facilities, plus

³ The tendency to define poverty differently for industrialised and 'developing' countries is entrenched in the practice of international agencies like the World Bank, UNDP and OECD and of individual governments. This obstructs reasoned identification of both the distribution of the problem and priorities for policy.

⁴ The problem was understood long ago. "*No concept of income can be really equitable that stops short of the comprehensive definition which embraces all receipts which increase an individual's command over the use of society's scarce resources – in other words his 'net accretion of economic power between two points of time.'*" Memorandum of dissent by a minority of the Royal Commission on Taxation, *Report of the Royal Commission on Taxation*, Cmnd. 9474, 1955, p8.

- what share they can be presumed to have of the remaining household resources that are spent for the joint benefit of all members of the household.

The UN has recently produced detailed guidance on the measurement of the components of total household income (Canberra Group, 2001). However, this guidance relates to the household as a whole or the adults within households. There has, unfortunately, been little scientific work on how the total incomes or consumption of children should be measured.

Continuing attempts to get closer to reliable data for children will help to refine the crude attempts to apportion income rights ‘per capita’ or by means of other procedures of ‘equivalisation’. ‘Equivalisation’ is not a necessary part of poverty measurement - as is often supposed. If external criteria have to be invoked to decide the poverty line of income or resources generally for households, then those criteria apply to different types of household, including the number and characteristics of children within them.

It is not currently known how to measure either child income or child expenditure on a global scale. The question has not attracted searching and sustained examination. We hope that new work can be undertaken. In the meantime, we are presenting an alternative (or complementary) approach. The remaining chapters of this report demonstrate that different forms of child deprivation can be measured consistently in combination to show the extent of multiple and severe deprivation. In future, these data may be correlated with present information about the distribution of income and expenditure (see Chapter 6).

Linking child rights to the measurement of child deprivation

As discussed previously, an objective of this report is to distinguish child poverty from adult poverty and to formulate a more accurate measurement of child poverty in the developing regions of the world. This has been argued in general terms and will be set out technically and empirically in this report. It is suggested that the core of the meaning of poverty must be “*insufficient resources*”. This research represents a significant advance in identifying and measuring the material and social deprivation of children. However, child income and expenditure and the resources in kind that they receive and use also need sustained attention. This research has successfully measured some of the resources available to children (using direct measures) but has not been able to express these resources in monetary terms.

By contrast, with the lack of information on children’s total incomes, there exists a large body of data for different countries on child deprivation. Many of the data have been brought into being as a result of the introduction of the CRC. Therefore, a rights-based formulation of children’s multiple deprivation becomes a distinct scientific possibility and has attracted enthusiasm elsewhere⁵. Our belief is that the data can be used to develop a coherent body of indicators of multiple child deprivation that, in itself, offers objective and acceptable criteria for the determination of poverty lines. This will allow trends in child poverty and severe or extreme poverty to be tracked more accurately - and more convincingly - among developing countries.

Pressure for this to be done comes from growing public concern not just about the huge extent of persisting child poverty but about non-fulfilment of the rights of the child. The international history of both problems is more closely linked than often supposed.

⁵ See, in particular, Van Genugten and Perez-Bustillo (2001) and Jochnick (2001).

Does the fulfilment of child rights include children's development?

By any intellectual standards, the stream of work on human rights embodies concepts of poverty eradication and human development despite the fact that each of the three concepts has been examined and elaborated separately in a large number of studies and by different organisations. It may be time to recognise that the three areas of work have been kept artificially distinct and should be brought closer together, with human rights providing the distinctive umbrella. The three concepts need to be linked more explicitly than has so far been attempted. Separate exposition and analysis implies differently prioritised programmes of action, however, in meaning and, it must be added, operational specification, they are found to overlap. Clarifications of that belief and of questions of focus and emphasis, urgently require resolution.

At the turn of the century, attempts were made to clarify the relationship between rights and development – for example, in the work of UNICEF and UNDP. The encouragement of human development and fulfilment of human rights represents a common commitment to promote the freedom, well-being, dignity and quality of life of individuals in all societies. The two can be said to be compatible but also sufficiently distinct for each to offer something substantial to the other.

“If human development focuses on the enhancement and the capabilities and freedoms that the members of a community enjoy, human rights represent the claims that individuals have on the conduct of individual and collective agents and on the design of social arrangements to facilitate or secure these capabilities and freedoms.” (UNDP, 2000, p20)⁶

In the *Human Development Report for 2000*, which takes human rights as its theme, the two concepts of human rights and human development are distinguished and are said to enrich each other. However, the argument is muted and is not perhaps appreciative of the gathering force and sheer range of the concept of human rights. Thus, UNDP acknowledges that *“to have a particular right is to have a claim on other people or institutions that they should help or collaborate in ensuring access to some freedom. This insistence on a claim on others takes us beyond the idea of human development.” (ibid, p21)*. However, elaboration of what sorts of duties or responsibilities are placed on ‘other people or institutions’ (especially the latter) and how this might redress the unnecessarily dominant individualism of the human development approach, as well as its ducking of ‘cause’ and of complementary information about ‘mal-development’, is not explored. Although some linkage between the two concepts is accepted, the true potentialities of that linkage are not seized. All that is conceded is that the human rights approach *“may offer an additional and very useful perspective for the analysis of human development.”* (Our emphasis, *ibid*, p21.)

This seems to claim too much for the concept of human development or at least its conventional interpretation. ‘Human development’ is a term that implies progress and represents necessary or actual evolution. In the way that it is used, the term tends to be short on history and on cause. In predominant measure, it tends to be interpreted as a process of building on present conditions (and therefore inequalities) without appraisal of lessons learned from retrospective analysis of how the distribution of world conditions came about. ‘Rights’ can only be taken seriously in a world where there are manifest wrongs. By contrast, ‘development’ does not carry the same connotations of remedying negative outcomes and forces. For example, the invention of the concept of ‘underdevelopment’ was motivated deliberately in the 1970s to call attention to the one-sided meaning that had come to be attached conventionally to ‘development’. Another historical - as well as contemporary - example of the exclusion of negatives from the usage of the term is in the linkages

⁶ The chapter in the report from which this quotation is taken is attributed to the Nobel Prize winner, Amartya Sen.

made with economic 'growth'. Development and growth have been assumed to be bed-fellows and one is generally supposed not to take place without the other.

Again, in the international work going on into human development, measures of economic growth and poverty do not take sufficient account of the ravages of war and the costs of deforestation, global warming and pollution. Nor is unpaid work, production or care, especially by women, built quantitatively into the equation. The causes of poverty and material and social deprivation are not sought in the collection of cumulative evidence of the initiation and sustainability of violence. Neither is the 'universality' of rights reflected in the choice of social and economic indicators – particularly of poverty. These ideas lie behind the research reported here. They help to explain why human development might be treated largely as an element lying *within* the wider human rights framework rather than as a separate or more compelling strategic objective. They also help to explain why the investigation and resolution of child poverty has been cast in these pages within the framework of the CRC.

If 'human development' implies progress and necessary or actual evolution then 'human rights' implies a set of ideals or end results and therefore highlights the huge strides that have to be taken to surmount or improve contemporary conditions. 'Human rights' incorporates a set of standards of human behaviour that are expressed authoritatively rather than left implicit – even if their exact meaning in relation to events in different countries remains to be clarified. This difference in the treatment of the concepts is not highlighted, for example, in the UNDP's *Human Development Report for 2000*. Compared with 'human development,' 'human rights' tends to be treated as a more extensive multi-disciplinary concept – within which important elements of meaning, like social inclusion and personal freedom as well as human development may largely, if not comprehensively, be located. It is also the case that instruments of 'human rights' have been endorsed formally by nearly all governments.

There are many ways in which a scientific approach that integrates the two concepts of human development and human rights might be specified and made practical. Both streams of work would gain. For example, one of the problems for the relationship between child rights and development is the need to strike a better balance in both between civil and political rights on the one hand and social and economic rights on the other. *"While the discussion on rights has tended to emphasise civil and political rights that on human development has tended to portray economic and social conditions - for example in the application of the human development index."* (*ibid*, p20). This may explain the existence of separate sets of 'practitioners' for each of the two concepts, rather than those whose job it is to represent the overlapping percentage of work and the extent to which co-ordination is needed to improve assessments of outcome. Human rights plainly include economic and social rights as well as civil and political rights.

Does the instrument of child rights provide a legal framework for poverty reduction?

Some human rights specialists go a lot further than even imaginative international agencies like UNDP in showing the anti-poverty potentialities of the gathering momentum of world-wide interest in human rights. One authority in international law writes: *"International human rights instruments provide a legal framework for poverty reduction strategies.... The language of human rights covers some of the multidimensional experiences of poverty, for example the loss of personal space and security, and erosion of individual freedoms of movement and of expression...[Poverty] is the very antithesis of the human right to development.... Denial of human rights is both a cause and a consequence of poverty. Poverty constitutes in itself a denial of fundamental human rights and a barrier to the enjoyment of all other human rights. A human rights shortfall is an obstacle to the eradication of poverty"* (Chinkin, 2002).

Chinkin argues that, by means of international law, the framework for entitlements, the language for the presentation of claims and national and international machinery for their determination should be integrated into the various strategies of poverty eradication.⁷ Examples of these strategies would include *"the transfer of resources, access to non-exploitative micro-credit, and the reduction of military expenditures"* (*ibid*, p587). The great virtue of this argument for an enlarged role for international law is that 'resources' (including income) are re-affirmed as comprising the core of the definition and measurement of child poverty and, therefore, as the element that has to be properly institutionalised in every strategy concerned with defeating poverty. Whilst there is deepening concern across the world about the growing inequality of resources, substantial redistribution of these resources has not become a feature of current international strategy. Yet there are compelling arguments for stronger international taxation and international company law, as well as for fairer world trade, all of which can only be developed within a stronger 'rule of law' consensus if there is to be the smallest chance of fulfilling the UN's millennium goal of halving world poverty by 2015.

How can non-fulfilment of child rights and the persistence and growth of child poverty be linked?

Since 1989, UNICEF has steered the consideration and development of indicators of child rights (for example, see UNICEF, 1998a; 2002c). The need for accurate and reliable global monitoring is a high priority. The value of clarifying the links between child poverty and child rights can be illustrated by the current range of indicators monitoring progress. How might indicators of child poverty and trends in poverty be developed in relation to Article 27 of the UN Convention on the Rights of the Child: *"States Parties recognise the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development?"* Article 26 provides a complementary fundamental right of the child to social security and other articles refer to related rights to material facilities and basic social services.

The CRC gives children the rights to survive, develop, participate and be protected. As cited above, there are Articles in the Convention and in the Universal Declaration that specify access to an adequate standard of living and to social security as fundamental rights. Other Articles cover freedom from different aspects of material and social deprivation. 'Survival', 'development', 'participation' and 'protection' themselves imply minimal standards of food, safe drinking water and other goods and facilities, like health and education that are basic to both physical and social growth.

The concept of poverty must necessarily embody lack of access to such rights and can be defined usefully, we argue, in relation to these rights, so that estimates of child poverty may be constructed on the basis of access to a number of specific economic and social rights. Thus, direct and indirect indicators like per cent of population below the national and international poverty lines, GDP per capita of the poorest 20%, infant and child mortality rates, low birth-weight rate, per cent of one-year-olds fully immunised, per cent of children not reaching Grade 5, daily per capita rate of calories intake, per cent access to safe drinking water and sanitation and ante-natal care received provide illustrations of the data that were examined in preparing this report.

A number of the Articles of the CRC express fundamental rights to freedom from deprivation. Survey data - especially the Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) - can be used to show how many children have - and do not have - these rights fulfilled. This provides the basis for the remainder of this report and will be explained step by step.

⁷ A human rights approach to poverty reduction has been argued by other recent commentators. In a report prepared for the UN Office of the High Commissioner for Human Rights, poverty reduction strategies were formulated and explained in relation to specific rights (see Hunt *et al* (2002).

However, the CRC also lists the fundamental rights to an ‘adequate’ standard of living and to ‘social security’. Operational definitions of these rights need to be developed urgently for children. This means seeking ‘direct’ indicators or measures of child poverty, in the sense that they apply to the children in families and households to which they belong, rather than seeking ‘indirect’ measures that apply to the adults in those families and households, on the unexamined assumption that children have an equal share of total household income or living standards or have a share proportionate to their needs. While many children do indeed experience conditions that reflect the conditions of their families as a whole, there are some who get distinctly less, or more, than a ‘fair’ share. By recommending more direct assessment of child living conditions and their income and expenditure, the possibilities of defining what may be for them “*an adequate income*” or a right to “*social security*” can be linked with direct measures for their assistance⁸. Although strong arguments can be put forward for the collection of better information about children’s standard of living and income this information, alas, is not currently available.

However, reliable information is available on children’s standard of living which has been used in this report to develop a measure of severe deprivation of basic human need for children, in order to directly measure the extent of child poverty in developing countries. We show that a sufficient indicator, or combination of indicators, can be assigned for each of seven separate criteria of deprivation of basic human need and these can be validly and reliably combined into a single index. Data are available, thanks especially to the DHS, for a large number of countries. We believe this is an important step in clarifying the extent and severity of child poverty in developing countries.

⁸ See the proposed international child allowance, Townsend and Gordon (2002) pp368 and 425-426.

Chapter 2

Relationship between Child Poverty and Child Rights

"I am often asked what is the most serious form of human rights violation in the world today and my reply is consistent: extreme poverty."

(Mary Robinson, UN High Commissioner for Human Rights, 2002)

Introduction

This chapter explains how the child rights framework might be used to measure child poverty. It is followed by Chapter 3 which describes the operational measure used to construct cross-national evidence of the distribution of poverty and the results of applying that measure.

In preparing a reliable but also widely acceptable measure of poverty in relation to the framework of child rights, two problems have to be understood. The first is that, although the Convention on the Rights of the Child lays down aims that have attracted near-universal support, each one of them is expressed in terms that in practice need to be clarified for purposes of interpretation and action. The second is that the aims are expressed in a large number of Articles in the Convention and need to be grouped or clustered for purposes, whether scientific or political, of concerting strategy, deciding priorities and therefore policies and organising ways of monitoring progress. These two problems will be illustrated below. Later in the chapter the principles of the methods used to develop a set of indicators will be discussed.

Using rights to measure child poverty (1) the problem of clarifying specific rights

Following the adoption of the Universal Charter of Human Rights and of other instruments of human rights by the international community, the decision to agree a complementary instrument in the interests of children in 1989 represented an historical turning point. The comprehensive range of aims adopted and the near-unanimity of agreement among nation states is impressive and lends authority to all subsequent work. Differences of interpretation between governments and reservations attached were of course left at the time for later clarification and action on detail by combinations of international and national political representatives.

Like the other instruments of human rights, the CRC imposes moral imperatives that can help to overcome particular disagreements about necessary action by governments and other institutions. For example, the social theorist Zygmunt Bauman insists that there is a moral imperative laid upon everyone to engage with the tools for achieving human justice that fortuitously have become available. Via the 1989 Convention, governments and others are presented with a list of duties that they are expected to honour. This has led some to distinguish 'perfect' from 'imperfect' duties (UNDP, 2000). The formulation of rights in different Charters and Conventions does not address the issues of how duties are to be discharged or the extent to which those duties can be discharged. The formulation conveys an 'all-or-nothing' command. Either the duties are honoured or they are not. There is no in-between. The continuum of satisfaction of the different rights that exist in reality is sometimes ignored when governments and international bodies who are culpable for denying rights are expected to fulfil their duty. As Bauman succinctly writes:

“In a world of global dependencies with no corresponding global polity and few tools of global justice, the rich of the world are free to pursue their own interests while paying no attention to the rest...the issue of a universal right to a secure and dignified life, and so to universal (truly cosmopolitan) standards of justice, must be confronted point blank before the subtleties of cultural choices may come into their own.” (Bauman, 2001)

Bauman’s objective is to secure the most basic human needs by calculated and persistent use of the ‘few tools of global justice’ available to governments and international bodies as well as to imaginative social scientists and lawyers - human rights conventions⁹. The fulfilment of rights necessarily depends on calculations of the human needs that have to be met. However, while the formulation of rights carries with it a near-consensus about duty and mission – little short of the authority of international law - there remains the element of ambiguity about the precise detail of each right that is to be observed. Satisfaction of rights depends on full discussion and resolution of specific meaning as well as on appropriate policies and action.

The distinction between perfect and imperfect duties helps to turn attention from an unquestionable or absolute division between right and wrong to the finely graded conditions or situations that exist in everyday life – and hence the relative or proportionate fulfilment of duty. In accepting that children have a number of rights, attention can be called to the actual conditions they experience and therefore what need they have to secure those rights.

As discussed in Chapter 1, the needs of children have to be distinguished from those of adults. For example, Lansdown (1998) identifies the following needs:

- children are people who have to be accorded equal status to adults;
- children’s healthy development and civil participation are integral to the creation of successful countries;
- children are particularly vulnerable as a consequence of their development and dependence;
- children are disproportionately affected by the activities and omissions of government, due to their reliance upon public services;
- and children are universally excluded from participation in political processes.

The relevance of perfect and imperfect duties in simultaneously satisfying children’s needs and rights can be illustrated by different Articles of the Convention. Thus, Article 28(1)(a) of the CRC is clear that states should *“make primary education compulsory and available free to all”*. Hence, to measure the provision of free primary educational attendance is, in principle, a relatively simple exercise, providing a clear deprivation indicator to demonstrate a state’s infringement of the Convention. Such an indicator would be the percentage of the relevant age groups not in primary education. However, some hard questions remain. As Casas (1997, p288) notes, the social scientist must be cautious when creating lists of indicators to consider the *“different practical interpretations, depending on historical, cultural, and conceptual contextualisations”*. Hence, there are degrees among countries in the satisfaction of ‘compulsion’ – by age, gender, ethnicity and area – and in the degrees of ‘primary education’ provided. However, this example of access to primary education suggests that some rights lend themselves better than others to measurement and implementation.

⁹ This is a view supported by Mary Robinson, when UN High Commissioner for Human Rights, in a speech to the World Summit 2002 in Johannesburg: *“a human rights approach adds value because it provides a normative framework of obligations that has the legal power to render governments accountable”*. (Robinson, 29/8/02)

Rights that appear to be more ambiguously expressed encourage signatories of the CRC to plead ‘imperfect’ duties and absolve themselves of the responsibility of honouring the clear intentions of the Convention. For example, Article 26(1) of the Convention states that:

“State Parties shall recognise for every child the right to benefit from social security, including social insurance, and shall take the necessary measures to achieve the full realisation of this right in accordance with their national law.”

Whilst the Convention clearly seeks to promote the notion that a state should provide a social security safety net for children, it does not provide detail on the form of systems a state should seek to comply with. However, other instruments of human rights can be quoted in support. The International Labour Convention No 102, the Social Security (Minimum Standards) Convention (SSC) contains a very detailed vision of the requirements for welfare. Although only 40 states have ratified the SSC, it was adopted by the Council of Europe in Article 12 of the European Social Charter and, whilst it does not have the near universal ratification of the CRC, the SSC has signatories from all continents and is one of the tenets of the European Union. In the context of this chapter, the SSC makes provision for family benefit (Articles 39-44) for the ‘maintenance of children’, a maternity benefit (Articles 46-52) and a survivors’ benefit (Articles 59-64). The Convention is quite specific on issues of rates of qualification and eligibility which should be achieved by each state and the rates for each benefit. For instance, for Family Benefit, the SSC stipulates that the total value of the benefits granted should be:

“(a) 3 per cent of the wage of an ordinary adult male labourer, as determined in accordance with the rules laid down in article 66, multiplied by the total number of children of persons protected; or (b) 1.5 percent of the said wage, multiplied by the total number of children of all residents.”

Whilst the adequacy of these provisions may be debated, this should not obscure the fact that such supplementary instruments are important tools not just for the clarification - but also the implementation - of rights. This is an example of the ways of clarifying particular Articles of the Convention of greatest relevance to the eradication of child poverty.

For developing countries, it is difficult to reconcile the fundamental right to social security, expressed in Article 26, and the right to a adequate standard of living, expressed in Article 27, with many of the measures introduced in the 1980s and 1990s under the rubric of ‘Structural Adjustment Programmes’. Access to public social services like health and social insurance was often restricted and expenditure cut, on the pretext that private provision would be an effective substitute.

The examples given show that rights in the CRC require extensive elaboration of precise meaning but also usually involve identification of a threshold drawn at some point on a continuum from extreme non-fulfilment to more than generous fulfilment. Another example of this process is Article 12 on the right to health of the International Covenant on Economic, Social and Cultural Rights (ICESCR) - especially General Comment 14, specifying states’ obligations and the development of performance indicators. Under paragraphs 43 and 44 of Comment 14, the ICESCR lists core obligations to satisfy minimal enjoyment of the right to health. These include: ‘to ensure the right of access to health facilities, goods and services on a non-discriminatory basis, especially for vulnerable or marginalized groups’; ‘to ensure access to the minimum essential food which is nutritionally adequate and safe, to ensure freedom from hunger to everyone’; and ‘to ensure access to basic shelter, housing and sanitation, and an adequate supply of safe and potable water’. This elaboration of meaning illustrates the range of factors that have to be investigated and satisfied in guaranteeing a particular right but also opens up further ambiguities that invite clarification. Thus,

access to facilities, for example, could be measured in distance, in time, or in economic terms and the nature of what health facilities are acceptable remains to be specified. However, accepting that different criteria of health can properly be applied, it is evident that fulfilment or violation of health, when assessed and ‘measured’, is likely to lie on a continuum between two extremes – for individuals, populations and countries.

If absolute poverty is to be measured, then threshold measures of severe deprivation of basic human needs can be developed. In Chapter 3, threshold measures for the severe deprivation of the following basic human needs: food, safe drinking water, sanitation facilities, access to information, education, health and shelter will be defined. These needs are reflected successively in CRC Articles 13, 17, 24, 27 and 28, although the Convention does not specify in each case what constitutes mild, moderate, severe or extreme deprivation.

An example of such an operationalisation can be found in the goals announced at the World Summit for Children 1990, which sought to implement the aspirations contained in the CRC. As a consequence of this agreement, UNICEF undertook the task of assisting countries with appropriate surveys. These Multiple Indicator Cluster Surveys (MICS) conducted by each country have allowed a comprehensive list of indicators to be developed to monitor progress in relation to these goals. These surveys and the indicators they deploy are located within a global consensus upon the manner in which the aspirations of the CRC should be achieved.

Using rights to measure child poverty (2) the problem of clustering rights

Arranging some of the Articles of the Convention into groups or clusters can be justified on various grounds: for example, seeking causal links to maximise strategies to reduce violations; exploring the extent to which action in relation to one Article in the Convention necessarily assists the realisation of other Articles; ordering the different Articles to allow related issues to be examined; or developing programmes of action to be introduced by stages. The idea of the ‘clusters’ may also be useful in advocating broadly based but targeted strategies to bring about a reduction in the severity or number of violations more quickly than would otherwise be the case.

The particular value of organising CRC Articles into clusters is to explore, or confirm, the extent to which success in reducing one unsatisfied human right spills over into success in reducing other unsatisfied rights. The authors of the present report have adopted this approach¹⁰. Rights can be examined separately in turn, as discussed above. This has all the professed advantages of selective action: concentrating energies and assembling information on one problem and ignoring the ramifications that affect other problems for the sake of speed and the justifiable use of limited resources. However, facing up to multiple and interconnected problems is the reality that has to be understood. It could be seriously disadvantageous to deny information on the likely knock-on consequences for other rights. A sense of proportion and the identification of priorities can only proceed in the context of demonstrating interrelationships between certain rights and categorising those that are closely linked. Any programme of investigation or action would be necessarily larger and more complicated, as well as more costly, and perhaps controversial, than the ‘particularistic’ alternative. Problems in widening the strategy must of course be anticipated but we consider that this ‘grouping’ is the right methodological or scientific course to take.

¹⁰ An approach shared by others, such as Ennew and Miljeteig (1996, p222) who have recognised the need for clusters of indicators to capture the range of rights covered in complex articles.

It will never be easy to obtain agreement on the grouping or categorisation of some rights in distinction from others but there are precedents in the steps that different international bodies – for example, UNICEF itself (in its work on indicators, and the Committee on the International Covenant, in its organisation of commentaries) - have taken. It is better to proceed with the task of seeking to reconcile scientific and democratic support so that realistic conclusions may be drawn about both specific rights and sets of rights that are related.

A precedent for organising rights into appropriate clusters is provided by the work of the Committee on the Rights of Child, which symbolises the diverse nature of the Convention and the safeguards it provides. All signatory states, under Article 44(1) of the CRC, are obliged to report to the Committee within two years of signing the Convention and thereafter every five years. These reports help to show both the progress made in the implementation of the Convention and the difficulties as well as transgressions that are arising in the process. They provide a substantial audit of the rights of children that mirrors the intentions of the Convention. Countries are required to provide wide-ranging information upon: implementation, the definition of the child and the application of general principles¹¹.

Of particular interest to the approach we are taking in this report, is the Committee's clustering of the remaining rights in the Convention into specific thematic categories. Hence, countries are required to collect information on the following categories: civil rights and freedoms; family environment and alternative care; basic health and welfare; education, leisure and cultural activities; and special protection measures. It cannot be disputed that these reports offer a vital source for the development of general indicators of rights and this can be seen in their application to our categories in Table 2.1. However, they are problematic once attention is paid to the measure of child poverty. The Committee's clusters do not correspond with those required to relate to a multiple deprivation or poverty index. However, scrutiny of the Articles in the Convention demonstrates the fact that a number of them deal with different elements of material and social deprivation and two of them deal with very low income. In relation to the millennium goals now expressed by the UN (and the anti-poverty goals expressed separately by a number of international agencies and governments) we would therefore recommend that, in its future work, the Committee will find it possible to extend its analysis of clustered rights accordingly.

Planning by stages: 1) The use of existing indicators

In applying the child rights framework, we decided on two stages of work – first, to review what could be done with existing statistical indicators already available, and second, to build new indicators from survey data recently becoming available from country-wide studies sponsored by international agencies such as UNICEF. As a first step, therefore, indicators that were patently related to child rights - derived from existing sources (especially the statistical handbooks of the World Bank, the UN, UNDP, WHO and other international agencies) - were organised into clusters according to common criteria (see also Gordon *et al*, 2001).

Rights from the CRC were grouped together to produce a list of direct or indirect indicators whereby the fulfilment/non fulfilment of rights could be determined¹². This is set out in Table 2.1.

¹¹ These include: i) Non discrimination (Article 2); ii) Best interests of the child (Article 3); (iii) The right to life, survival and development; (iv) Respect for the views of the child (Article 12).

¹² This approach is similar to that adopted by UNICEF from the 'Indicators for global monitoring of child rights' conference held in Geneva (UNICEF, 1998a) in that we have sought to collect indicators of child rights clusters.

Table 2.1: How rights from Articles in the Convention on the Rights of the Child can be clustered, with possible indicators¹³

Rights Cluster	Examples of Possible Indicators
Rights of freedom of expression and thought and to exchange information and ideas [Articles 13 and 14]	
Right of access to information in the media and books to promote social and mental well-being [Articles 13 and 17]	Percentage of children and mothers with access to or possession of information mediums. Source: Demographic and Health Surveys (DHS).
Right to protective measures against violence, maltreatment, injury, exploitation, abuse, including sexual abuse, illicit drugs and deprivation [Articles 19, 20, 32, 33, 34 and 37]	Number of children economically active. Source: International Labour Office. ¹⁴
Rights in disablement of assistance for special needs and actively participate in community life [Article 23]	
Right to highest attainable standard of health and access to adequate nutritious foods, clean drinking water, pollution free environment and preventive and curative health care services [Article 24]	Percentage of children immunised; Percentage of untreated incidents of diarrhoea and the form of treatment received; Percentage of malnourished children. Sources: DHS and MICS
Right to benefit from social security, incl. Social insurance [Article 26]	Percentage of population protected by family benefits. Sources: ILO ¹⁵
Right to standard of living adequate for physical, mental, spiritual, moral and social development and material assistance and support programmes – particularly for nutrition, clothing and housing [Article 27]	
Right to free primary education and where appropriate free secondary education to enlarge access to education [Article 28]	Number of children between 7-18 years who have not received any primary or secondary education. Source: DHS Proportion of children aged 10-12 years reaching a specific level of learning achievement in literacy numeracy and life skills. Source: MICS
Right to recreational activities and full participation [Article 31]	
Right to measures promoting recovery and social integration following neglect, abuse, exploitation, suffering in armed conflict, torture or other degrading treatment. [Article 39]	Percentage of under eighteens in armed force. Source: Save the children database ¹⁶

At the first stage of the work, using only existing cross-national statistical data published by the leading international agencies, we constructed an index of 10 (later amalgamated to seven) indicators

¹³ The purpose of Table 2.1 is to demonstrate the diverse nature of the Convention and how rights can be clustered (with illustrations of indicators of compliance or fulfilment). Table 2.2 below develops this by specifying those rights which can be measured in relation to material and social deprivation and, hence, poverty.

¹⁴ Data is given for regions. Source: <http://www.ilo.org/public/english/standards/decl/download/global3/part1chapter2.pdf>

¹⁵ Data coverage of nations is incomplete.

¹⁶ Data coverage of nations is incomplete. Source: <http://www.rb.se:8082/www/childwar.nsf/HTML/Forsta?OpenDocument>

of child rights¹⁷. Table 2.1 illustrates the nature of ‘clustering’. It also illustrates those articles having common relevance to deprivation and poverty. As an increasing number of operational indicators for articles of human rights are introduced in future years, it will become possible to draw a clearer picture between universal and anti-poverty rights. This must be an international objective – combining theoretical and empirical needs. For the present, it is easier to justify (which we do) the construction of an index of ‘child poverty’ than one of ‘child rights’.

One problem with many existing indicators is that they are too often indirect, in the sense that they apply to households or families as a whole, and not directly to children. Such data as are available for children are often extremely limited and unrepresentative. The MICS offers a more direct and representative set of data, though this approach to comparative measurement will need to be checked and examined by other scientists and, in time, improvements both in the surveys and the analysis will be necessary.

Planning by stages: 2) The use of existing indicators to measure child rights and child poverty

This UNICEF research project offers a new analysis of the DHS data, on the basis of the agreed rights of the child, to shed light on the comparative extent and severity of child poverty. The analysis, examining 46 national data sets, was necessarily a lengthy process. Table 2.2 summarises the approach adopted in this report to cluster CRC rights related to severe deprivation among children – with their relevant indicators. In doing this, it was found that a distinction could be made more sharply between child deprivation and the non-fulfilment of child rights generally and that the measurement of deprivation (by means both of existing but also new indicators) offered a breakthrough in establishing an acceptable and coherent means of identifying and measuring child poverty. At this stage, it was less easy to prioritise child rights generally or to construct a representative index – because of ambiguities of meaning, fragmentary information from unrepresentative or highly restricted indicators and serious problems of comparability of data and of the conception of certain rights.

Table 2.2 concentrates on those child rights most relevant to the elimination of severe child deprivation. The deprivation index used in this study has been drawn from information about unfulfilled rights in the CRC. There is of course the conceptual problem that, in Human Rights Charters and Conventions, rights either exist or not – graduation between extremes is not considered. However, it was considered that agreement could be reached about a threshold of ‘severe’ forms of deprivation – that can be reflected in the choice and combination of indicators (illustrated in Gordon, 2002, p70). In choosing this threshold, it was felt that this indisputably represented the level of unfulfilled needs which the signatories to the CRC would have envisaged the Convention to serve against. The needs contained in the deprivation index are the most basic human needs for survival and autonomy and, consequently, overcome severe deprivation. The identification of severe deprivation seemed the suitable starting point.

¹⁷ Ennew and Miljeteig (1996, p221) note that one of the difficulties with developing indicators of child rights is the fact that children are only studied in ‘respect to the institutions of childhood, such as school and families’, which neglects, for instance, their exploitation economically and sexually.

Table 2.2: Categorisation of child rights relevant to the eradication of child poverty and/or multiple deprivation

Form of Deprivation	Severe Deprivation (criteria selected)	Indicators	CRC Article/ Right Infringed	Rights/ Indicators	NIGERIA % of children deprived/ (total number of children)	INDIA % of children deprived/ (total number of children)
Food	Malnutrition	Severe Anthropometric Failure in children under 5 (stunting, underweight, and wasting at <-3 standard deviations from reference population median)	24 (2) (c) HEALTH	‘imperfect/ indirect’	15.8% (2.5m)	26.2% (27.6m)
Safe drinking water	Long Walk to water (more than 200 meters) which is occasionally polluted	Over 15 min to water or surface water	24 (2) (e) HEALTH	‘imperfect/ indirect’	44.2% (23.8m)	19.3% (76.4m)
Sanitation Facilities	No sanitation facilities in or near dwelling	No sanitation facility (no toilet, pit latrine etc)	24 (2) (c) HEALTH	‘median’	25.9% (13.9m)	68.1% (269.5m)
Health	Health facilities more than 1 hours travel away. No immunisation against diseases.	No immunisation or untreated diarrhoea	24 (1)/(2)(c) HEALTH	‘imperfect/ indirect’	39.3% (21.1m)	21.5% (85.1m)
Shelter	No facilities, non perm. Bldg, no privacy, no flooring, one or two rooms. 5+ per room	Mud flooring or over five people per room	27 (3) STANDARD OF LIVING	‘imperfect/ indirect’	46.5% (25.0m)	42.4% (167.8m)
Education	Unable to attend primary or secondary education	Child between 7-18 years and not currently in school or not received any education	28 (1) (a)/(b) EDUCATION	‘perfect/ direct’	22.1% (6.7m)	15.6% (37.5m)
Information	No access to radio, television or books or newspapers.	Combination of (i) Information access – If mother listened to radio in last week or read newspaper or watched TV. (ii) Information possession – of a TV or radio	13/17 INFORMATION	‘perfect/ direct’	25.2% (13.6m)	39.7% (157.1m)

Table 2.2 also shows that indicators of rights may represent perfect or imperfect duties - as well as apply directly or indirectly to children - affecting the use that can be made of them. Some rights are more prescriptive than others, containing 'perfect/imperfect' duties, hence some rights and their corresponding indicators represent a better match than others. The indicators can be ranged from those gathered at the 'perfect/direct' point through to those at the 'imperfect/indirect' point. The 'perfect/direct' point is characterised by a right which has a prescriptive quality and an indicator which is capable of quantifying the essence of the duty. This category requires a minimal level of interpretation.

An example of a rights/indicator closest to the 'perfect/direct' point is that of education. Article 28 establishes "*the right of the child to education*" and progresses to specify "*primary education compulsory and available free to all*" and "*the development of different forms of secondary education, make them available and accessible to every child...*". As a theoretical measure of this right, the severe deprivation indicator '*unable to attend primary or secondary education*' provides a close measure of the prescribed components of the Article. Consequently, the indicators used in the study to determine severe deprivation of education of non-attendance and non-receipt of education offer a close estimate of the levels of the fulfilment of the right.

Indicators could also be derived from the UNICEF MICS surveys. In the case of education, in the MICS2 surveys, UNICEF developed the 'Learning achievement' and 'Literacy rate' indicators, which serve to address the question of the quality of education children are receiving (UNICEF, 2002a, Annex 1). Only through a cluster of indicators such as these, can the social scientist begin to suggest successful policy strategies. However, one of the limitations of this approach is the restricted nature of the data collected under MICS in terms of the scope of child rights. An example of this and relevant to this point of the continuum, is the absence of MICS indicators (and, consequently, data) on information provision (unrelated to health).

Table 2.2 also illustrates possible use of a 'median' point on the rights/indicator continuum. Article 24 contains "*the right of the child to the enjoyment of the highest attainable standard of health*". It is proposed in accordance with this right that states should "*combat disease and malnutrition...the application of readily available technology*". Whilst there is no direct reference to the provision of sanitation facilities, it is indisputable that poor sanitation is linked to the spread of disease and this should be inferred to be one of the strategies/technologies the Article believes would serve to combat disease. In this situation, support for an interpretation should be sought from supporting authorities. Such an example exists in the UNICEF publication, *Sanitation and Hygiene: A Right for Every Child* (UNICEF, 1998b). Once this is established, then the indicator used in the case of severe deprivation of '*no sanitation facilities in or near the dwelling*' would appear to contravene the infrastructure with which the CRC envisages to promote rights of the child to health.

The distinction which will be drawn between median and 'imperfect/indirect' is that, whilst the Article contains few descriptive elements, the indicator in the median cluster remains direct in nature. With direct indicators, it would appear to be a safe assumption that, if a child does not have access to proper sanitation facilities in or near their dwelling, this is an appropriate measure of non-fulfilment of this right. This approach is supported by a similar indicator which has been used by UNICEF to measure the goal set at the World Summit for universal access to sanitary means of excreta disposal. It has sought to measure the proportion of the population who have, within their dwelling or compound, a flush toilet, pit latrine or toilet connected to a sewage system (UNICEF, 2002a).

Table 2.2 also illustrates the ‘imperfect/indirect’ point of the continuum. It is of little surprise that, in the more ambiguous articles of the Convention, the indicators become increasingly indirect. Article 24 (as outlined above) cites that states employ a number of measures, including 2(c) “*to combat disease and malnutrition...through the provision of adequate nutritious foods*”. This clearly identifies malnutrition as an infringement of the “*right of the child to the enjoyment of the highest attainable standard of health*”, yet what constitutes malnutrition which is not specified in the Article and is contested (clearly more contested than the quantification of a child’s attendance at primary school). Malnutrition is discussed in greater detail in Chapter 3 and Appendix III.

The more general component of Article 24 seeks to secure the child’s right to health through the development of the necessary services and treatment. Using the DHS data, the “*routine expanded program of immunisation*”, alongside the treatment of diarrhoea, was taken as an indicator of the protection of children against disease and illness. These indicators were chosen as an operationalisation of the category of severe deprivation. However, the ‘imperfect/indirect’ nature of this particular ‘right/indicator’ makes the data difficult to interpret. For instance, Article 24(1) talks of securing the right through facilities “*for the treatment of illness and rehabilitation of health*” and, similarly, 2(c) describes the need to “*combat disease and malnutrition...within the framework of healthcare, through...the application of readily available technology*”.

Without prescribed standards, indicators of these rights have to come with caveats attached to the question of their accuracy. This is symptomatic of this point upon the rights/indicator continuum. One way of addressing this issue is to seek the use of indicators from other survey data. Again, the MICS indicators are an example of data which may be used to develop a cluster of indicators which, in turn, may help us to construct a more complex picture of right fulfilment and the direction potential strategies might take.

Similarly, the MICS indicators can broaden clusters. In the case of health, this could encompass “*the number of under five deaths from acute respiratory infections*”. However, as is often the case with MICS, these data are only for estimation at global and regional level and are restricted to the age group of under fives.

The larger framework of child rights

Using a normative framework, such as the CRC, as an instrument to gain political accountability for poverty, is also important. Opportunities are offered in the various instruments of human rights to develop comprehensive anti-poverty strategies. This has a number of advantages. It helps to focus attention on those Articles of the CRC that are evidently at issue in achieving the millennium goal of halving world poverty. It helps to call attention to Articles that at first sight appear to have nothing to do with poverty but in practice turn out to be heavily implicated. It also helps to encourage repetition of the exercise of grouping different Articles of the Convention for other objectives than those of tracking and eradicating poverty. What we have done is by no means definitive but it illustrates the potentialities of such an approach for research and action.

Mary Robinson, the former United Nations High Commissioner for Human Rights, in an address to the World Summit in Johannesburg in 2002, placed poverty eradication as a central factor in the achievement of human rights generally. Concluding with the words of Klaus Topfer, she summarised this position:

“Certainly, the full potential of human rights cannot be realised when an increasing portion of the world’s inhabitants find their human potential constrained by a polluted and degraded environment and are relegated to hopelessness in extreme poverty.” (Robinson, 29/8/02)

These sentiments are reflected in the stated objectives of this UNICEF report. There is one caveat. The CRC provides a diverse range of rights to protect children from a variety of exploitative and oppressive situations - as illustrated in Table 2.1. Thus, Article 38 provides rights to prevent the use of child soldiers, whilst Article 34 seeks to protect children from sexual exploitation. These are not foremost in protecting children from poverty though they may be found to be indirectly relevant in different ways. However, these examples illustrate the fact that the rights listed in the CRC range much wider and are more comprehensive than the rights that may be generally considered to be most pertinent to the problem of resolving poverty. We wish to avoid analytical ‘essentialism’ or ‘reductionism’. Whilst we intend to identify the children who suffer multiple deprivation and poverty, we do not intend to marginalise other critical issues. Some problems may be smaller in scale but are compelling in their intensity or immediacy. These sometimes deserve to command attention – ahead of other priorities. Hence, our analysis is not intended to collapse issues of gender, race, religion and disability into the category of poverty; we recognise the specificity of these variables alongside their interrelationships with poverty.

Even if the eradication of child poverty is given pride of place in the framework of child rights, a balance has to be struck with other priorities. Because many ‘developing’ countries are found to have higher levels of child poverty and, as a consequence, more breaches of the CRC in respect of deprivation than countries of the ‘developed world’, this must not lead to blanket conclusions being drawn about these countries. The eradication of poverty fulfils a number of child rights but certainly not all. There are, of course, respects in which poor countries compare favourably as well as unfavourably with rich countries. For example, while there are countries in our study, such as Mozambique and Namibia, in which far more children than in the US, for example, are found to be denied the rights to be free from poverty, the comparison cannot be allowed to stop there. Article 37(a) stipulates that:

‘...Neither capital punishment nor life imprisonment without the possibility of release shall be imposed for offences committed by persons below eighteen years of age’,

In the context of the death penalty, countries of the industrialised world are by no means immune from criticism on some aspects of human rights – including Article 37(a). Neither Mozambique nor Namibia contravenes this Article, as they do not have a death penalty. By contrast, since 1990, the US has been one of only seven countries to execute prisoners for offences committed when under the age of eighteen. It also tops the list of these seven for having executed a total of 17 children since 1990 (Amnesty International, 2002). Because of such evidence, it would be incorrect to draw the conclusion that ‘developing countries’ are the only or worst offenders against child rights, because of their worse record on child poverty. Rather, child rights are wide in scope and extend beyond the remit of child poverty in this report. Moreover, as an increasing number of social scientists argue, the apparent failure of a ‘developing country’ to fulfil its obligations has to be analysed afresh in the context of globalisation, global social policy and the structures of international capital – as argued earlier. In 2003, accountability has to be extended beyond national governance or sovereignty.

Conclusion

This chapter has discussed the ways in which the Convention on the Rights of the Child may be operationalised to assist the collection of evidence about violations and at the same time allow better

specification of the principal objectives of international policy. We started by reviewing the recent work of UNICEF and other bodies - which has favoured assembling child rights into clusters from which lists of indicators may be generated. However, we found that this use of child rights remains at an early stage of development and, moreover, had not yet been linked clearly – for example, even by the Committee on Child Rights - to the problem of resolving child poverty. We have therefore provided examples of grouping different Articles in the Convention for purposes of analysing progress and constructing policy priorities. We went on to specify those rights which allow construction of an index of multiple deprivation. Given the range of information becoming available, we found this was the most realistic and reliable measure of child poverty.

In this chapter, our aim has therefore been to conceptualise the links between child rights and child poverty and to single out those elements that justify the construction of a set of indicators of severe deprivation among children. Our conclusions are:

- 1) the information presently available from international agencies in the form of statistical indicators – as in their annual reports - cannot be adapted satisfactorily for the purposes of providing a measure of child poverty that is directly relevant to children themselves and reliably comparative across countries;
- 2) There are a large number of Articles of the CRC that deal with different aspects of the material and social deprivation of children and for which information is now being collected in country surveys (especially the Demographic and Health Surveys (DHS), and the Multiple Indicator Cluster Surveys (MICS). This information can be used to construct a sound and reasonably broad-ranging measure of child poverty;
- 3) The Committee on the Rights of the Child should recommend governments to give prior attention to the cluster of multiple deprivation rights when they report progress on the fulfilment of the Convention; and
- 4) The potentialities for reliable measurement of this cluster of rights to freedom from multiple deprivation can be confirmed after specific examination of the survey information about children that has become available in the last few years.

Chapter 3

Measurement of Child Poverty and Standard of Living

Introduction

This chapter will present a brief summary of recent research on the international comparative measurement of children's well-being and then discuss, in greater detail, the measurement of child poverty.

The 21st Century world is one in which a vast quantity of information on all aspects of human existence is easily available, often via the Internet. The 1990s witnessed a revolution in the collection of high quality statistical information about the world's children and their families. A range of harmonised survey instruments, such as the Living Standards and Measurement Surveys (LSMS), the Demographic and Health Surveys (DHS) and the Multiple Indicator Cluster Surveys (MICs) have been used successfully in a large number of countries (see Gordon *et al*, 2001, for discussion). However, despite these advances and increasing concern about the issue of child poverty, there are still few analyses of the standard of living and well-being of children in developing countries. In fact, there is a surprising lack of direct information on children *per se*. With the notable exception of basic health and education statistics, much of the statistical information on 'children' is derived from measures of the situation of the child's family or main carer. Children are routinely considered as a property of their household and are assumed to share equally in its fortunes (or misfortunes).

The international monitoring of children's well-being

In Japan, the government routinely publishes reports on children's situation and well-being on or close to May 5th, or Children's Day, which is a national public holiday. Japan has been producing these reports on children since the 19th Century (Barnes, 2001). Unfortunately, Japan is the exception, not the rule and most countries still do not routinely produce detailed national reports on children's circumstances.

In 1979, UNICEF pioneered the way for the international monitoring of children's well-being when it collected and published a range of indicators about the welfare of the world's children in the first report on the state of the world's children (Black, 1996). *The State of the World's Children* reports have been published annually since and have proved an invaluable source of internationally comparative information on children and their families. UNICEF also sponsored a range of comparative studies in the 1990s to monitor children's welfare in industrialised countries, which produced both comparative reports (Cornia and Danziger, 1996) and specific country studies (for example, see Bradshaw, 1990; Kumar, 1995). However, despite UNICEF's efforts, attempts to collect comparable international data on children in industrialised countries led to the common conclusion that they were invisible in most countries' systems of social accounts (Ben-Arieh, 1994; 1996). In the early 1990s, an attempt to compare children in 16 industrialised countries, led Jensen and Saporiti (1992) to conclude that: "*there was a dearth with respect to statistical data about children*".

The 1989 United Nations Convention on the Rights of the Child (CRC) marked a watershed not only for the promotion of children's rights but also for the collection and production of indicators on

children's well-being. It is impossible to monitor the implementation of children's rights without statistical indicators on children (Ennew and Miljeteig, 1996) and the reporting requirements in the CRC have resulted in a continued growth in the amount of information about children's lives.

During the 1990s, the CRC has inspired a number of substantial international studies of children. For example, in 1995, Childwatch International began a major development project on indicators on the rights of the child with case studies in Senegal, Vietnam and Nicaragua (Ennew and Miljeteig, 1996; Casas, 1997). Similarly, both the European Observatory on National Family Policies and European Centre for Social Welfare Policy and Research have produced a series of major comparative international studies on monitoring the social situation of children in industrialised countries in the 1990s (Ditch *et al*, 1998; Qvortrup, 1993; Moore, 1995; Ben-Arieh and Wintersberger, 1997).

Results from this international research were a documentation of the change in the nature of the indicators used to monitor children's situation in industrialised countries. A shift was noted, from indicators measuring 'survival' to indicators of 'well-being' and also a shift from 'negative' indicators to 'positive' indicators (Ben-Arieh, 2000).

Another result from this research was the development of ideal criteria for sets of social indicators of child well-being (Moore, 1995; Barnes, 2001):

- Indicators should assess well-being across a broad array of outcomes behaviours and processes.
- Age-appropriate indicators are needed from birth through adolescence and covering the transition into adulthood.
- Indicators are needed that assess dispersion across a given measures of well-being, the duration that children spend in a given status and which assess cumulative risk factors experienced by children.
- Indicators should be easily and readily understood by the public
- Indicators should assess both positive and negative aspects of well-being.
- Indicators should have the same meaning in varied societal groups, within and across nations.
- Indicators should have the same meaning over time.
- Indicators should be collected now that anticipate the future and provide baseline data for subsequent trends.
- Coverage of the population or event being monitored should be complete or very high: data collection procedures should be rigorous and should not vary over time.
- Indicators should help track progress in meeting social goals for child well-being at the national, state and local levels.
- Indicators should be available for relevant population sub-groups.

A range of composite indices of children's well-being have been produced which can be used to compare countries and regions, for example, the NIQOL 92 index of Jordan (1993) and the Kids Count Index in the USA (Ann E Casey Foundation, 1999). These indices combine and rank a range of indicators but they have not, as yet, found widespread acceptance. UNICEF has also developed an Index of Social Health for use in industrialised countries which includes infant mortality, public expenditure on education, teenage suicides and income distribution. This index is designed to

measure change over time of children's situation in a country, rather than compare countries (Miringoff and Opdyke, 1993). A more complex version of this index (the Index of Social Health of Children and Youth), comprising eight variables, has also been used within the USA (Miringoff, 1990).

Income and child poverty

One of the most commonly used international indicators of 'poverty' for both adults and children is the per capita Gross Domestic Product (GDP) - or Gross National Product (GNP) - of a country. Numerous studies use these kinds of economic activity indicators as a crude proxy for poverty (for example, Sachs *et al*, 2001). Although it can be expected that the distribution of child poverty would broadly conform with the global distribution of GDP per head, this is a very crude way in which to measure and map child poverty. These kinds of economic statistics, derived from national accounts data, are very crude proxy measures of the social situation and living conditions within a country. It was inherent inadequacies of these kinds of analysis that led to the growth of the social indicators movement in the 1960s (Bauer, 1966). There are large disparities in both income and living conditions *within* most countries as well as *between* countries.

The revolution in volume, coverage and quality of household survey data that occurred in the 1990s has recently allowed the analysis of income data on a global scale based upon the directly measured income of households, rather than on their inferred incomes from national accounts (Milanovic, 2002). Analyses are so far available for both 1988 and 1993 and data for later years are currently being assembled. It would be possible to use the global household level income data from social surveys collected by Milanovic and his co-workers to produce a low income 'poverty' analysis for households with children for the regions of the world. For example, a similar type of analysis to the World Bank's \$1 per day poverty line could be used, based upon income rather than expenditure/consumption. There are, however, a number of reasons why this kind of approach to measuring child poverty in developing countries is far from ideal (see Gordon *et al*, 2001, for discussion).

- 1) Little is known about the income/expenditure/consumption needs of children in most developing countries and how these needs may vary by age, gender and location. Therefore, any income or expenditure/consumption poverty threshold for children would have to be set at an essentially arbitrary level given the current lack of knowledge about children's needs. In particular, the World Bank's (1990) consumption-based poverty definition in terms of *the expenditure necessary to buy a minimum standard of nutrition* is inappropriate for measuring child poverty, particularly for young children who have low food requirements but numerous additional basic needs that require expenditure. Many academic commentators have severely criticised the World Bank's \$1 per day poverty threshold for not being an adequate definition of adult's needs in developing countries (for example, Comparative Research Programme on Poverty, 2001). Therefore, setting an arbitrary child poverty income threshold is unjustifiable and would likely lead to incorrect policy conclusions.
- 2) Household based income and expenditure/consumption 'poverty' analyses usually assume an equal sharing of resources within a household. This assumption is unlikely to be correct for many 'poor' and 'rich' households with children. In 'poor' families across the world, parents often sacrifice their own needs in order to ensure that their children can have some of the things they need (e.g. children are often allocated a disproportionate share of household resources). Conversely, in 'rich' households parents may spend less than expected on young children so as not to 'spoil' them.

- 3) There are many technical problems involved in using either an income or expenditure/consumption approach to measuring child poverty in developing countries, for example, calculating equivalent spending power of national currencies using purchasing power parity, equivalisation by household type, controlling for infrequent, irregular or seasonal purchases, under-reporting bias and other measurement errors, data discontinuities, quantifying the benefits from 'home' production and the use of durables, etc. (see Atkinson, 1990; Goodman and Webb, 1995; Reddy and Pogge, 2002, for discussion of these issues).
- 4) The extent of child poverty is not just dependent on family income but also on the availability of infrastructure and services, such as health, education and water supply.
- 5) Internationally agreed definitions of poverty are all concerned with outcomes (e.g. the effects of the lack of command over resources over time).

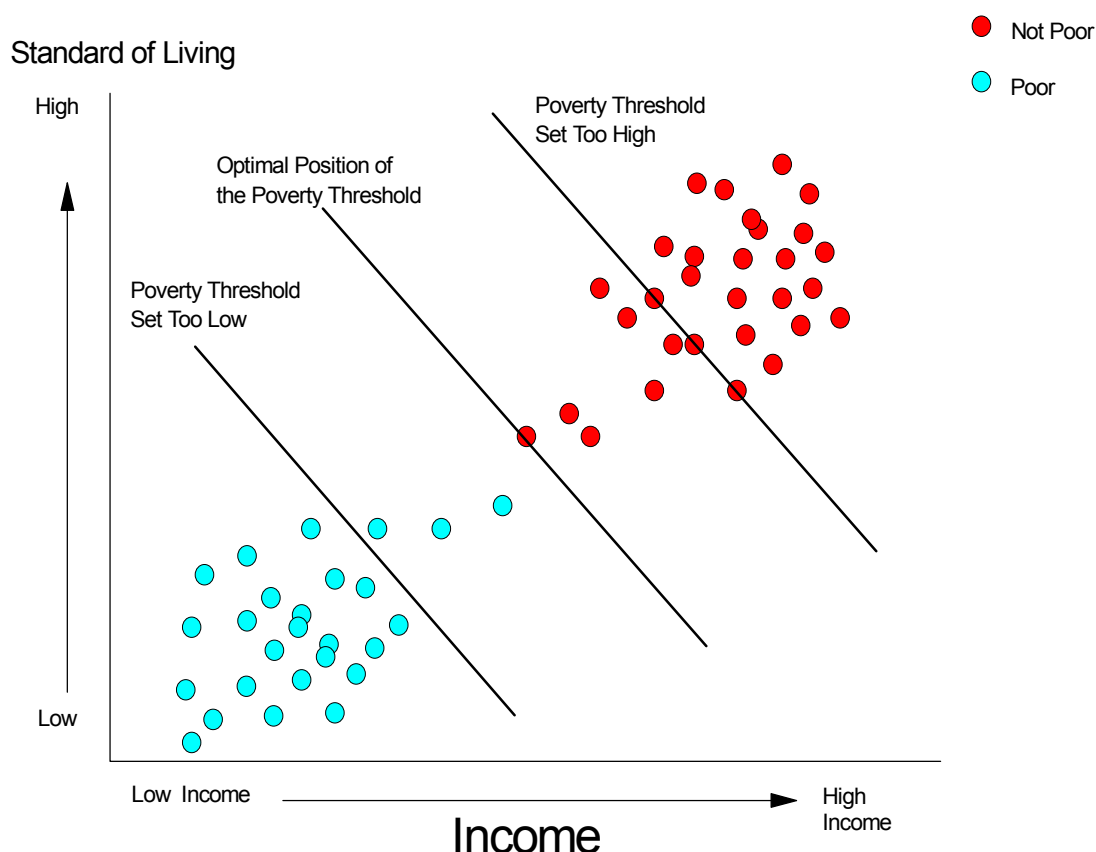
International definitions of poverty

Poverty, like evolution or health, is both a scientific and a moral concept. Many of the problems of measuring poverty arise because the moral and scientific concepts are often confused. In scientific terms, a child or their household is 'poor' when they have both a low standard of living and a lack of resources over time (often measured in terms of low income). In many circumstances, a child or their household would not be considered to be 'poor' if they had a low income and a reasonable standard of living (although they are likely to be at risk of becoming 'poor').

A low standard of living is often measured by using a deprivation indicators (high deprivation equals a low standard of living) or by consumption expenditure (low consumption expenditure equals a low standard of living). Of these two methods, deprivation indices are more accurate since consumption expenditure is often only measured over a brief period and is obviously not independent of income currently available. Deprivation indices are broader measures because they reflect different aspects of living standards, including personal, physical and mental conditions, local and environmental facilities, social activities and customs.

Figure 3.1 below illustrates these concepts and illustrates the 'objective' poverty line/threshold. This can be defined as the point that maximises the differences *between* the two groups ('poor' and 'not poor') and minimises the differences *within* the two groups ('poor' and 'not poor'). For scientific purposes, broad measures of both income and standard of living are desirable. When the definition of income is extended operationally to include the value of assets and receipt of goods and services in kind, the correlation between the two become greater (see Chapter 1 and Townsend, 1979, p1176). Standards of living includes varied elements, including both the material and social conditions in which children and their families live and their participation in the social, cultural, economic and political life of their country.

Figure 3.1: Definition of poverty



A wide range of different methods have been used by governments and academic researchers to measure poverty and the merits and problems of each method have been classified and discussed by the Comparative Research Programme on Poverty (CROP) of the International Social Science Council (Øyen *et al*, 1996) and, more recently, by Boltvinik (1999) on behalf of UNDP.

Social science research has shown that all cultures have a concept and definition of poverty although these definitions often vary (Gordon and Spicker, 1998). A major problem with many previous attempts to measure poverty on a global scale is that there was no agreed definition of poverty. This situation changed at the World Summit on Social Development in Copenhagen (United Nations, 1995). Among the innovations agreed in the 1995 *Copenhagen Declaration and Programme of Action* was the preparation of national anti-poverty plans based on measures in all countries of 'absolute' and 'overall' poverty. The aim was to link - if not reconcile - the difference between industrialised and developing world conceptions, allow more reliable comparisons to be made between countries and regions and make easier the identification of acceptable priorities for action. In developing anti-poverty strategies, the international agreement at Copenhagen was a breakthrough and the governments of 117 countries agreed to these definitions of absolute and overall poverty.

Absolute poverty is defined as *"a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services."*

Overall poverty takes various forms, including *"lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education*

and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments and social discrimination and exclusion. It is also characterised by lack of participation in decision-making and in civil, social and cultural life. It occurs in all countries: as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets.

Women bear a disproportionate burden of poverty and children growing up in poverty are often permanently disadvantaged. Older people, people with disabilities, indigenous people, refugees and internally displaced persons are also particularly vulnerable to poverty. Furthermore, poverty in its various forms represents a barrier to communication and access to services, as well as a major health risk, and people living in poverty are particularly vulnerable to the consequences of disasters and conflicts.

After the Copenhagen summit, the UN established four task forces to prepare co-ordinated action on the major commitments from all the global summits, including children, women, population, habitat and social development. The conclusion of this work was a statement of commitment to action to eradicate poverty issued in June 1998 by the executive heads of all UN agencies (Langmore, 2000). Poverty eradication “*is the key international commitment and a central objective of the United Nations system*”.

Poverty was described as:

“Fundamentally, poverty is a denial of choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and cloth a family, not having a school or clinic to go to, not having the land on which to grow one’s food or a job to earn one’s living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence, and it often implies living on marginal or fragile environments, without access to clean water or sanitation” (UN Statement)

Income is important but access to public goods – safe water supply, roads, healthcare, education – is of equal or greater importance, particularly in developing countries. These are the views of both the governments of the world and the institutions of the United Nations and poverty measurement clearly needs to respond to these views.

There is a need to look beyond income and consumption expenditure poverty measures and at both the effects of low family income on children and the effects of inadequate service provision for children (Vandemoortele, 2000; Mehrotra *et al*, 2000). It is a lack of investment in good quality education, health and other public services in many parts of the world that is as significant a cause of child poverty as low family incomes. Nobel Laureate, Amartya Sen, has argued that, in developing countries, poverty is best measured directly using indicators of standard of living rather than indirectly using income or consumption measures.

“In an obvious sense the direct method is superior to the income method ... it could be argued that only in the absence of direct information regarding the satisfaction of the specified needs can there be a case for bringing in the intermediary of income, so that the income method is at most a second best” (Sen, 1981).

Furthermore, Atkinson (1990) has argued that:

“The definition of the poverty indicator, of the poverty level, and of the unit of analysis are not purely technical matters. They involve judgements about the objectives of policy. Any cross-country comparison of poverty has therefore to consider the purposes of this analysis and the relationship between these objectives and those pursued within the countries studied.”

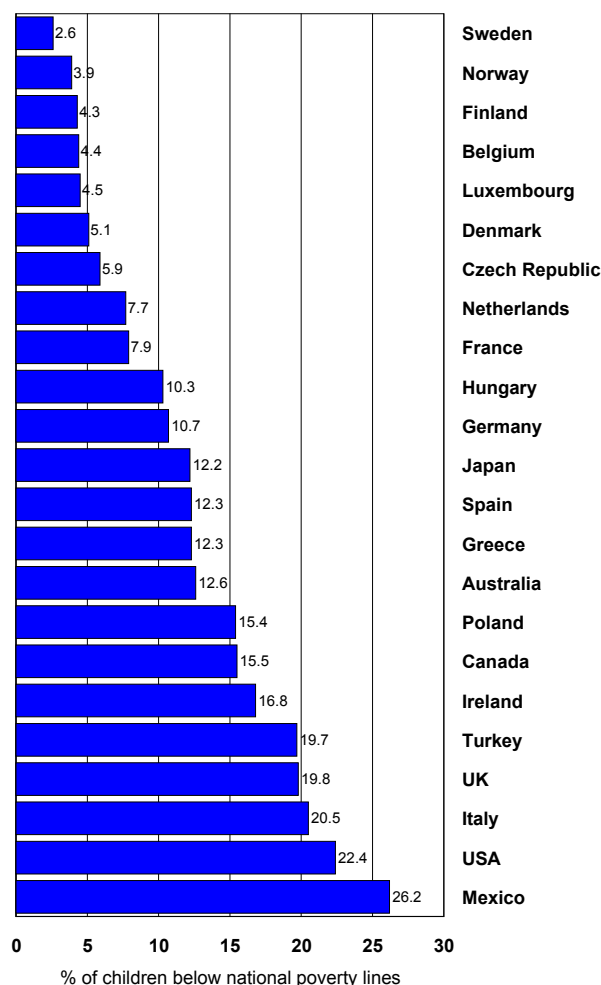
Measuring child poverty in industrialised countries

For convenience, organisations such as Eurostat (the European Union statistical office) and the OECD have, in recent years, compared the extent of child poverty in industrialised countries by using a relative standard of income, such as half the average or median household income. Considerable research efforts have resulted in a number of comparative studies of child poverty/low family income in industrialised countries; using Luxembourg Income Study (LIS), European Community Household Panel Survey (ECHP) and other similar data (for example, see Cornia and Danziger, 1996; Bradbury and Jantti, 1999; Bradshaw, 1999; 2000; Mejer and Siemann, 2000; UNICEF, 2000a; Bradbury *et al*, 2001; Vleminckx and Smeeding, 2001). However, the European Union plans in future to use a much wider range of social indicators to measure poverty and social inclusion than just relative low income thresholds (Atkinson *et al*, 2002).

The UNICEF Innocenti Research Centre in Florence built upon the work of Bradbury and Jantti (1999) to produce an influential analysis on the distribution of child poverty in OECD countries. A child was deemed to be poor if they lived in a family whose equivalised income was less than 50% of the median in the country in which they lived. Figure 3.2 shows the child poverty (low family income) rates in industrialised countries (UNICEF Innocenti Research Centre, 2000).

The lowest child poverty rates are found in the Nordic countries - which have comprehensive welfare states - whereas the highest rates are found in Mexico and the USA which have much less comprehensive welfare states and less effective social safety nets.

Figure 3.2: UNICEF child poverty league table
 (% of children living in households with income below 50% of the national median)



Measuring child poverty in developing countries

The purpose of this research is to produce the first accurate and reliable measure of the extent and severity of child poverty in the developing world using internationally agreed definitions of poverty. In particular, the primary objective is to produce an operational measure of absolute poverty for children as defined agreed at the World Summit for Social Development.

The governments of 117 countries agreed that absolute poverty is “*a condition characterised by severe deprivation of basic human needs*” (United Nations, 1995). Brown and Madge (1982), in their major review of over 100 years of literature on deprivation, argued that:

“Deprivations are loosely regarded as unsatisfactory and undesirable circumstances, whether material, emotional, physical or behavioural, as recognised by a fair degree of societal consensus. Deprivations involve a lack of something generally held to be desirable - an adequate income, good health, etc - a lack which is associated to a greater or lesser extent with some degree of suffering.”

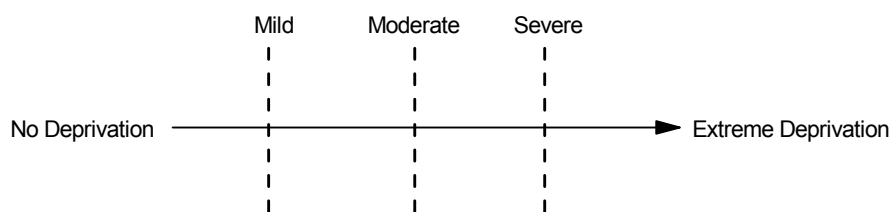
Similarly, Townsend (1987) has argued that:

“Deprivation may be defined as a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs. The idea has come to be applied to conditions (that is, physical, emotional or social states or circumstances) rather than resources and to specific and not only general circumstances, and therefore can be distinguished from the concept of poverty.”

The two concepts of poverty and deprivation are tightly linked but there is general agreement that the concept of deprivation covers the various conditions, independent of income, experienced by people who are poor, while the concept of poverty refers to the lack of income and other resources which makes those conditions inescapable or at least highly likely.

Deprivation can be conceptualised as a continuum which ranges from no deprivation, through mild, moderate and severe deprivation to extreme deprivation at the end of the scale (Gordon, 2002). Figure 3.3 illustrates this concept.

Figure 3.3: Continuum of deprivation



In order to measure absolute poverty amongst children, it is necessary to define the threshold measures of severe deprivation of basic human need for:

- food
- safe drinking water
- sanitation facilities
- health
- shelter
- education
- information
- access to services

A taxonomy of severe deprivation is required, since a reliable taxonomy is a prerequisite for any scientific measurement. In this research, the threshold measures for severe deprivation, as far as is practicable, conform to internationally agreed standards and conventions. Theoretically, we have defined ‘severe deprivation of basic human need’ as those circumstances that are highly likely to have serious adverse consequences for the health, well-being and development of children. Severe deprivations are causally related to ‘poor’ developmental outcomes both long and short term. Table 3.1 shows the idealised operational definitions of deprivation for the eight criteria in the World Summit definition of absolute poverty (from Gordon *et al*, 2001).

Table 3.1: Operational definitions of deprivation for children

Deprivation	Mild	Moderate	Severe	Extreme
Food	Bland diet of poor nutritional value	Going hungry on occasion	Malnutrition	Starvation
Safe drinking water	Not having enough water on occasion due to lack of sufficient money	No access to water in dwelling but communal piped water available within 200 meters of dwelling or less than 15 minutes walk away	Long walk to water source (more than 200 meters or longer than 15 minutes). Unsafe drinking water (e.g. open water)	No access to water
Sanitation facilities	Having to share facilities with another household	Sanitation facilities outside dwelling	No sanitation facilities in or near dwelling	No access to sanitation facilities
Health	Occasional lack of access to medical care due to insufficient money	Inadequate medical care	No immunisation against diseases. Only limited non-professional medical care available when sick	No medical care
Shelter	Dwelling in poor repair. More than 1 person per room	Few facilities in dwelling, lack of heating, structural problems. More than 3 people per room	No facilities in house, non-permanent structure, no privacy, no flooring, just one or two rooms. More than 5 persons per room	Roofless – no shelter
Education	Inadequate teaching due to lack of resources	Unable to attend secondary but can attend primary education	Child is 7 or older and has received no primary or secondary education	Prevented from learning due to persecution and prejudice
Information	Can't afford newspapers or books	No television but can afford a radio	No access to radio, television or books or newspapers	Prevented from gaining access to information by government, etc.
Basic Social Services	Health and education facilities available but occasionally of low standard	Inadequate Health and education facilities near by (e.g. less than 1 hour travel)	Limited health and education facilities a days travel away	No access to health or education facilities

Operational measures of absolute poverty for children

The most appropriate available data which could be used to operationalise the measurement of child poverty in developing countries were the DHS and, for China, the China Health and Nutrition Surveys. High quality household and individual survey data were available from 46 countries, collected within the last 10 years (and, for most countries, much more recently – see Gordon *et al*, 2001). Detailed face-to-face interview data were available for almost 500,000 households, of which over 380,000 were households with children (Table 3.2). The total number of children in this aggregated sample was over 1.1 million (approximately one in every 1,500 children in the developing world) and the information about the children's lives was reported by their mothers or main carers. This is probably the largest and most accurate survey sample of children ever assembled. It is a particularly good sample of African children (with interview data on one child in

every 650) although the number of children in the East Asian and Pacific sample (123,400) represents a lower sampling fraction (one child in every 4,500).

Table 3.2: Summary sample size details, by region

Region	Sample size (All HH)	Number of HH with children	Number of children in sample	Number of children under 18 (UN figures, 1998)
Latin America & Caribbean	95,963	71,863	189,709	193,482,000
Middle East North Africa	34,980	28,432	106,280	154,037,000
South Asia	116,443	95,960	276,609	603,761,000
East Asia & Pacific	62,773	49,858	123,400	559,615,000
Sub-Saharan Africa	178,056	142,494	487,885	317,860,000
World total	488,215	388,607	1,183,883	1,828,755,000

It was not possible to use the survey data to operationalise the idealised definitions of severe deprivation of basic human need that we had established prior to the data analysis phase of this research (see Table 3.1 above). Some compromise always has to be made when dealing with real survey data. However, the severe deprivation measures that were available are conceptually very close to our idealised measures. The measures used were:

- 1) **Severe Food Deprivation**– children whose heights and weights for their age were more than -3 standard deviations below the median of the international reference population e.g. severe anthropometric failure.
- 2) **Severe Water Deprivation** - children who only had access to surface water (e.g. rivers) for drinking or who lived in households where the nearest source of water was more than 15 minutes away (e.g. indicators of severe deprivation of water quality or quantity).
- 3) **Severe Deprivation of Sanitation Facilities** – children who had no access to a toilet of any kind in the vicinity of their dwelling, e.g. no private or communal toilets or latrines.
- 4) **Severe Health Deprivation** – children who had not been immunised against any diseases or young children who had a recent illness involving diarrhoea and had not received any medical advice or treatment.
- 5) **Severe Shelter Deprivation** – children in dwellings with more than five people per room (severe overcrowding) or with no flooring material (e.g. a mud floor).
- 6) **Severe Education Deprivation** – children aged between 7 and 18 who had never been to school and were not currently attending school (e.g. no professional education of any kind).
- 7) **Severe Information Deprivation** – children aged between 3 and 18 with no access to, radio, television, telephone or newspapers at home.
- 8) **Severe Deprivation of Access to Basic Services** – children living 20 kilometres or more from any type of school or 50 kilometres or more from any medical facility with doctors. Unfortunately, this kind of information was only available for a few countries so it has not

been possible to construct accurate regional estimates of severe deprivation of access to basic services.

Children who suffer from these levels of severe deprivation are very likely to be living in absolute poverty. However, while the cause of severe deprivation of basic human need is invariably a result of lack of resources/income, there will also be some children in this situation due to discrimination (e.g. girls suffering severe education deprivation) or due to disease (severe malnutrition can be caused by some diseases). For this reason, we have assumed that a child is living in absolute poverty if he or she suffers from two or more severe deprivations of basic human need as defined above. Similarly, a household with children is defined as living in absolute poverty if the children in that household suffer from two or more severe deprivations of basic human need.

The main practical criteria used to select these measures of severe deprivations were:

- data availability for a large number of children
- the definitions must be consistent with international norms and agreements

The purpose of this study was to measure children's living conditions that were so severely deprived that they were indicative of absolute poverty. Thus, the measures used are typically indicative of much more severe deprivation than the indicators frequently published by international organisations. For example, 'no schooling' instead of 'non-completion of primary school', 'no sanitation facilities' instead of 'unimproved sanitation facilities', 'no immunisations of any kind' instead of 'incomplete immunisation against common diseases', 'malnutrition measured as anthropometric failure below -3 standard deviations from the reference population median' instead of 'below -2 standard deviations from the reference median', etc. We have, in the tradition of Rowntree (1901), tried to err on the side of caution in defining these indicators of absolute poverty in such severe terms that few would question that these living conditions were unacceptable. Details of how each severe deprivation was measured are discussed below.

Severe food deprivation amongst children

Children suffering from severe food deprivation are those children who are *severely* stunted, wasted or underweight (more than -3 standard deviations below the reference population median).

Food deprivation exists where households are unable to obtain sufficient food to meet the needs of all members but also arises where there is intra-household and social discrimination (where some members may be considered 'worth' more or less than others and so not have equal access to food). Uvin (1994) has argued that "*Food deprivation refers to inadequate individual consumption of food or specific nutrients, also known as undernutrition*". A child will suffer from food deprivation if she has an insufficient quantity and/or quality of food. Food can be of insufficient quality if it lacks micronutrients and/or if it is contaminated with harmful pathogens.

Severe anthropometric failure is often used as an indicator of food deprivation. It is a major determinant of child survival since it determines the physical and cognitive development of children and affects morbidity by reducing immunocompetence (Osmani, 1992; Waterlow, 1989). Severely malnourished children have been shown to have higher rates of mortality (Chen *et al*, 1980) and over half the 12.2 million deaths of children under five years of age in developing countries are associated with malnutrition (Bailey *et al*, 1998; Pelletier *et al*, 1993). The link with poverty is well documented, in both developing and developed countries (Dreze *et al*, 1995; Osmani, 1992; Miller

and Korenman, 1994) and the main causes of malnutrition are food deprivation and/or exposure to infection.

Estimates of anthropometric failure in children tend to be based on children under five years old. The World Health Organisation's Global Database on Child Growth and Malnutrition contains data on children up to age 11 years of age but no older age groups. There have been several surveys conducted on malnutrition in adolescents but they are rarely comparable since they often use different indicators, cut-off points and reference populations.

Any estimate of anthropometric failure depends on the measure being used. Three of the main anthropometric measures often used as indicators of the prevalence of malnutrition in young children are:

- Stunting (low height for age)
- Wasting (low weight for height)
- Underweight (low weight for age)

Stunting reflects chronic (long-term) under-nutrition. It is associated with long-term deprivation of food or exposure to infection and, in children over two, its effects are believed to be irreversible. In children under three, stunting implies a current failure to grow as a result of under-nutrition. In older children, low height for age reflects a previous failure to grow and results in them being stunted. The stunting measure does not reflect short-term changes in nutritional status (Cogill, 2001).

Wasting is an indicator of body mass and is used to assess acute (current) under-nutrition or recent weight loss, which can result either from low food intake and/or repeated infection. The prevalence of wasting may be affected by the season of measurement (food availability at harvest time for example) and is appropriate for assessing nutritional status in emergency situations.

Underweight is used as a composite measure of wasting and stunting and is associated both with a lack of food and infection (e.g. weight loss from repeated bouts of diarrhoea). It reflects both chronic and acute under-nutrition for a given age but cannot distinguish between the two - i.e. an 'underweight' child could be tall and thin (wasted) or short and fat (stunted) but will be necessarily malnourished. It is the measure currently used by WHO and UNICEF to estimate the prevalence of child malnutrition in developing countries.

Children whose measurements are more than -2 standard deviations below a reference population median are classified as 'mild to moderate' stunted, wasted or underweight. Children whose measurements are more than -3 standard deviations below the reference population median are considered 'severely' stunted, wasted or underweight (WHO, 1995a).

In this study, we have used a composite measure of anthropometric failure which includes all children who are more than -3 standard deviations from the reference median in terms of being wasted, stunted and underweight and all possible combinations of these failures (e.g. severely underweight and severely stunted). Further details can be found in the technical appendix (Appendix III).

Severe water deprivation amongst children

Households and children in households who were using surface water or had more than a 15 minute walk to their water source were considered severely water deprived.

The relationship between clean water, health and poverty has known for a long time. Victorian campaigners like Edwin Chadwick and William Farr appreciated the link between water, sanitation, health and poverty and their work culminated in the world's first Public Health Act in the UK in 1848. In the years following the Act, mortality from diseases like cholera and typhoid declined significantly, with a concurrent increase in life expectancy. The impact of a lack of access to water is manifold. Children without sufficient drinking water or water for hygiene are susceptible to a range of diseases (including diarrhoea and malnutrition) resulting in illness and death that could otherwise have been prevented¹⁸. In many developing countries, health services are unable to meet the basic needs of the population and diseases resulting from a lack of water contribute to the overburdening of the system. Sick children are unable to attend school, so affecting their education and further limiting what opportunities they have.

The 2000 *Global Water Supply and Sanitation Assessment* (GWSSA) estimated that, at the start of the year 2000, 1.1 billion people were without access to 'improved water supplies'¹⁹. 'Improved water supplies' include piped water to dwellings, water from public standpipes, boreholes, protected wells and springs and rainwater. Sources of water not considered 'improved' were unprotected wells and springs, water from tanker trucks, private vendors and bottled water (due to *quantity* not quality considerations). Water deprivation is not just an issue of water quality it is also an issue of the quantity and in particular the distance people must travel to obtain water. Distance to a water source is a major factor in determining the quantity of water used and what it is used for. The 2000 GWSSA makes clear that *"the quantity of water people use depends on their ease of access to it...If water is available through a house or yard connection, people will use large quantities for hygiene, but consumption drops when water must be carried for more than a few minutes from a source to the household"* (WHO, UNICEF and WSSCC, 2000)

Where people are water deprived, the burden of collecting and transporting water often falls on women and children and fetching water is a activity that takes up valuable time which could be spent at school or working. International organisations like the World Health Organisation (WHO) and UNICEF have defined 'reasonable access' to mean the availability of at least 20 litres per person per day from a source within one kilometre of the dwelling. In urban areas, reasonable access has been elsewhere defined as piped water or a public standpipe within 200 metres of the dwelling (UNDP, UNEP, World Bank and World Resources Institute, 2000) but, for rural areas, the issue of distance is less clear, with reasonable access meaning that a family member should not spend a 'disproportionate part of the day' obtaining water for the family. A Department for International Development (DFID) manual on water and sanitation programs showed that water consumption fell significantly from around 50 litres per person per day (lcd) if the water source was in or within five minutes of the dwelling, to around 10 litres per person per day if the source was more than five minutes away (DFID, 1998).

Minimum quantities of water needed

¹⁸ The WHO and UNICEF estimate that a lack of safe drinking water and inadequate hygiene cause over three million child deaths in developing countries (UNICEF, 2000a) - every eight seconds a child dies of a water-related disease.

¹⁹ Previous estimates of the number of people who were water deprived used the term 'access to safe water'. The 2000 GWSSA uses the term 'improved water supplies' since the data on the quality of water provided by countries was not considered reliable.

Having established a universal need for water from safe/improved/accessible supplies, the issue then arises of how much water people need to survive/live normal, healthy lives. There have been recommendations for a basic water requirement (BWR) – the amount of water a person would need to fulfil their basic drinking, cooking, bathing and sanitation needs – from the WHO, World Bank and USAID, which ranges from 20 to 50 lcd. A 1996 article in *Water International* attempted to set targets for water use by looking at the basic needs uses of water. Gleick (1996) estimated that, to meet peoples’ basic needs, a standard of 5 lcd be set for drinking, 10 lcd for cooking and food preparation, 15 lcd for bathing and 20 lcd for sanitation and hygiene.

A USAID policy paper from 1982 states that 10 lcd is the minimum requirement for drinking, cooking and food preparation and that *“second in priority is sufficient water for bathing, personal hygiene and washing utensils, for which 10 – 15 lcd is the minimum....where these minimum standards...cannot be assured, investments in water supply are not likely to achieve their desired health impact”* (USAID, 1982).

In this study, we have erred on the side of caution by defining severe deprivation of water need as children whose households were using surface water or had more than a 15 minute walk to their water source. The rationale for this composite measure is that surface water can occasionally become polluted and dangerous (unsafe) and a 15 minute walk to a water source (30 minute round trip) means that it is highly likely that the child will only have access to a severely limited quantity of water at home.

Severe sanitation deprivation amongst children

Severe sanitation deprivation is defined in this study as children who do not have access to any sanitation facilities whatsoever in or near their homes.

The importance of sanitation (and water) to children’s lives was well understood in the 19th Century where, in UK cities like Liverpool and London, the life expectancy of the poor was less than it is in developing countries today. People in large numbers suffered with and died from dysentery, cholera and diarrhoea, just as they do today in developing countries. Public health and sanitation reforms of Edwin Chadwick and others led to a rapid decline in the high mortality and morbidity rates and life expectancy rose dramatically in the following years. European countries like Britain were able to invest considerable resources in the construction of sewer systems, which allowed for the safe removal of waste from already over crowded cities (Szreter, 1988).

Access to sanitation facilities has been shown to be the critical factor in improving child health in developing countries. Its importance to primary health care strategies was propounded at the 1978 Alma Ata conference, where the goal of Health for All by the Year 2000 was set.

Esrey and Habicht (1986) surveyed the epidemiological evidence of health benefits from improved water and sanitation. They found that child health was affected by the quality of drinking water used, the quantity of water used and the provision of sanitation facilities for safe disposal of human waste. Studies, which examined the health impact of both water and sanitation, showed a reduction in diarrhoea was associated with improved water and sanitation conditions. They also showed lower rates of malnourished children in families whose toilets were connected to the sewage system than families with no latrines.

Studies that looked at the health impact of improved sanitation *“consistently reported an association between improved health and sanitation”* (*ibid*). Those that compared the relative importance of

water and sanitation found that the latter was a more important determinant of child health. The level of sanitation was found to determine the size of the impact on health, with flush toilets producing larger health impacts than pit latrines. The impact of sanitation on child health will also be affected by a range of other factors, such as the extent of breastfeeding, the mother's level of education, household income and socio-economic status.

Lowering mortality and morbidity through the provision and use of clean water and effective sanitation can reduce the number of days children miss school. Sanitation in schools is a particularly important issue and studies have shown that the participation of girls increases if the school has some form of sanitation facility. However, many schools in developing countries lack proper toilets, which means children are exposed to infection and ill health.

Measuring severe deprivation of sanitation needs

The DHS data provides details of the toilet facilities used by children and their household and show what proportion of households had flush toilets within the home or compound, what proportion used pit latrines or public toilets and what proportion had no access to any facilities. It should be noted that no indication of the quality of facilities was available and, in some instances, the conditions of 'communal' facilities might make the use of a field a more attractive option. In many countries, safety is an important issue. If communities have to rely on public toilets which they consider unsafe (especially at night), then they are unlikely to use them²⁰. However, in some states where private ownership of toilets is low (such as China), the use of well-maintained public toilets means people at least have access to a safe means of excreta disposal, which is the important point.

An example of good practice is the Sulabh Sanitation Movement, which began in India during the 1970s and which provides community toilets. Toilet blocks are linked to bio-gas plants, which recycle human waste into a range of useful by-products, such as fertiliser and bio-gas. Users are charged a nominal fee, which is put towards the maintenance and up keep of the facility and to education and awareness raising programmes (on issues such as AIDS and family planning methods) (UN-HABITAT and UNEP, 2002).

Previous global estimates of access to sanitation have had to deal with differing national definitions of what constitutes 'convenient access' to sanitation. While some countries consider pit latrines to be sanitary, others might not. For example, Uganda considers pit latrines as sanitary and the DHS data show that over 80% of households therefore have access to sanitation. However, if one takes a more stringent approach and considers pit latrines unsanitary (as Brazil does), then the proportion of households with children with access drops to 3% (UNICEF, 1997).

The list below shows what are considered to be 'improved' and 'not improved' sanitation facilities by international agencies like the WHO and UNICEF.

Technologies considered 'improved' sanitation

- Connection to a public sewer
- Connection to a septic system
- Pour-flush latrine
- Simple pit latrine
- Ventilated improved pit latrine

²⁰ An article in *New Scientist* described how, in a poor settlement in Nairobi, people had resorted to using plastic bags for the disposal of faeces. One of the main problems however, was when they came to dispose of the bags - by throwing them out of windows - 'flying toilets' (New Scientist, 2002a). This is somewhat reminiscent of the way bedpans were emptied into the street in 18th Century Europe.

Technologies considered ‘not improved’ sanitation

Service or bucket latrines (where excreta are removed manually)

Public latrines

Open latrine

Source: GWSSA (2000)

For the purposes of this report, the same definition of severe sanitation deprivation was applied to all states for which data were available. Thus, the data shown refer to those households with children who had **no access to any sanitation facilities** whatsoever.

Severe health deprivation amongst children

The World Health Organisation (1995c) considers that *“The world's biggest killer and the greatest cause of ill health and suffering across the globe is listed almost at the end of the International Classification of Diseases. It is given code Z59.5 -- extreme poverty. Seven out of 10 childhood deaths in developing countries can be attributed to just five main causes, or a combination of them: pneumonia, diarrhoea, measles, malaria and malnutrition. Around the world, three out of four children seen by health services are suffering from at least one of these conditions (WHO, 1996; 1998).*

The measure used to indicate severe deprivation of children's health needs is a composite one which includes children (under 18 years) who have not received any of the eight EPI immunisations or who have had untreated diarrhoea in the two weeks prior to the survey for which no medical advice was obtained.

Immunisation and child health

Immunisation against childhood diseases such as diphtheria, pertussis (whooping cough) and tetanus (DTP), polio, tuberculosis (BCG) and measles has contributed to significant reductions in morbidity and mortality. For example, the annual global reported incidence of measles²¹ declined by two-thirds between 1990 and 1999 as a result of the increase in immunisation coverage.

Immunisation data can be used as an indicator of a country's health system's capacity to provide essential services. Achieving high levels of coverage is, by itself, not a sufficient indicator of the effectiveness of a health care system, since deficiencies in other areas may be considerable. A lack of progress in achieving high levels of coverage is considered a strong indicator of failure to provide essential services to the most vulnerable – children and pregnant women.

The incidence of vaccine-preventable disease varies between countries and use of coverage measures should take this into consideration. Thus, in most developed countries, where the incidence of measles is low, children are given the vaccination at a later age (12-15 months) than in a developing country, where prevalence is greater and chances of infection much higher. Children in these countries need to be fully immunised by one year of age.

State level data can conceal significant differences between socio-economic groups. An upward trend in overall immunisation could result from increased coverage among groups who already have medium to high levels of coverage, while coverage among the poorest remains low or even declines.

²¹ The effects of measles are particularly debilitating. When it does not kill, it may cause blindness, malnutrition, deafness or pneumonia. An infected child requires close attention (due to the contagiousness of the disease) and can miss many days or weeks of schooling until recovered.

DHS data have been used to show the difference in coverage rates between socio-economic groups, with children from poorer groups less likely to be immunised (Gwatkin *et al*, 2000).

Immunisation against the main childhood diseases is a universally recommended and cost-effective public health priority, for which internationally agreed targets exist. The 1990 World Summit for Children set a goal of achieving 90% coverage by the year 2000. In 2002, at the UN Special Summit for Children, the Secretary General's report confirmed that, while the 90% goal had not been met, significant progress had been made, with a 73% coverage achieved. However, progress was not uniform, with coverage in Sub-Saharan Africa declining during the 1990s, from around 60% in 1990, to 47% in 1999. The main reason for this decline was *"the fall in commitments made by donors, especially in training, surveillance and logistics, which was not fully compensated by national budget increases"* (United Nations General Assembly, 2002).

In 1995, WHO reported that 80% of the three million deaths from diarrhoeal disease were among children under five. About half of these deaths were due to acute watery diarrhoea, 35% to persistent diarrhoea and 15% to dysentery. Food and water contaminated by pathogens (particularly, *E. Coli*) were the main cause of diarrhoeal disease, with food contamination being the most important cause in most countries. Many of the child deaths resulting from diarrhoeal are thought to be preventable if medical advice and treatment (such as ORT) are available (WHO, 1995c).

The measure of severe deprivation of children's basic health needs used in this report is composed of two elements – immunisation status and the treatment of diarrhoea. DHS data were collected on children aged between 0 and 2 and 0 and 5, depending on the country. Ideally, a measure of child health would be one derived from and applicable to children of all ages, however, it is younger children who are likely to suffer the most severe consequences from untreated diarrhoeal disease and who have the least developed immune systems.

The measure used to indicate severe deprivation of children's health needs is a composite one, which includes children who have not received ANY of the eight EPI immunisations or who have had untreated diarrhoea in the two weeks prior to the survey for which no medical advice was obtained. Since immunisations start soon after birth, all children were eligible. Fully immunised status was not used since this would exclude a large proportion of the children, since no six month old is fully immunised, due to the recommended vaccination schedule. The numbers of children who had not received any immunisations was far greater than the number with untreated diarrhoea in the two weeks prior to the survey.

Severe shelter deprivation amongst children

Severe deprivation has been operationalised in terms of whether the dwelling has either mud flooring or has more than five occupants per room.

The relevance of shelter deprivation for health has been recognised in the scientific literature for over 150 years, since Chadwick (1842) estimated that the average life expectancy of people in Liverpool, England, in the worst housing (cellars), to be only 15 years. The literature on housing and its relationship to health demonstrates that current housing conditions - as well as past housing conditions - can have significant impacts upon both physical and mental health. The aspects of poor housing which impact upon health vary, to some extent, with stages of the life cycle. Particular types of housing disadvantage have a greater effect upon children and child development than upon adult health, while some represent problems particularly for older people.

Children in developing countries and living in overcrowded and poor quality housing, with a lack of basic services, are exposed to diseases such as diarrhoea, respiratory infections, measles, malaria, cholera and dengue fever. Urban children, in particular, are also exposed to diseases of pollution and are exposed to a higher risk of accidents. Campbell *et al* (1989) and Ezzati and Kamen (2001) found that exposure to pollutants from domestic biomass fuels such as wood, charcoal, agricultural residues and dung is causally linked with acute respiratory infections in children. Bruce *et al* (2000) also found that indoor air pollution increases the risk of chronic obstructive pulmonary disease in childhood and is the most important cause of death among children under five years of age in developing countries. Estimates suggest that indoor cooking fumes are killing half a million women and children in India each year (New Scientist, 2002b). Although the proportion of global energy derived from biomass fuels fell from 50% in 1900 to around 13% in 2000, their use may be increasing among poor people who are unable to switch to cleaner fuels (Bruce *et al*, 2000).

There are a variety of indicators which can be used to measure shelter deprivation. In examining the relationship between housing deprivation and social change in the UK, between 1970 and 1990, Dale *et al* (1996) described housing deprivation in terms of overcrowding (defined as less than one room per person), lacking amenities (defined as sharing or lacking either an inside toilet or bath/shower) and sharing accommodation. Marsh and his colleagues' (1999) longitudinal analysis of the impact of poor housing on health went beyond the physical characteristics of the dwelling to define housing deprivation as including subjective assessments such as satisfaction with accommodation and neighbourhood. Both studies, however, acknowledged that what constitutes housing deprivation changes over time: "*minimum standards of what is acceptable housing must be revised with economic progress and social aspirations*" (Dale *et al*, 1996, p8).

Historically, most definitions of housing deprivation have been concerned with aspects of housing from a public health dimension, at least in the European context (Murie, 1983). Housing deprivation was seen as issue of public health and therefore concern focused on the physical characteristics on the dwelling. However, the focus on the physical aspects of dwellings is regarded as inadequate as considerations have given way to the manner in which "*the accommodation is occupied, where it is located and the social and economic characteristics of the occupants.*" (*ibid*)

In the developing world context, shelter deprivation is still principally seen in terms of the physical aspects of the dwelling. The most common indicators refer to dwelling complying with building regulations and whether the dwelling is a permanent structure. Other indicators used are floor area per person and number of people per room which both measure over-crowding. Homelessness is also used as a measure of deprivation but its definition and measurement is controversial (as it also is in the industrialised world) (see, for example, Tipple and Speak, 2000).

In this study, we have used a composite indicator of severe shelter deprivation - more than five occupants per room - which is a robust indicator of overcrowding - and the presence of a mud floor - which is a robust indicator of the dwelling not complying with local building regulations. Children living in households with more than five people per room or in a house with a mud floor are highly likely to have an increased risk of infection. Their educational development is also likely to be effected as it is very hard to study in such dwelling conditions.

Severe education deprivation amongst children

Severe education deprivation is suffered by those children who are aged between seven and eighteen who have received no primary or secondary education, i.e. no professional education at all.

All governments in the world believe that children should attend school by the age of seven. Whilst, in most countries, children start primary school by six years of age, in some they start at seven which is the reason why the definition of severe education deprivation includes children from seven years and upwards to 18. A child who has had no basic formal education is highly likely to be illiterate and have his or her development impaired by modern standards. This belief is historically relatively recent, 150 years ago virtually no government would have considered that all children should attend school or need to be taught by qualified professionals (Hendrick, 1994; 2003).

The value of education in the alleviation of poverty is today universally acknowledged, as recent reports from the Department for International Development make clear: “*elimination of poverty and progress towards sustainable development cannot take place without increased and improved levels of education*” (DFID, 2001c) whilst “*the countries which have made the greatest progress in reducing poverty in recent decades are those which have combined effective and equitable investment in education.*” (DFID, 2001b, p10)

There is also a large body of research which supports the view that education can have significant benefits with respect to the wider goals of development. This is particularly the case when the education of women is improved. The mother’s role in relation to her children is significant because it is she who will be responsible for making sure that they have been fed, attended school or are taken to the health services in times of illness. For example, Filmer (1999) found that the education of women has a significant impact on the enrolment of children in all countries considered. Bicego and Ahmad (1998) found that improving the mother’s education is linked to reductions in child mortality and, whilst it is difficult to disentangle the effects of education on child mortality from other factors such as income poverty, there is evidence that education is independently associated with improved health rates (Government of Pakistan, cited in Watkins, 2000).

The benefits of girls’ education are summarised at the *End of Decade Review of the World Summit for Children* in the box below (see Box 3.1).

Box 3.1: The benefits of girls’ education

1. A right is fulfilled
2. Prospects for increased family income
3. Later marriage and reduced fertility rates
4. Reduced infant mortality
5. Reduced maternal mortality
6. Better nourished and healthier children and families
7. Greater opportunities and life choices for women (including protection against HIV/AIDS)
8. Greater participation of women in development and in political and economic decision-making.

Source: UNICEF (2001b)

Measuring severe education deprivation among children

Education deprivation can be measured in a variety of ways although, in the developing world, this has traditionally been fraught with difficulties because of poor quality data. In the UK, educational achievement in terms of national qualifications is used as the basis of comparing educational inequalities among children (Quilgars, 2001). However, the most common measure used in the context of the developing world has been gross primary enrolment rate. One of the main weaknesses

of school enrolment is that it is only a proxy for actual school attendance (World Bank, 2000). Additionally, the gross enrolment rate represents the proportion of children enrolled regardless of age. This has led to some countries having gross enrolment rates of more than 100%. Instead, the net primary enrolment rate, which corresponds to the number of children of the official primary school-age enrolled in primary education expressed as a percentage of the corresponding population, is preferred - as is evident in the *Education For All 2000 Assessment* (World Education Forum, 2000).

Many studies focusing on educational attainment use the adult and not the child population. Barro and Lee (1993), for example, used proportions of the population with primary, secondary and higher education among individuals aged 25 and above in order to gauge educational attainment. Others, like Nehru *et al* (1993), constructed estimates based on mean schooling (years) at primary, secondary, and tertiary levels for the working age population and did not disaggregate their information by sex.

This study uses individual level survey microdata on receipt of formal education by children which is likely to be more accurate than administrative statistics on enrolment.

Severe deprivation of access to information amongst children

This study defines children as severe information deprived if they are aged three or more and have no radio, telephone, television and newspapers at home. Very young children (under three years old) are unlikely to be considered to be information deprived if they lack access to these media.

A lack of access to information is considered by the world's governments to be a characteristic of absolute poverty. This form of deprivation, like education deprivation, is a relatively recent historical phenomenon. In the 21st Century children's access to information is seen as both a basic human right and an important requirement for children's development. Modern societies require a well educated and informed population in order to prosper and eradicate poverty. Children need access to information in order to know and understand about the world outside their own community.

Since the 1950s has been a profound expansion in the use of domestic Information and Communication Technologies (ICTs) such as telephones, radios and televisions, whilst the development of the Internet, since the early 1980s, has also had a big impact. However, there is international concern that there is a growing global information divide between the rich and the poor: as the developed world moves rapidly into the Information Age, children in developing countries lag behind those in the developed world.

Nelson Mandela, for example, stated at TELECOM 95, the 7th World Telecommunications Conference and Exhibition, that: *"One gulf will not be easily bridged - that is the division between the information rich and the information poor. Justice and equity demand that we find ways of overcoming it. If more than half the world is denied access to the means of communication, the people of developing countries will not be fully part of the modern world. For, in the 21st century, the capacity to communicate will almost certainly be a key human right"*.

Despite the enshrinement of access to information in various declarations and covenants: *"The free and fair flow of information in poor countries is the exception rather than the rule and poverty places further restrictions on access to information. Governments may be poorly placed to systematically disseminate information to the public or may not be inclined towards such transparency because of high levels of corruption. Poor countries are also prone to conflict and such*

environments are not conducive to free flows of information and rights to access information” (Skuse, 2001, p3)

Poor infrastructure is one of the central problems facing poor countries in the developing world, i.e. low levels of rural electrification and telephone connections, low quality radio and television transmitters and poor press circulation. For example, although there has been a growth in telephone connections among the developing countries, the gap has widened between them and the emerging nations. In 1991, total telephone penetration (fixed-line/mobile phones) stood at 49% in developed countries, 3% in emerging nations and just 0.3% in the developing countries. By 2001, the corresponding levels were 121%, 19%, and just over 1%. (ITU, 2002). It is shocking that the whole of Africa has only 14 million telephone lines, fewer than New York or Tokyo (UNCHS, 2001).

However, in many developing countries, investing in improving communications infrastructure may not have such a big impact. This is primarily because people’s incomes are often insufficient to cover the costs of purchasing radios, televisions, newspapers, computers, etc and are also insufficient to cover the relatively high costs of energy, e.g. batteries, electricity, or fuel for generators and insufficient to pay for the relatively expensive charges associated with accessing the Internet - telephone and server charges. (Box 3.2).

Box 3.2: Information and poverty in Rwanda

Although radio sets and batteries are widely available for sale in Rwanda, they are difficult to afford for rural people. A small portable FM/SW receiver currently costs about 3,000 FR (about £5.45) and the accompanying batteries to run it cost 200 FR (£0.36). Owning and listening to radio is a luxury when one considers that the daily wage for an adult male labourer on a rural building site is 300 FR per day, or that a female tea-picker can expect to earn only 100 FR (£0.18 per day). Because of this, radio listeners in poor countries such as Rwanda tend to ration their daily listening to key broadcasts such as the national news and international news.

Source: Skuse (2001, p6)

Amongst the most important sources of information for children in developing countries are access to radios, televisions, telephones and newspapers. In this study, we have measured severe information deprivation for children as those who live in households where no adult has access to these information sources. The adults include the children’s mother (or mothers if there are several women with children in the household) and the ‘head of household’, who is often a man. Data on access to information sources is reported separately in the DHS by the head of household in the household interview and by eligible women who answered the ‘women’s questionnaire’. We have assumed that, if the adults in the household do not have access to information sources, then neither will the children in the household²².

Measuring absolute poverty

Absolute poverty in this study is defined as children or households with children who suffer from two or more different types of severe deprivation of basic human need e.g. severe water and sanitation deprivation, or severe education, information and shelter deprivation, etc. The reason for using a multiple deprivation threshold to measure absolute poverty, rather than equating absolute

²² In China’s Health and Nutrition Survey, access to information is recorded for each child not just for the adults. Results for China are more direct measures than for the other countries in this study which use adult information access as a proxy measure for children’s access.

poverty with a single deprivation, is that in rare cases single severe deprivations can result from causes other than a lack of command of sufficient resources over time e.g. severe anthropometric failure can result from ill health rather than from lack of income. Similarly, severe education deprivation could result from discrimination (particularly against girls) rather than from the lack of a teacher or a school in the village. However, it is very unlikely that two or more different severe deprivations would be caused by any reason other than a lack of sufficient resources.

Ideally in order to accurately measure poverty it is necessary to have both resource/income information and standard of living/deprivation data collected in the same survey. If this is not possible then deprivation data is preferable to income or expenditure data as it is both easier to measure and does not change as rapidly over time – deprivations can be more reliably measured than income. Many scientific studies on poverty have demonstrated that multiple deprivation is a robust indicator of poverty (for example, Townsend, 1979) and, similarly, severe multiple deprivation should be a good indicator of absolute poverty as defined at the World Summit on Social Development.

Chapter 4

Severe Deprivation amongst Children in the Developing World

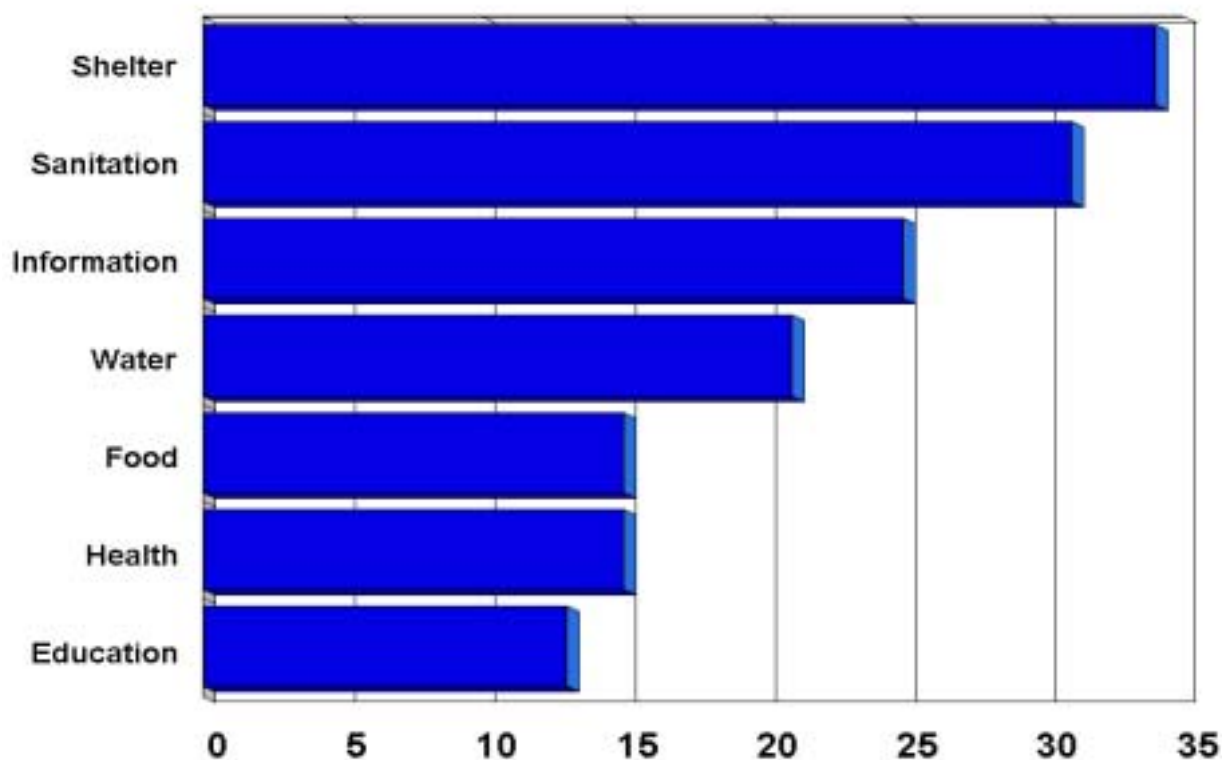
Introduction

This chapter describes the distribution of severe deprivation of basic human need amongst children in the developing world. It begins by summarising the main results of the study and is followed by three sections which each consider the data in more detail. The first of these sections compares the *extent* of severe deprivation in developing world regions with regards to each of the seven indicators, i.e. food, water, sanitation, health, shelter, education and access to information. Differences within regions are also examined in terms of gender and locality. The second section examines the *distribution* of severe deprivation, defined in terms children experiencing one or more severe deprivations. The third and final section compares absolute poverty rates *between* and *within* regions – where absolute poverty is defined as the condition of those children who suffer from multiple severe deprivations - two or more different types of severe deprivation of basic human need (see Chapter 3 for discussion).

Summary of main results

This study found shockingly high rates of severe deprivation amongst children. It reveals that severe shelter and severe sanitation deprivation are the largest problems affecting children in the developing world, with 34% of children suffering from severe shelter deprivation and 31% of children suffering from severe sanitation deprivation (Figure 4.1).

Figure 4.1: Percent of children who are severely deprived of basic human needs



These deprivations are discussed in order of decreasing severity.

Shelter deprivation

Over a third of the developing world's children have to live in dwellings with more than five people per room or which have mud flooring. Some regions have exceptionally high rates of shelter deprivation. Sub-Saharan Africa, for example, has 62% of its children suffering from shelter deprivation and this rises to 73% in rural areas.

Sanitation deprivation

Over half a billion children (31%) in the developing world have no toilet facilities whatsoever. Most of these children live in South Asia, where this condition applies to over 61% of children (nearly 344 million children). Urban-rural differences are considerable, with rural areas having much higher rates of severe sanitation deprivation (41% compared to 8%).

Information deprivation

Almost half a billion children (a quarter of the children in the developing world) lack access to either radio, television, telephone or newspapers at home. South Asia and Sub-Saharan Africa have 40% of their children experiencing severe information deprivation. Rural children are significantly much more likely than their urban counterparts to suffer from information deprivation, being three times as likely to lack access to information (31% compared to 11%).

Water deprivation

Over 20% of children (nearly 375 million children) in the developing world have a more than 15-minute walk to water or are using unsafe water sources. Sub-Saharan Africa has over 50% of its children (167 million children) severely water deprived and the continent accounts for nearly half of all cases of water deprivation in the developing world. Differences between urban and rural areas were considerable, with 7% of children in urban areas and 27% of rural areas severely water deprived. Over 60% of rural children in Sub-Saharan Africa are severely water deprived.

Food deprivation

Over 15% of children under five years in the developing world (91 million children) are severely food deprived, over half of whom were in South Asia. Rates of food deprivation are twice as high in rural areas than in urban areas. At the global level, there appears to be little difference between the extent of food deprivation of girls and boys, although this varies between regions and countries.

Health deprivation

Nearly 15% of children in the developing world (265 million children) had not been immunised against any diseases or had a recent illness involving diarrhoea and had not received any medical advice or treatment. There is considerable regional variation, with Sub-Saharan Africa having over a quarter of its children severely health deprived. A much larger proportion of rural children (21%) are severely health deprived than urban children (8%). Gender differences at the global level were less clear, with 14% of boys and 15% of girls severely health deprived, although there are more visible differences within regions, with the South Asia and Middle East and North Africa regions having a slight female disadvantage.

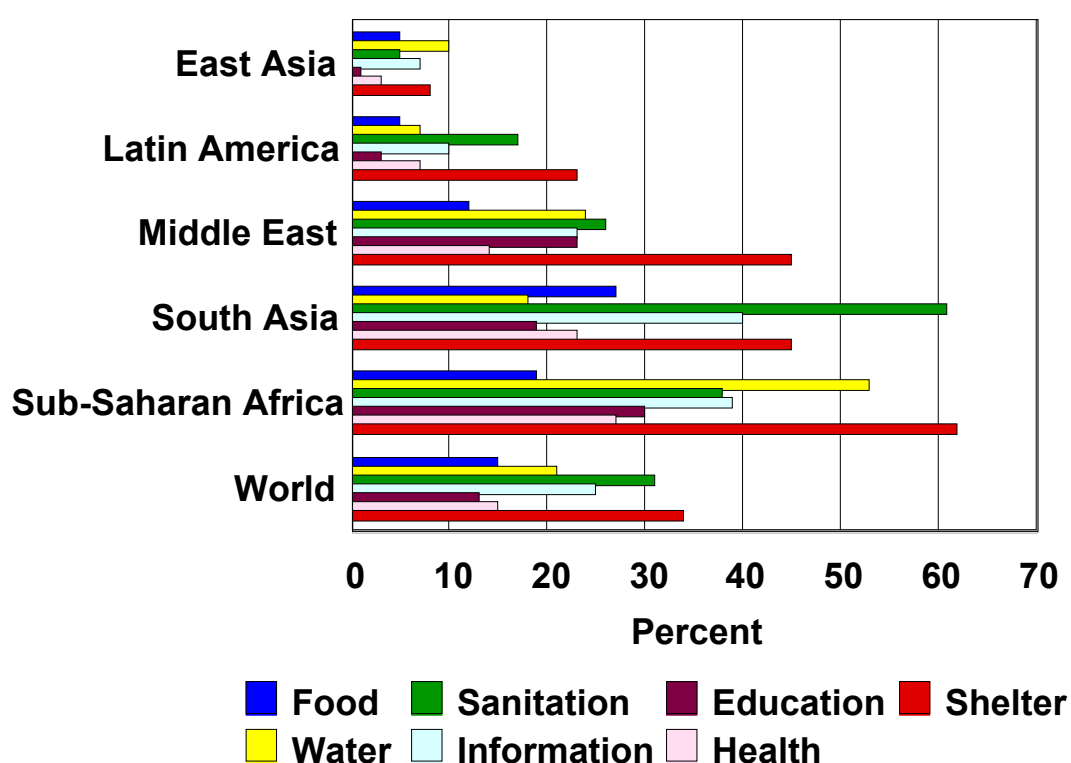
Education deprivation

Throughout the developing world, there are approximately 135 million children aged between 7 and 18 who are severely educationally deprived in terms of lacking any school education (no primary or secondary education). Children in Sub-Saharan Africa are more likely to be affected by educational deprivation, with one in three lacking any formal education. Rural areas are also more likely to be educationally disadvantaged, with more than three times as many rural children lacking education than their urban counterparts. Gender disparities are particularly evident in some regions. In the Middle East and North Africa, for example, there are three times as many girls who are severely educationally deprived than boys.

Results by region

Sub-Saharan Africa has the highest rates of severe deprivation with respect to four of the seven indicators (Figure 4.2). More than half of this region's children are severely shelter deprived (198 million), as well as water deprived (167 million). The region also suffers from the highest rates of deprivation with respect to health (27%) and education (30%).

Figure 4.2: Percent of children who are severely deprived by region



However, South Asia has the highest percentages of children experiencing sanitation, information and food deprivation, 61%, 40% and 27%, respectively. Over half of the world's severely food deprived children live in South Asia (53 million).

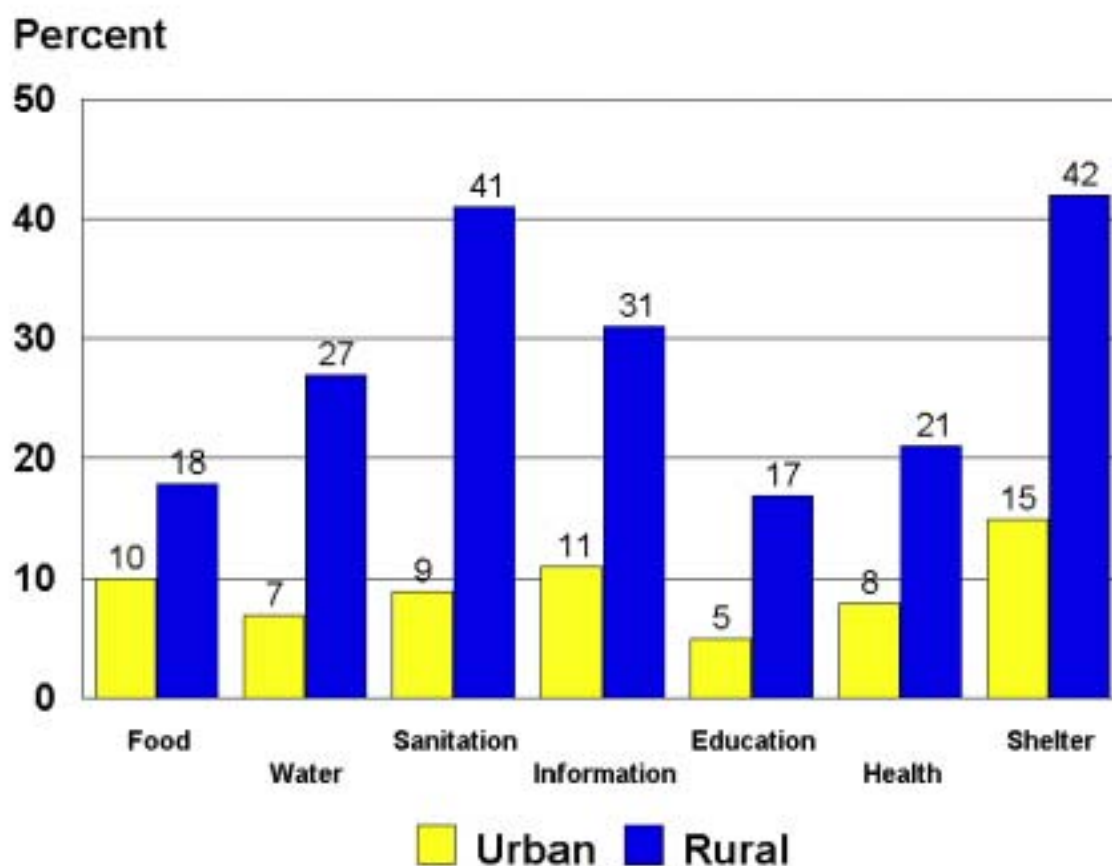
Children in East Asia are the least likely to be severely deprived with respect to five of the seven indicators. This region has the lowest rates of severe sanitation deprivation. China has a rate of less than 2% which contributes to the low regional average of 5%.

The study also revealed that there may be significant differences in rates of severe deprivation amongst children within regions. For example, in sub-Saharan Africa, only 19% of Mali children live in severely water deprived conditions, compared to 90% of Rwandan children (see Appendix IV for other examples).

Results by urban-rural locality

Rural children are more likely to be deprived than urban children with respect to all seven areas of deprivation of basic human need (Figure 4.3).

Figure 4.3: Percent of urban and rural children severely deprived



The greatest difference between urban and rural children is in severe sanitation deprivation (41% in rural areas compared with 9% in urban areas). Rural children are also almost three times more likely than their urban counterparts to live in over-crowded conditions or in accommodation with only mud flooring. This pattern of higher levels of severe deprivation amongst rural children is repeated in nearly all regions.

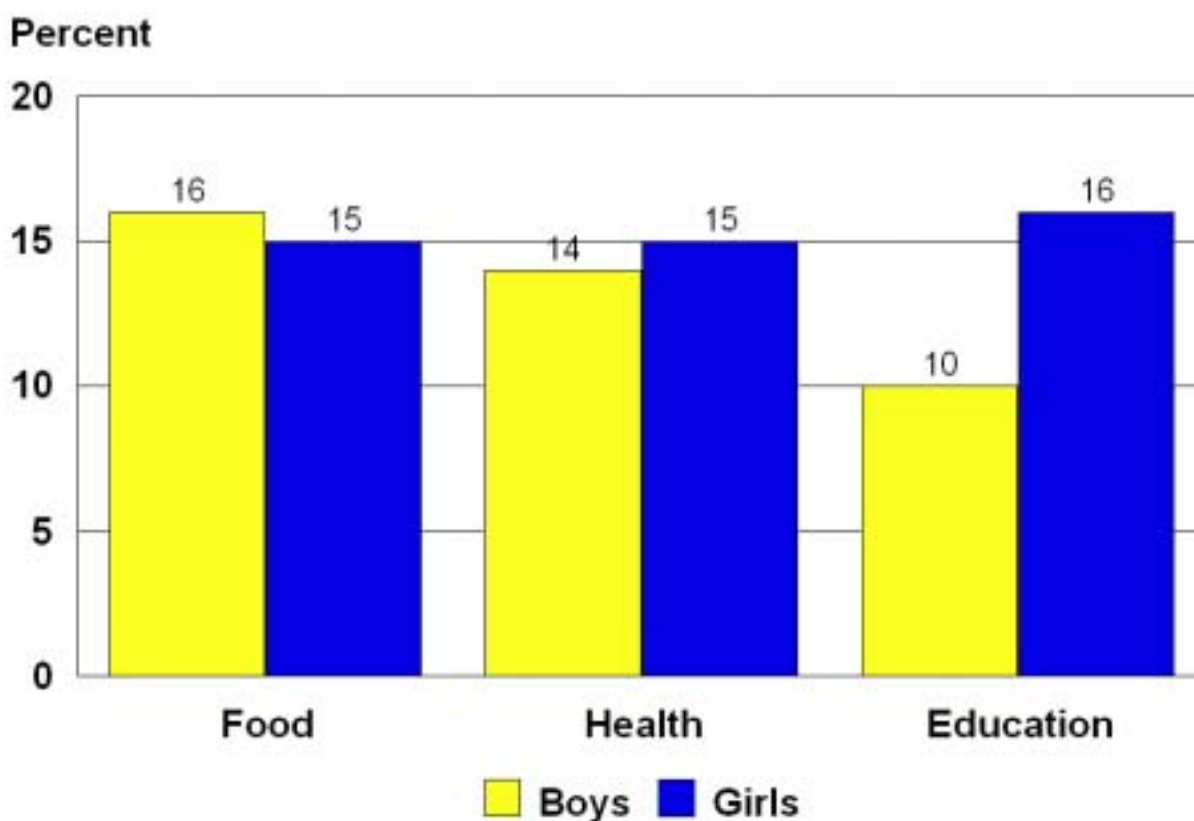
Results by gender

Globally, girls are significantly educationally disadvantaged (Figure 4.4). They are at least 60% more likely than boys to be severely educationally deprived (16% compared to 10%). They suffer

particularly high rates of disadvantage in the Middle East and North Africa, where they are three times more likely than boys to be without primary or secondary school education.

On the other hand, girls and boys are roughly equally disadvantaged with respect to severe food deprivation (15% and 16%, respectively) and health deprivation (14% and 15%, respectively). Boys are more likely to be severely food deprived in all regions except in East Asia and South Asia where severe food deprivation is more prevalent in girls. With respect to severe health deprivation, there is a slight female disadvantage in South Asia and the Middle East and the North Africa regions. The sub-Saharan African region has a mixed pattern of gender inequalities in health. While, at the overall level, a slightly higher proportion of boys were severely health deprived compared to girls, more than a dozen countries have a slight female disadvantage.

Figure 4.4: Percent of girls and boys severely deprived



Results of severe deprivation

Over half of the world's children in developing countries - just over one billion children – are severely deprived, defined as children suffering from one or more forms of severe deprivation of basic human need. Two regions, South Asia and sub-Saharan Africa have severe deprivation rates of more than 80%. Rural children experience much higher levels of severe deprivation than urban children. For example, more than 90% of rural children in South Asia and sub-Saharan Africa live in conditions of severe deprivation. Rural children in the Middle East and North Africa follow closely behind at 89%.

Results of absolute poverty

Children experiencing two or more forms of severe deprivation are considered to be living in absolute poverty. Over a third of all children (37% or 675 million) suffer from two or more different types of severe deprivation, with considerable regional variation. Rates of absolute poverty are highest in Sub-Saharan Africa and South Asia, 65% (207 million) and 59% (330 million), respectively. They are lowest in Latin America and the Caribbean and East Asia and the Pacific regions, 17% and 7%, respectively. Rural children face significantly higher levels of poverty than urban children, with rates for absolute poverty rising to more than 70% in both rural sub-Saharan Africa and rural South Asia.

Section One: Extent of severe deprivation

Food deprivation

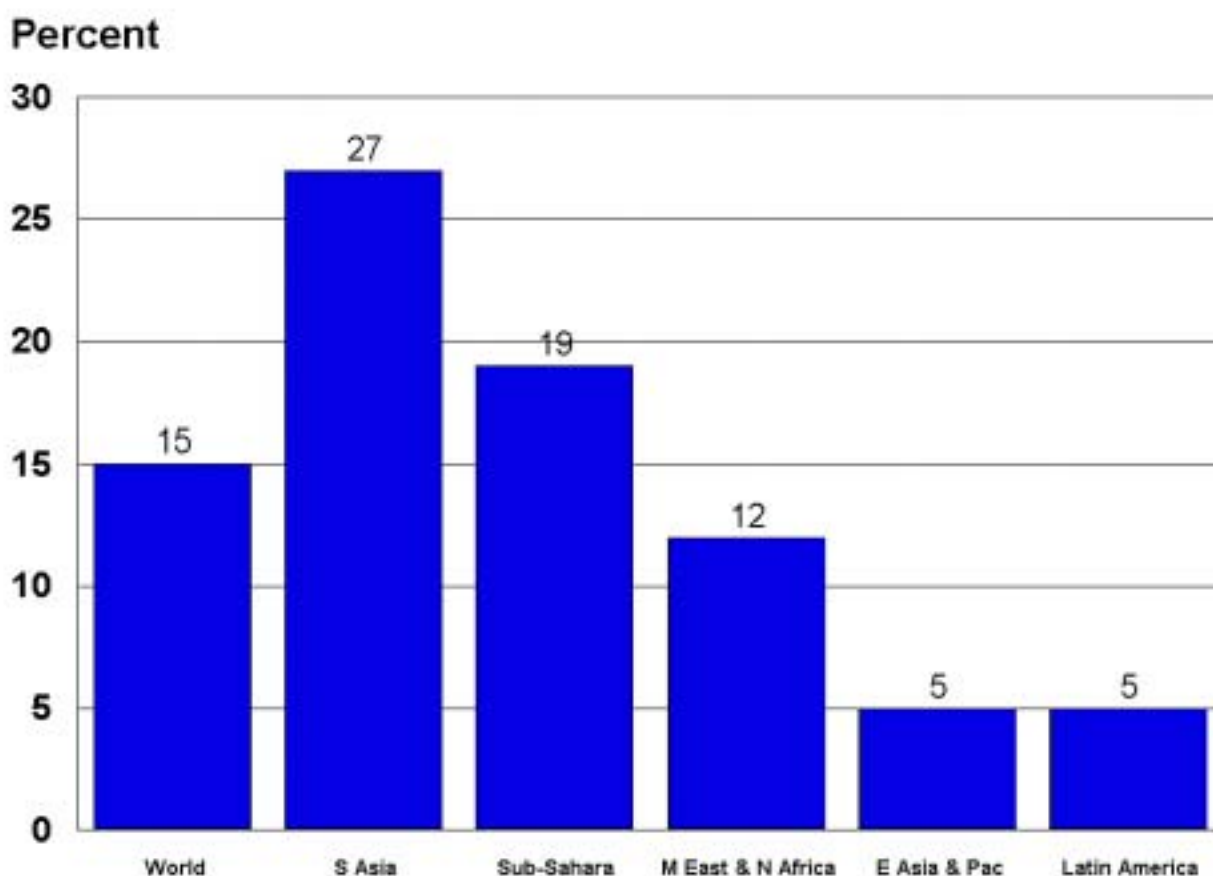
Severe food deprivation is measured using data on severe anthropometric failure (i.e. a failure to grow at normal rates to 'normal' weights and heights) in children under five. Since anthropometric data are rarely collected on or available for children over five years of age, the data presented in this report only refer to children under five in developing countries (see Chapter 3 for further discussion).

At an overall level, it is estimated that 15% of children under five years old (representing 91 million children) in developing countries are severely food deprived (Figure 4.5 and Table 4.1). The lowest rate is in the East Asia and Pacific region, at 5% (nearly 8 million children). South Asia has the highest overall rate at 27% (54 million children).

Table 4.1: Children (under five years) suffering severe food deprivation

Region	%	Number ('000s)
Latin America & Caribbean	5	2,885
South Asia	27	53,714
Middle East & North Africa	12	6,483
Sub-Saharan Africa	19	20,286
East Asia & Pacific	5	7,960
Developing world	15	91,328

Figure 4.5: Percent of children (under five years) suffering severe food deprivation

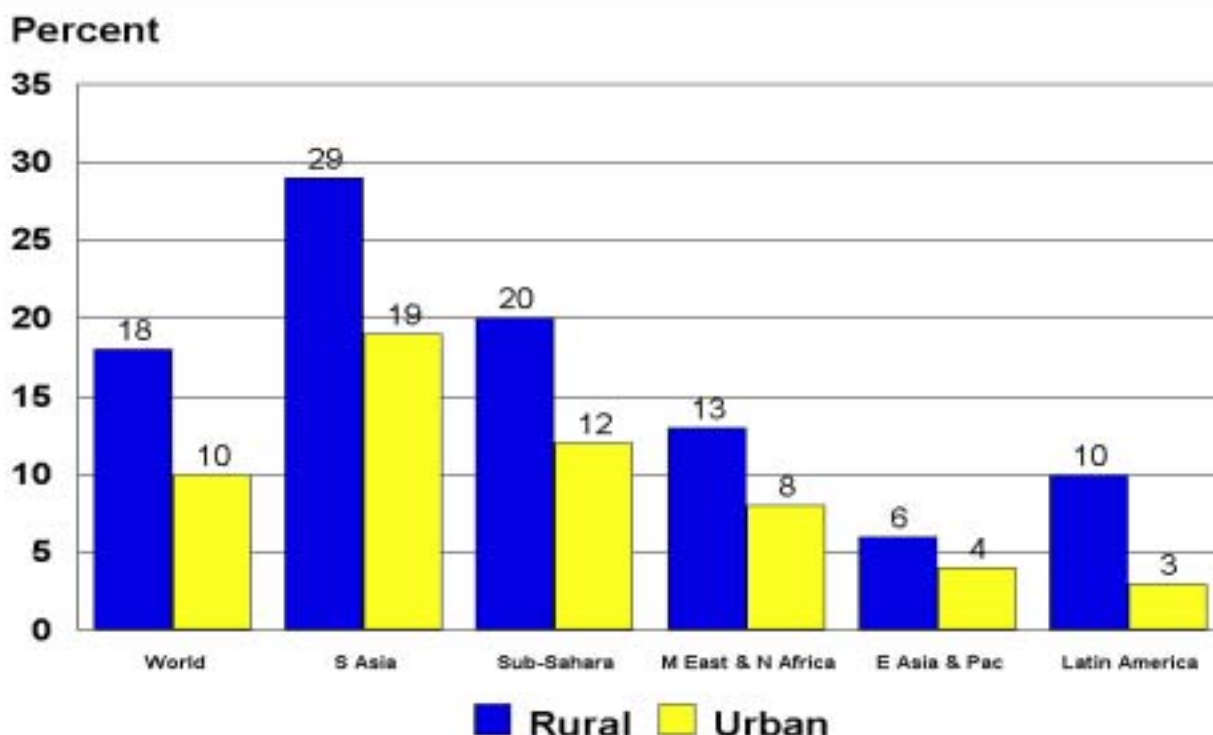


Differences in severe food deprivation are very pronounced between urban and rural areas. At the global level, 10% of urban children under five (nearly 17 million children) and 18% of rural children under five (74 million children) are severely food deprived (Figure 4.6 and Table 4.2).

Table 4.2: Urban and rural children (under five years) suffering severe food deprivation

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	3	965	10	1,926
South Asia	19	8,067	29	45,698
Middle East & North Africa	8	1,571	13	4,955
Sub-Saharan Africa	12	2,998	20	17,102
East Asia & Pacific	6	3,352	4	4,640
Developing world	10	16,953	18	74,321

Figure 4.6: Percent of rural and urban children (under five years) suffering severe food deprivation



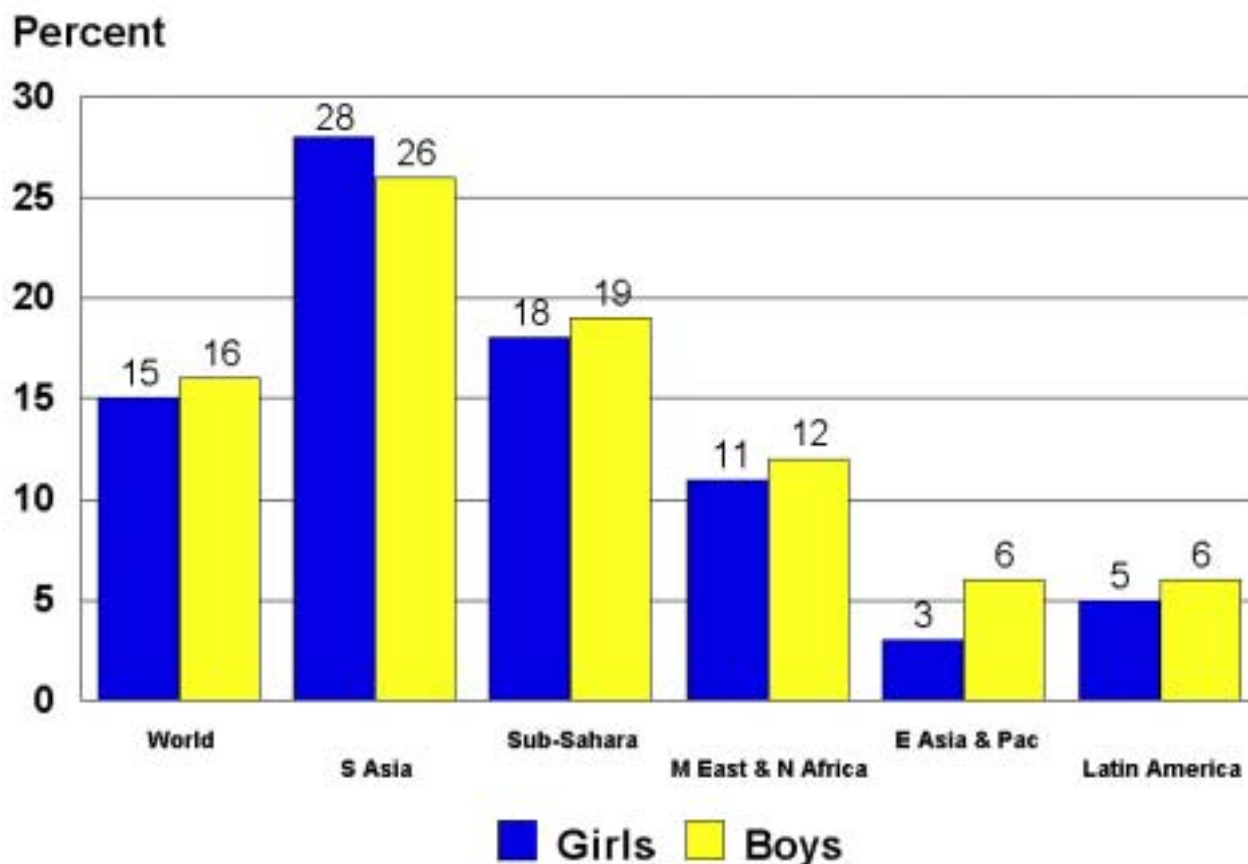
In urban areas, the lowest rate of food deprivation is in the Latin America and Caribbean region, at 3% (965,000 children) and highest in South Asia, at 19% (8 million children). In rural areas, the lowest rate is in the East Asia and Pacific region, at 4% (under 5 million children) and highest in South Asia at 29% (nearly 46 million children).

Gender differences in severe food deprivation appear to be relatively unimportant amongst children under five years (Figure 4.7 and Table 4.3). At the overall level, it is estimated that 16% of boys under five (48 million boys) and 15% of girls under five (44 million girls) are severely food deprived.

Table 4.3: Boys and girls (under five years) suffering severe food deprivation

Region	Boys		Girls	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	6	1,557	5	1,332
South Asia	26	26,504	28	27,257
Middle East & North Africa	12	3,494	11	3,025
Sub-Saharan Africa	19	10,501	18	9,790
East Asia & Pacific	6	5,947	3	2,323
Developing world	16	48,003	15	43,727

Figure 4.7: Percent of girls and boys (under five years) suffering severe food deprivation



The Latin America and Caribbean region has the lowest rates of food deprivation for boys at 6% (1.5 million boys). East Asia has the lowest rate for girls at 2.9% (2.3 million girls). South Asia has the highest rates of food deprivation for both boys and girls, at 26% (26.5 million boys) and 28% (27 million girls). While, at the overall level, gender differences in severe food deprivation are not clear, it is apparent that slight differences do occur within regions, as Table 4.3 shows.

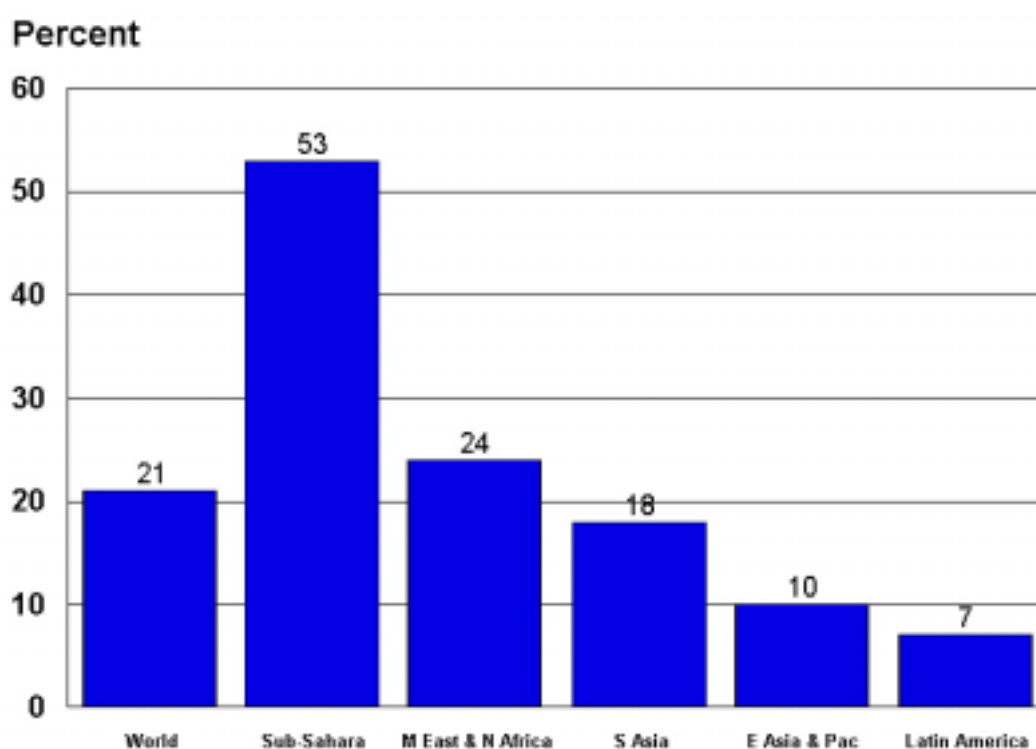
Water deprivation

At the overall level, it is estimated that 21% of children (nearly 376 million children) are severely water deprived (Figure 4.8 and Table 4.4). This means over a third of a billion children have more than a 15 minute walk to their source of water (thus limiting the quantity they use), or are using unsafe sources of water (i.e. surface water). Of the five regions, the lowest rate is in the Latin America and Caribbean region, where 7% (14 million children) are severely water deprived. Sub-Saharan Africa has by far the highest rate, at 53% (167 million children). The East Asia and Pacific region has a relatively low rate of severe water deprivation, at 10% (58.5 million children).

Table 4.4: Children suffering severe water deprivation

Region	%	Number ('000s)
Latin America & Caribbean	7	14,318
South Asia	18	99,611
Middle East & North Africa	24	36,199
Sub-Saharan Africa	53	166,877
East Asia & Pacific	10	58,565
Developing world	21	375,569

Figure 4.8: Percent of children suffering severe water deprivation

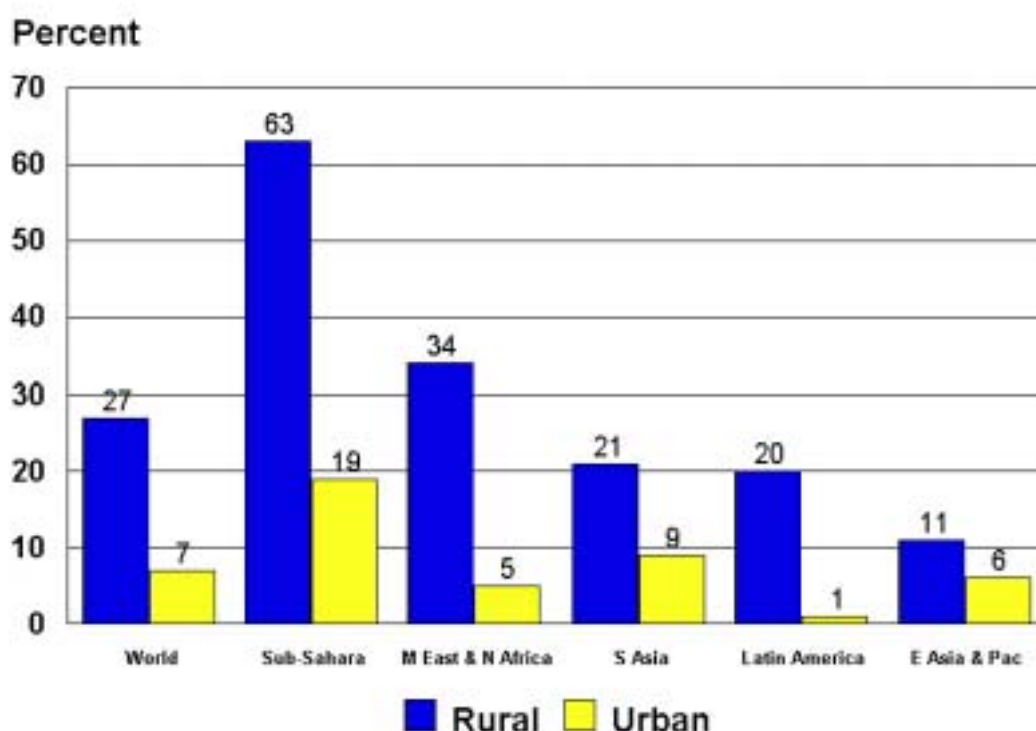


There are considerable differences in severe water deprivation between urban and rural areas in each of the five regions (Figure 4.9 and Table 4.5). At the overall level, 7% of urban areas (nearly 41 million children) are severely water deprived. The rate in rural areas is over three times higher, at 27% (335 million children).

Table 4.5: Urban and rural children suffering severe water deprivation

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	1	1,434	20	12,885
South Asia	9	11,192	21	88,649
Middle East & North Africa	5	2,626	34	33,674
Sub-Saharan Africa	19	14,685	63	152,039
East Asia & Pacific	6	10,943	11	47,737
Developing world	7	40,880	27	334,983

Figure 4.9: Percent of rural and urban children suffering severe water deprivation



In urban areas, the lowest rate of severe water deprivation is in the Latin America and Caribbean region at 1% (1.4 million children) and the highest urban rate is in Sub-Saharan Africa at 19% (15 million children). The other regions all have urban rates of water deprivation below 10%.

Rates of severe water deprivation in rural areas are considerably higher. The East Asia and Pacific region has the lowest rural rate by far, at 11% (nearly 48 million children). All other regions have rural rates over 20%, with the highest in Sub-Saharan Africa at 63% (152 million children). The Middle East and North Africa region has the second highest rural rate of 34% (34 million children) although the geographic features of the region (i.e. desert and semi-desert regions) limit the availability of water. The South Asia and Latin America and Caribbean regions have similar rural rates of 21% (89 million children) and 20% (13 million children) respectively.

Sanitation deprivation

For this report, severe sanitation deprivation is defined as a child having NO access to ANY sanitation facilities of any description. Thus, children with sanitation facilities which are considered not improved (e.g. public or shared latrines, open pit latrines and bucket latrines) by the Joint Monitoring Programme are not counted as *severely* deprived in this report, although it is acknowledged that the use of a bucket or open pit latrine is a far from appropriate or adequate method of waste disposal.²³

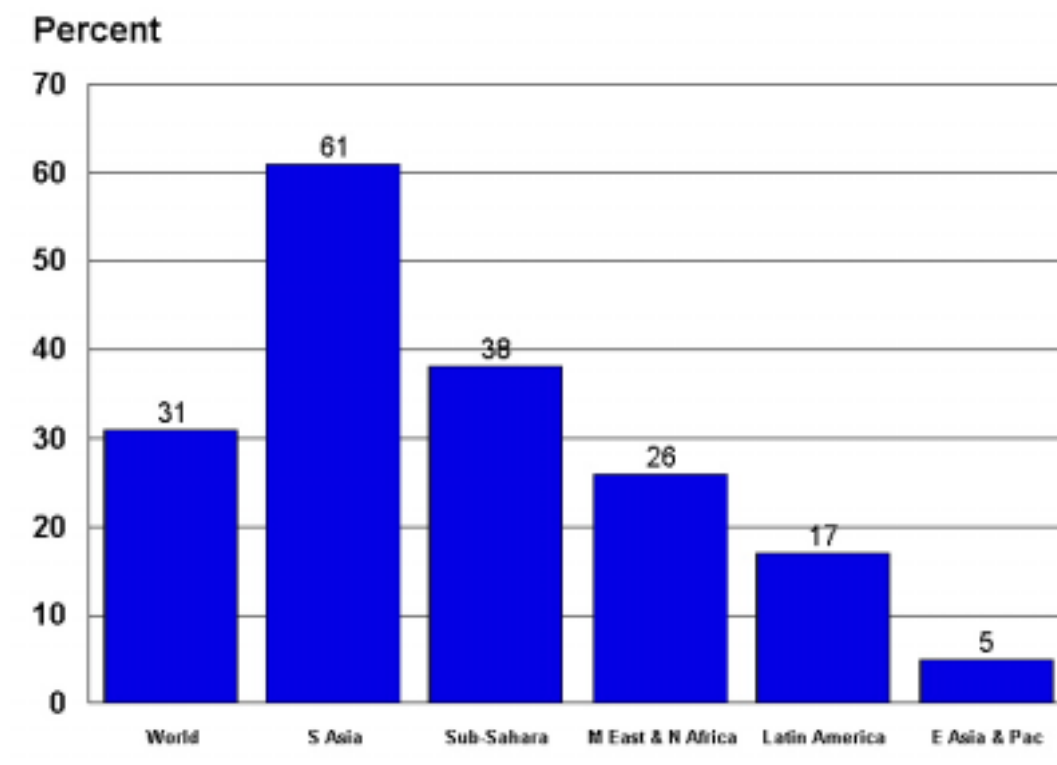
At the overall level, it is estimated that 31% of children (nearly 567 million children) in developing countries are severely sanitation deprived, lacking ANY form of sanitation facility, improved or otherwise (Figure 4.10 and Table 4.6). The lowest rate is in the East Asia and Pacific region, at 5% (30 million children) and the highest in South Asia, at 61% (344 million children). Sub-Saharan Africa also has a relatively high rate at 38% (120 million children).

Table 4.6: Children suffering severe sanitation deprivation

Region	%	Number ('000s)
Latin America & Caribbean	17	33,472
South Asia	61	343,604
Middle East & North Africa	26	39,742
Sub-Saharan Africa	38	119,833
East Asia & Pacific	5	30,188
Developing world	31	566,839

²³ Data concerning sanitation collected by UNICEF and the WHO under the Joint Monitoring Programme refer to 'improved' sanitation facilities (connections to public sewers or septic systems, simple and ventilated improved pit latrines, and pour/flush latrines). 'Not improved' facilities include public or shared latrines, open pit latrines and bucket latrines.

Figure 4.10: Percent of children suffering severe sanitation deprivation

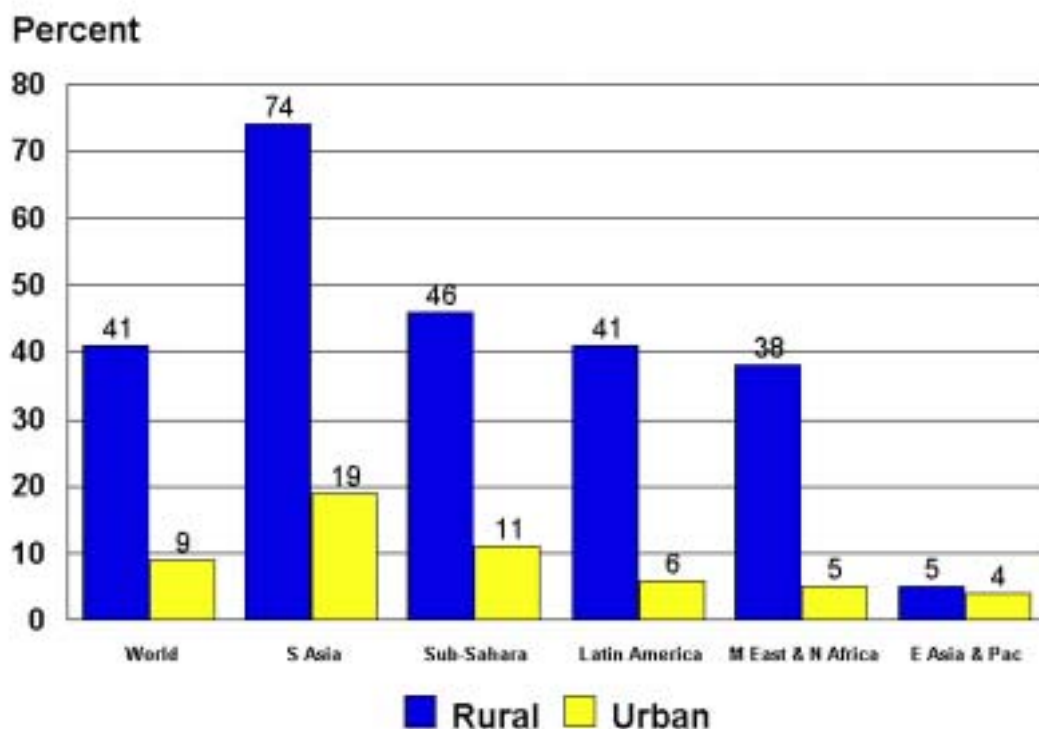


Differences between urban and rural areas are considerable, confirming the findings of the GWSSA results (WHO, UNICEF, WSSCC, 2000). At the overall level, the urban rate of severe sanitation deprivation is 9% (51 million children) (Figure 4.11 and Table 4.7). The rural rate is nearly five times higher, at 41% (516 million children). Over half a billion children in rural areas lack access to any form of sanitation facility.

Table 4.7: Urban and rural children suffering severe sanitation deprivation

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	6	7,950	41	25,580
South Asia	19	24,292	74	319,135
Middle East & North Africa	5	2,462	38	37,250
Sub-Saharan Africa	12	8,966	46	110,902
East Asia & Pacific	4	6,948	5	23,223
Developing world	9	50,617	41	516,089

Figure 4.11: Percent of rural and urban children suffering severe sanitation deprivation



With regard to sanitation deprivation in urban areas, the East Asia and Pacific and Middle East and North Africa regions both have relatively low rates, at 4% (less than 7 million children) and 5% (just over 2 million children), respectively. The highest urban rate is in South Asia, at 19% (24 million children). In rural areas, the lowest rate is in the East Asia and Pacific region, at 5% (23 million children), considerably lower than all other regions – although this could be explained by the high use of public sanitation facilities in China. Each of the other regions has rural sanitation deprivation rates above 35%, with South Asia having the highest rate of 74% (319 million children). The sub-Saharan Africa and Latin America and Caribbean regions both have rural rates over 40%.

Health deprivation

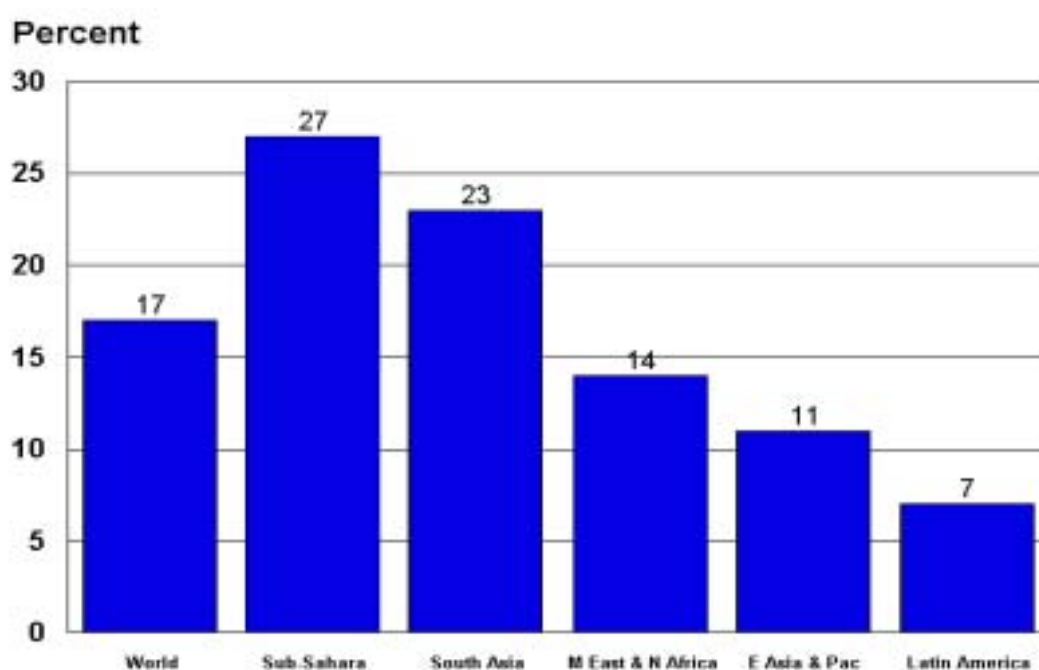
A range of factors determines the health of children and no single indicator can sufficiently reflect the burden of disease or complete extent of morbidity. For the purposes of this report, a child was considered severely health deprived if they had not received ANY of the eight immunisations recommended by the WHO's expanded programme of immunisation (EPI) or if they had had untreated diarrhoea in the two weeks prior to the DHS survey interview (see Chapter 3 for further discussion).

It is estimated that, at the overall level, 15% of children in developing countries (265 million children) are severely health deprived (Figures 4.12 and Table 4.8). The lowest rate is in East Asia and the Pacific at 3% (18 million children) and the highest rates are in South Asia and Sub-Saharan Africa, with 23% (128 million children) and 27% (84 million children), respectively.

Table 4.8: Children suffering severe health deprivation

Region	%	Number ('000s)
Latin America & Caribbean	7	12,770
South Asia	23	128,711
Middle East & North Africa	14	20,949
Sub-Saharan Africa	27	84,233
East Asia & Pacific	3	18,113
Developing world	15	264,776

Figure 4.12: Percent of children suffering severe health deprivation

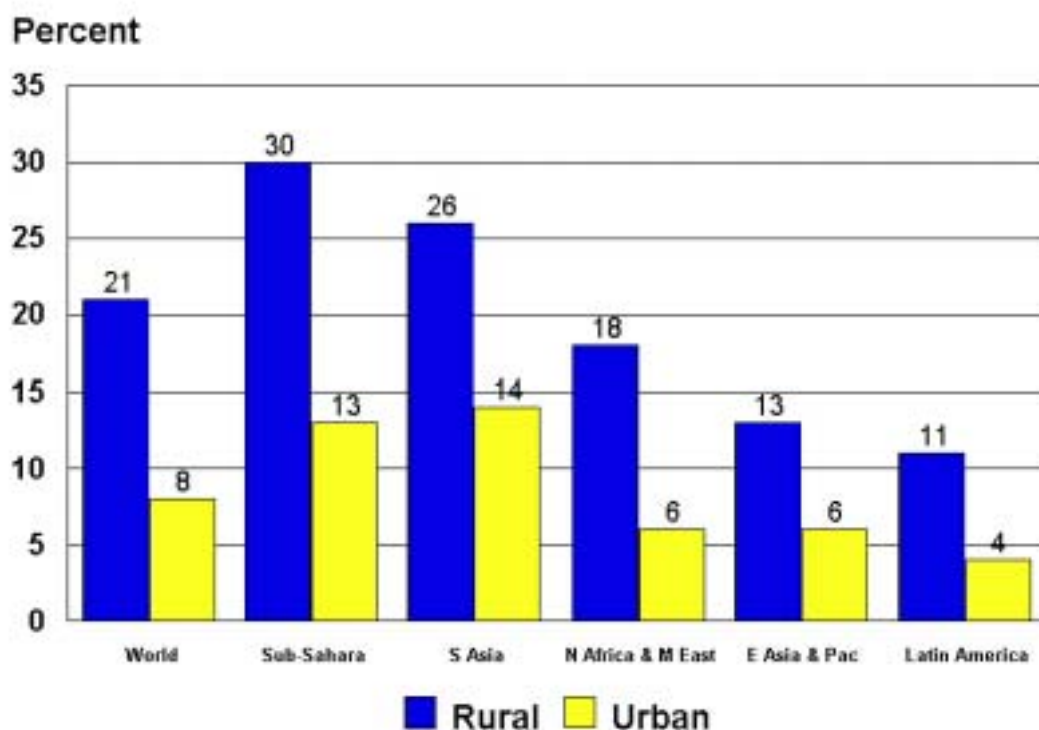


As with the other measures of severe deprivation, there are considerable differences between urban and rural areas (Figure 4.13 and Table 4.9). At the overall level, 8% of urban children (47 million children) and 21% of rural children (263 million children) are severely health deprived.

Table 4.9: Urban and rural children suffering severe health deprivation

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	4	5,734	11	6,821
South Asia	14	17,169	26	110,703
Middle East & North Africa	6	3,392	18	17,482
Sub-Saharan Africa	13	9,971	30	72,652
East Asia & Pacific	6	10,769	13	55,478
Developing world	8	47,035	21	263,136

Figure 4.13: Percent of rural and urban children suffering severe health deprivation



The lowest urban rate is in the Latin America and Caribbean region, at 4% (nearly 6 million children), although the Middle East and North Africa and East Asia and Pacific regions both have low rates, 4% and 6% respectively. The highest urban rates are in Sub-Saharan Africa (13%, nearly 10 million children) and South Asia (13%, nearly 11 million children). In rural areas, the lowest rate of severe health deprivation is in the Latin America and Caribbean region, at 11% (6 million children); and the highest rate is in Sub-Saharan Africa, at 30% (73 million children).

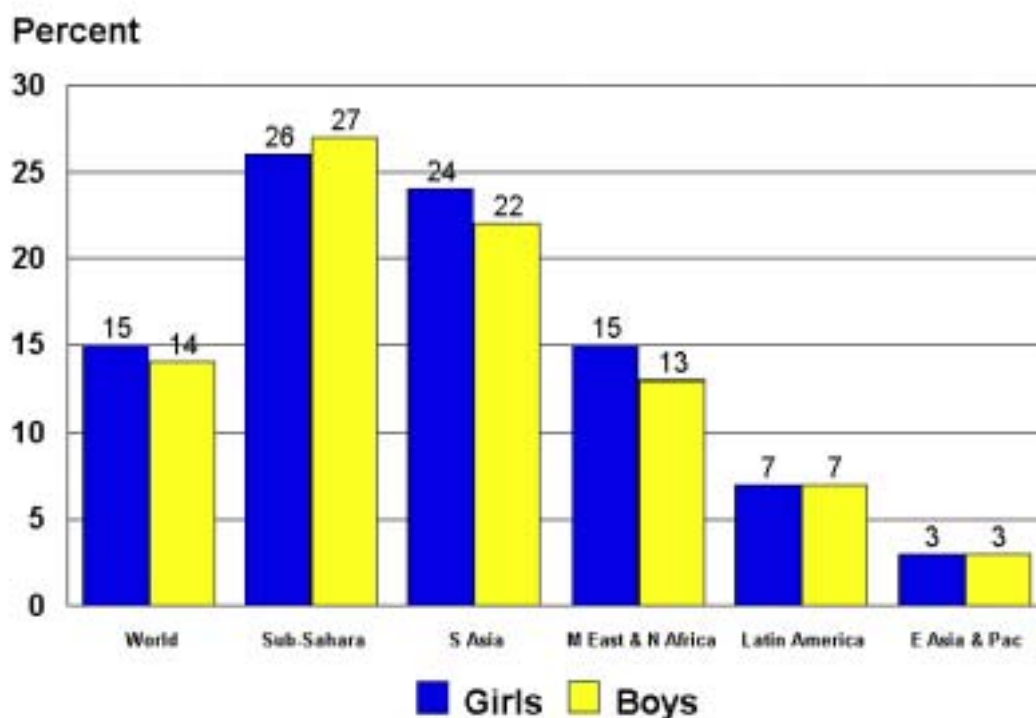
Figure 4.14 and Table 4.10 presents the data on severe health deprivation by gender. At the overall level, the rate of severe health deprivation in boys is slightly less than it is for girls, 14% (133 million boys) compared to 15% (132 million girls). At the regional level, the lowest rate of severe health deprivation for boys is in East Asia and the Pacific 3% (10 million boys). The highest rate for boys is in Sub-Saharan Africa, at 26% (43 million boys). The East Asia and Pacific region also has the

lowest rate for girls, at 3% (under 9 million girls) and Sub-Saharan Africa again has the highest rate, at 26% (41 million girls).

Table 4.10: Boys and girls suffering severe health deprivation

Region	Boys		Girls	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	7	6,366	7	6,497
South Asia	22	63,555	24	65,245
Middle East & North Africa	13	9,864	15	11,118
Sub-Saharan Africa	27	43,436	26	40,661
East Asia & Pacific	3	10,124	3	8,622
Developing world	14	133,345	15	132,144

Figure 4.14: Percent of girls and boys suffering severe health deprivation



It should be noted that diseases such as HIV/AIDS, Malaria and Tuberculosis, which account for a large proportion of child deaths and ill health in the developing world, are not measured by these data. It is likely that the burden of ill health is actually far greater than is implied by the measures of severe health deprivation used in this report. What is certain is that the decline of public health systems and services means that appropriate care is rarely available, affordable or provided, and so increasing numbers of children will continue to suffer and die from a range of causes, a large number of which (such as diarrhoea and the EPI six targeted diseases) are preventable.

Shelter deprivation

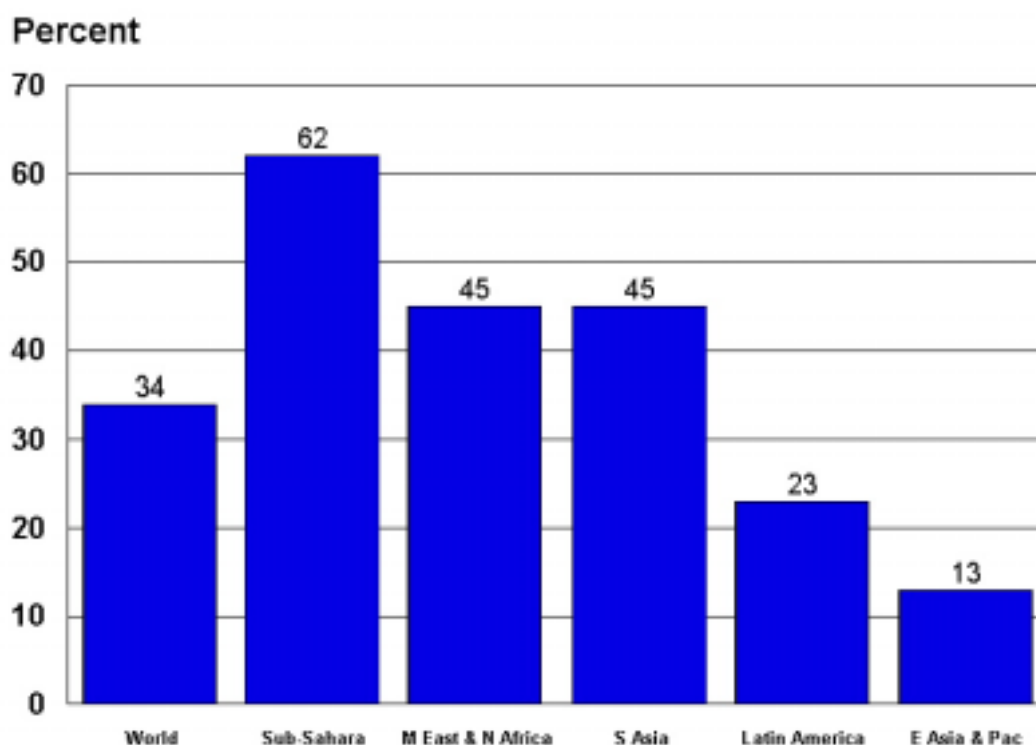
More than one in three of all children experience shelter deprivation, defined in terms of living in accommodation with more than five people per room or which has mud flooring (Figure 4.15). This represents more than 614 million of the developing world's children (Table 4.11).

The prevalence risks for shelter deprivation vary enormously between regions. Sub-Saharan Africa has a prevalence rate which is double the world's average, at 62%, whereas South Asia and North Africa and the Middle East have prevalence risks, of 45% each. By contrast, only 8% of children living in East Asia and the Pacific are severely shelter deprived.

Table 4.11: Children suffering severe shelter deprivation

Region	%	Number ('000s)
Latin America & Caribbean	23	43,727
South Asia	45	253,506
Middle East & North Africa	45	69,471
Sub-Saharan Africa	62	198,027
East Asia & Pacific	8	49,508
Developing world	34	614,238

Figure 4.15: Percent of children suffering severe shelter deprivation



Rural children are significantly more likely than their urban counterparts to be living in circumstances of severe shelter deprivation (42% compared to 15%) (Figure 4.16 and Table 4.12). Whereas more than 530 million of the developing world's rural children are severely shelter deprived, *only* 83 million urban children are affected by the same conditions. However, a note of caution is required in the interpretation of these findings as the indicator of severe shelter deprivation

used in this study may under-estimate the dwelling related problems experienced by children living in urban areas, e.g. violence, homelessness (see Chapter 3 for further discussion).

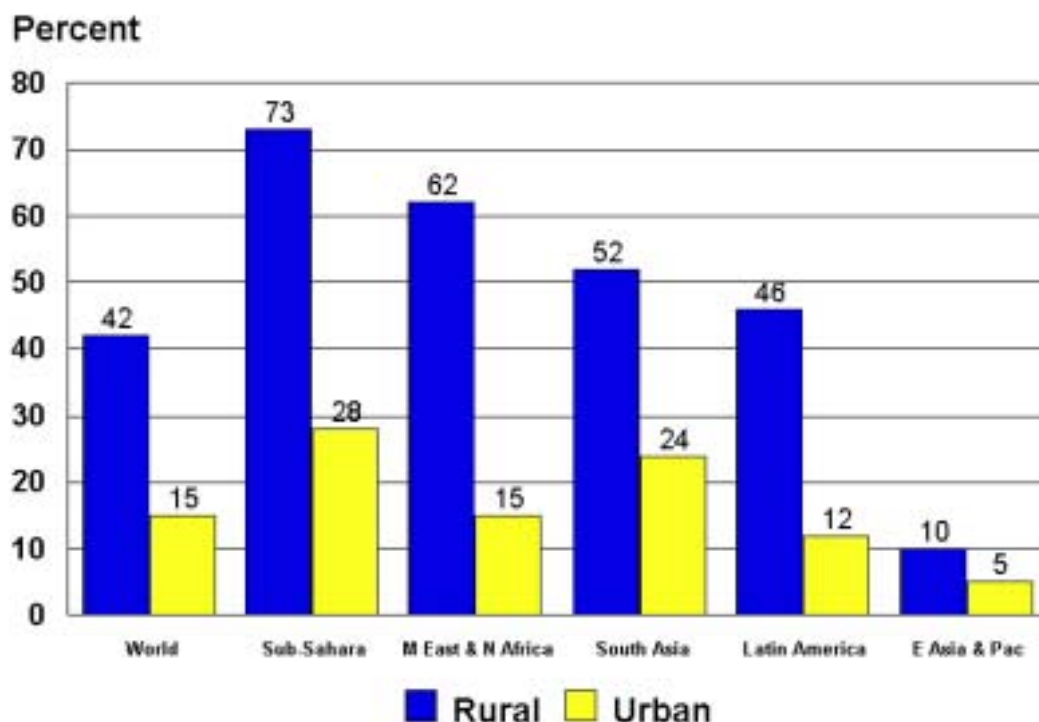
Notwithstanding this, there are important discrepancies between regions with regards to prevalence rates amongst rural children. Rates of severe shelter deprivation are highest for rural children in sub-Saharan Africa (73%, representing 176 million children), and lowest for urban children in East Asia and the Pacific (5%, representing 8 million). Sub-Sahara Africa, as well as having the highest rates of rural children living in shelter deprivation, also has the highest proportions of urban children living in those same conditions (28%, representing 21 million children).

However, inequalities amongst children within regions is greatest in North Africa and the Middle East, where rural children are more than four times as likely as urban children in the same region to be severely shelter deprived (62% compared to 15%).

Table 4.12: Urban and rural children suffering severe shelter deprivation

Region	Urban children		Rural children	
	%	Number (‘000s)	%	Number (‘000s)
Latin America & Caribbean	12	14,987	46	28,738
South Asia	24	30,142	52	223,135
Middle East & North Africa	15	8,041	62	61,288
Sub-Saharan Africa	28	21,487	73	176,336
East Asia & Pacific	5	8,511	10	41,286
Developing world	15	83,169	42	530,783

Figure 4.16: Percent of rural and urban children suffering severe shelter deprivation



Education deprivation

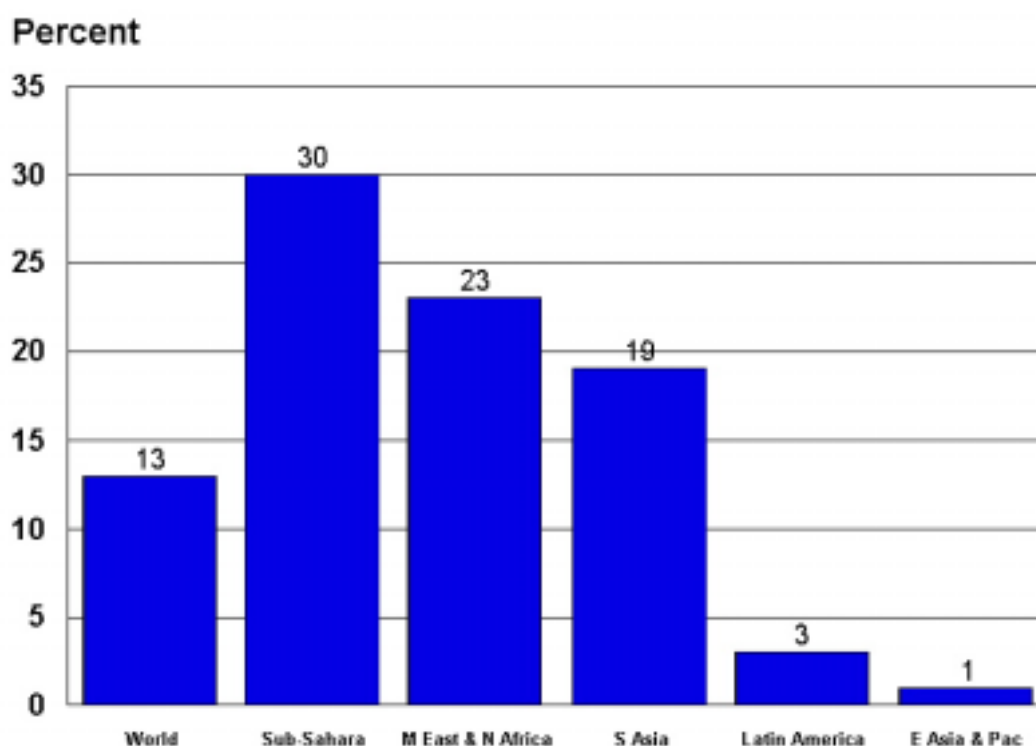
Throughout the developing world, 13% of all children (134 million) aged between 7 and 18 are educationally deprived, defined in terms of lacking either a primary or secondary school education (Figure 4.17 and Table 4.13)²⁴. Sub-Saharan Africa has an above-average prevalence rate of 30% (50 million children), as does the Middle East and North Africa at 23% (19 million children) and South Asia at 19% (57 million children), whereas Latin America and the Caribbean and East Asia have relatively small rates, at 3% and 1%, respectively.

Table 4.13: Children (aged 7-18) suffering severe educational deprivation

Region	%	Number ('000s)
Latin America & Caribbean	3	4,028
South Asia	19	57,134
Middle East & North Africa	23	18,608
Sub-Saharan Africa	30	50,274
East Asia & Pacific	1	4,139
Developing world	13	134,183

²⁴ The *Education For All 2000 Assessment* – Statistical Document released for the World Education Forum in Dakar, Senegal, April 2000 showed that 82% of primary-school-age children were enrolled in and/or attended school. However, 120 million primary-school-age children were not in school.

Figure 4.17: Percent of children (aged 7-18) suffering severe educational deprivation



There are significant urban-rural discrepancies in lack of access to education. Seventeen percent of all rural children aged between 7 and 18 experience severe education deprivation, compared to *only* 5% of all urban children (Figure 4.18 and Table 4.14). Prevalence rates of severe education deprivation are higher amongst rural children in every single region of the developing world. Overall rural children are at least three times more likely than urban children to be severely educationally deprived (17% compared to *only* 5%). However, the Middle East and North Africa and Sub-Saharan Africa regions have well above-average prevalence rates of severe education deprivation amongst rural children, at 33% and 35%, respectively.

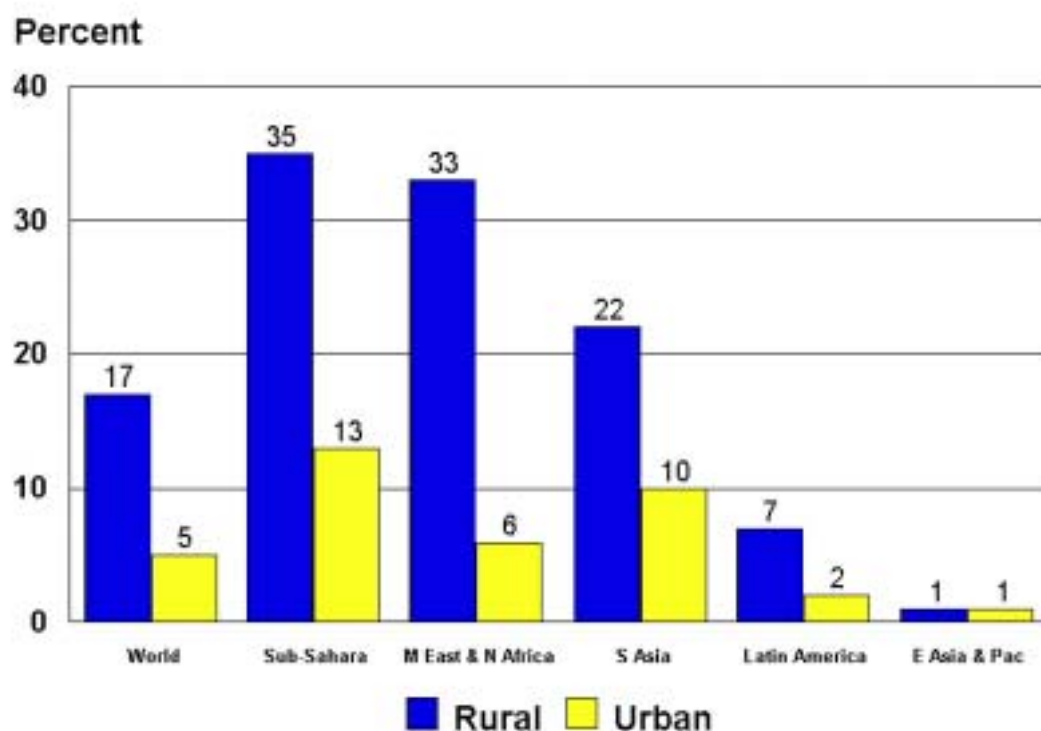
With regards to urban children, higher than average prevalence rates of educational deprivation exist in the Sub-Saharan Africa and South Asia regions, 13% and 10%, respectively. Some regions exhibit large inequalities between urban and rural children. For example, rural children in the Middle East and North Africa are at least five times more likely than their urban counterparts to be severely educationally deprived (33% compared to *only* 6%).

Table 4.14: Urban and rural children suffering severe educational deprivation

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	2	1,541	7	2,428
South Asia	10	6,892	22	50,055
Middle East & North Africa	6	1,768	33	16,877

Sub-Saharan Africa	13	5,556	35	44,700
East Asia & Pacific	1	623	1	3,542
Developing world	5	16,380	17	117,602

Figure 4.18: Percent of rural and urban children (aged 7-18) suffering severe educational deprivation



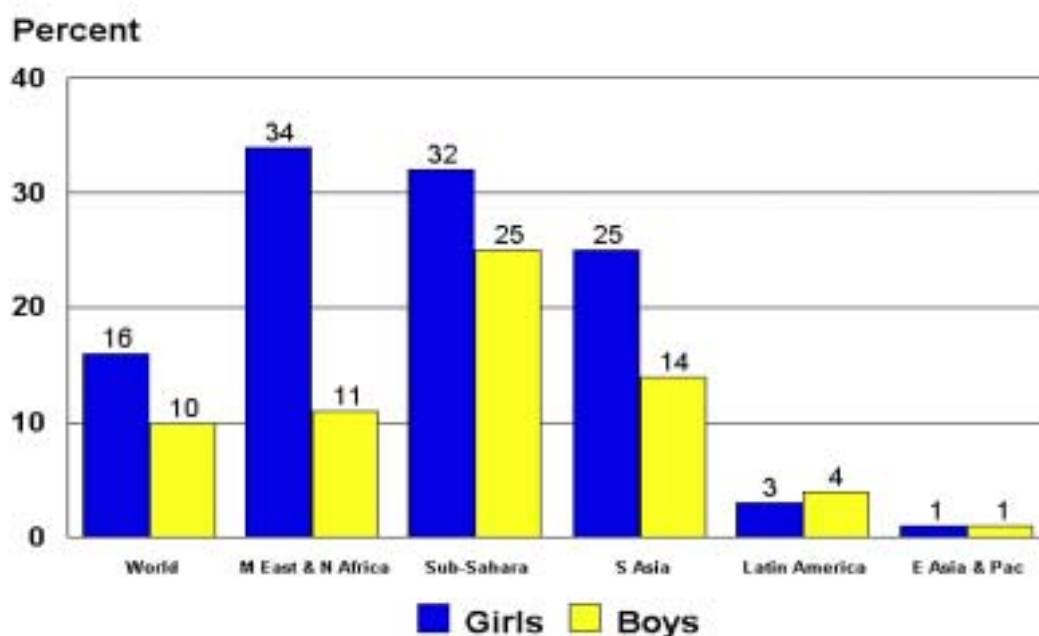
Girls are much more likely than boys to be at risk of being educational deprived. Globally, they are over one and a half times more likely than boys to suffer severe education deprivation (16% compared to 10%) (Figure 4.19 and Table 4.15). There are also many more girls than boys throughout the world who are educationally deprived. It is estimated that there are over 80 million girls who have received neither a primary nor secondary school education, compared with 54 million boys.

This study also reveals significant gender discrepancies in access to education both between regions and within them. The regions of the Middle East and North Africa and Sub-Saharan Africa have above-average deprivation prevalence rates amongst girls, at 34% and 32%, respectively. However, the greatest gender inequalities *within* regions exist in the Middle East and North Africa region where girls who suffer severe education deprivation outnumber boys by almost three to one. The East Asia and the Pacific region has the greatest gender equality with respect to access to education, whereas Latin America and the Caribbean reveals a very small gender bias *against* boys rather than girls.

Table 4.15: Boys and girls (aged 7-18) suffering severe educational deprivation

Region	Boys		Girls	
	%	Number ('000s)	%	Number ('000s)
Latin America & the Caribbean	4	2,148	3	1,822
South Asia	14	21,015	25	35,983
Middle East & North Africa	12	5,100	34	13,491
Sub-Saharan Africa	27	23,293	32	27,056
East Asia & Pacific	1	2,123	1	1,946
Developing world	10	53,679	16	80,299

Figure 4.19: Percent of girls and boys (aged 7-18) suffering severe educational deprivation



Information deprivation

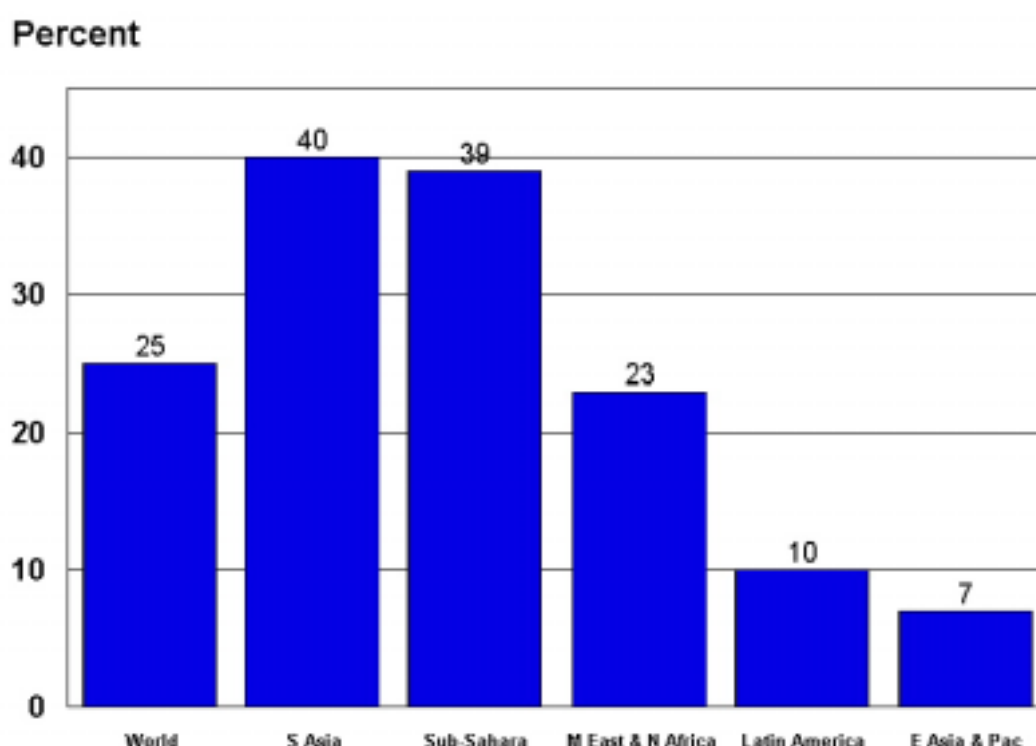
Globally, it is estimated that 25% of all children aged three years and above are severely information deprived, representing almost 448 million children (Figure 4.20 and Table 4.16)²⁵. This means that one in four children in developing countries lack access to TV, radio, telephone or newspapers. Nevertheless, these global figures disguise the real magnitude of information deprivation in some regions. Analysis by region reveals that 40% of South Asian and 39% of Sub-Saharan African children suffer from severe information deprivation (226 and 124 million children, respectively). On the other hand, lower than average prevalence rates were found in the regions of Latin America and the Caribbean (10%) and East Asia and the Pacific (7%).

²⁵ The authors know of no previous attempts to measure information deprivation amongst children.

Table 4.16: Children (three years and above) suffering severe information deprivation

Region	%	Number ('000s)
Latin America & Caribbean	10	18,381
South Asia	40	225,525
Middle East & North Africa	23	34,966
Sub-Saharan Africa	39	124,283
East Asia & Pacific	7	44,678
Developing world	25	447,834

Figure 4.20: Percent of children (three years and above) suffering severe information deprivation

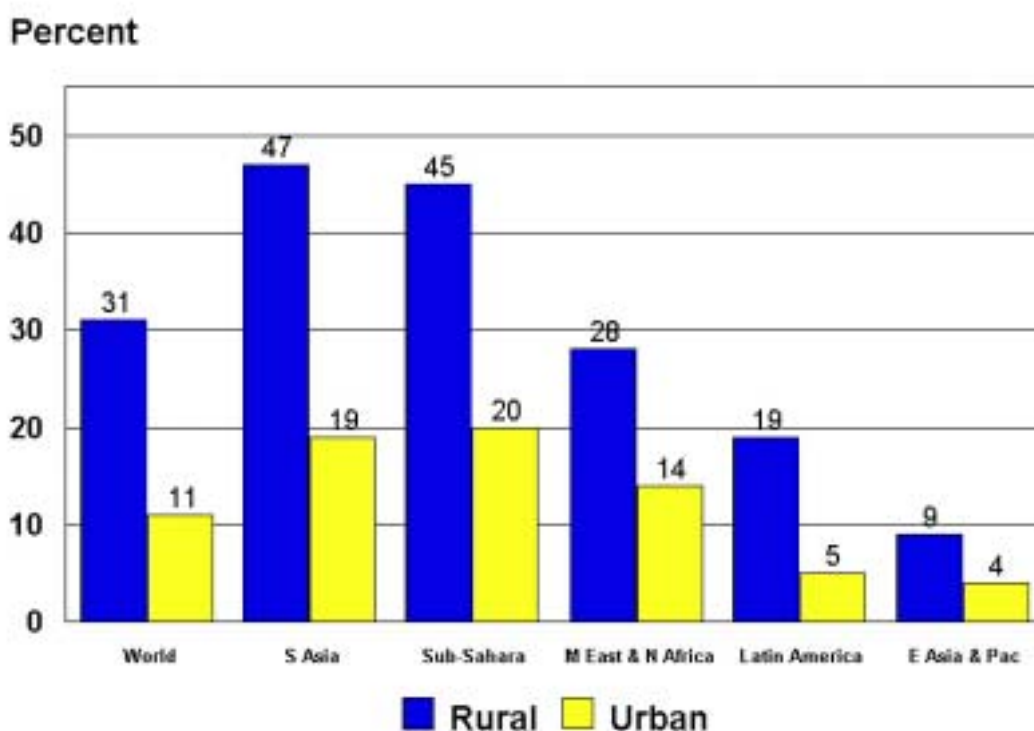


Severe information deprivation amongst children is far more extensive in rural areas than in urban areas: 31% (388 million children) compared to 11% (60 million children) (Figure 4.21 and Table 4.17). The highest prevalence rates amongst rural children are in South Asia at 47% (202 million children) and Sub-Saharan Africa at 45% (109 million children), whilst the lowest rates affect children in East Asia and the Pacific at 9% (37 million children). Amongst urban children, the regions with highest prevalence rates are again Sub-Saharan Africa (20%) and South Asia (19%). On the other hand, the greatest inequalities in access to information are amongst children living in Latin America and the Caribbean, where there are almost four rural children who are deprived for every one urban child (19% compared to *only* 5%).

Table 4.17: Urban and rural children (3 years and older) suffering severe information deprivation

Region	Urban Children		Rural Children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	5	6,646	19	11,748
South Asia	19	23,656	47	201,946
Middle East & North Africa	14	7,440	28	27,515
Sub-Saharan Africa	20	15,227	45	108,977
East Asia & Pacific	4	7,122	9	37,415
Developing world	11	60,090	31	387,601

Figure 4.21: Percent of rural and urban children (3 years and older) suffering severe information deprivation



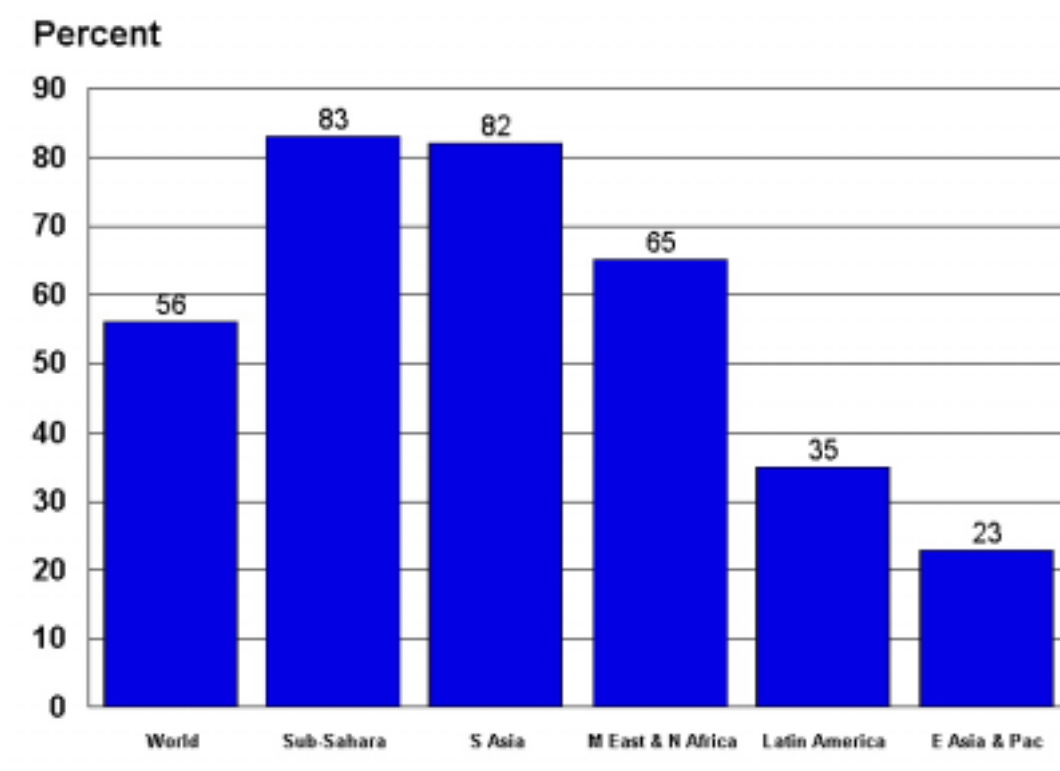
Section Two: Distribution of severe deprivation

This next section compares the extent of severe deprivation among the regions of the developing world. For the purposes of this study, severe deprivation has been defined as children experiencing one or more severe deprivations of basic human need. Table 4.18 and Figure 4.22 show the number and proportion of children in the five UNICEF regions suffering one or more severe deprivation.

Table 4.18: Children suffering severe deprivation

Region	%	Number ('000s)
Latin America & Caribbean	35	68,493
South Asia	82	459,444
Middle East & North Africa	65	99,354
Sub-Saharan Africa	83	264,460
East Asia & Pacific	23	137,054
Developing world	56	1,028,804

Figure 4.22: Percent of children suffering severe deprivation



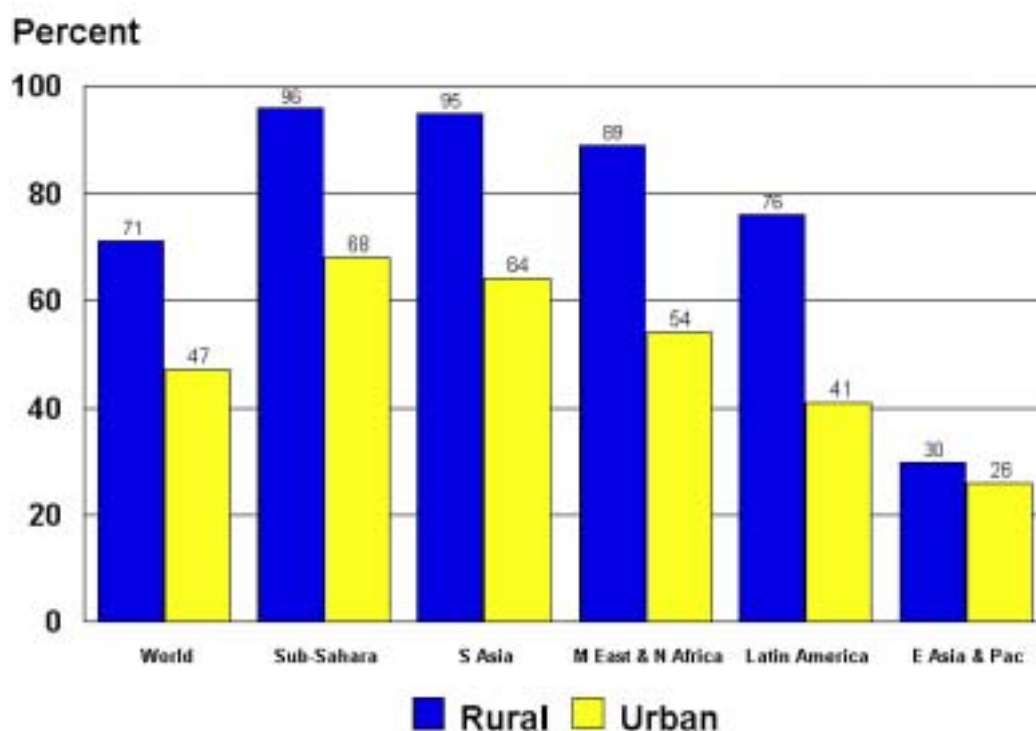
At the global level, 56% of children in the developing world (more than 1 billion children) are severely deprived of basic human needs. The lowest rate is in the East Asia and Pacific region (23%), while rates are highest in South Asia (82%) and Sub-Saharan Africa (83%). All but two of the regions have severe deprivation rates above 50%.

Urban-rural differences are apparent, with 31% of children (over 175 million children) in urban areas and 67% of children (853 million children) in rural areas being severely deprived in at least one way (Figure 4.23 and Table 4.19).

Table 4.19: Urban and rural children suffering severe deprivation

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	20	25,934	67	42,570
South Asia	48	61,174	92	398,270
Middle East & North Africa	32	17,669	82	81,651
Sub-Saharan Africa	53	40,578	93	223,969
East Asia & Pacific	17	30,050	25	106,656
Developing world	31	175,405	67	853,115

Figure 4.23: Percent of rural and urban children suffering severe deprivation



The East Asia and Pacific region has the lowest rates for both urban and rural areas, at 17% and 25%, while Sub-Saharan Africa has the highest rates for both urban and rural areas - 53% and 93%, respectively. South Asia also has high rates in both urban and rural areas, at 48% (61 million children) and 92% (398 million children).

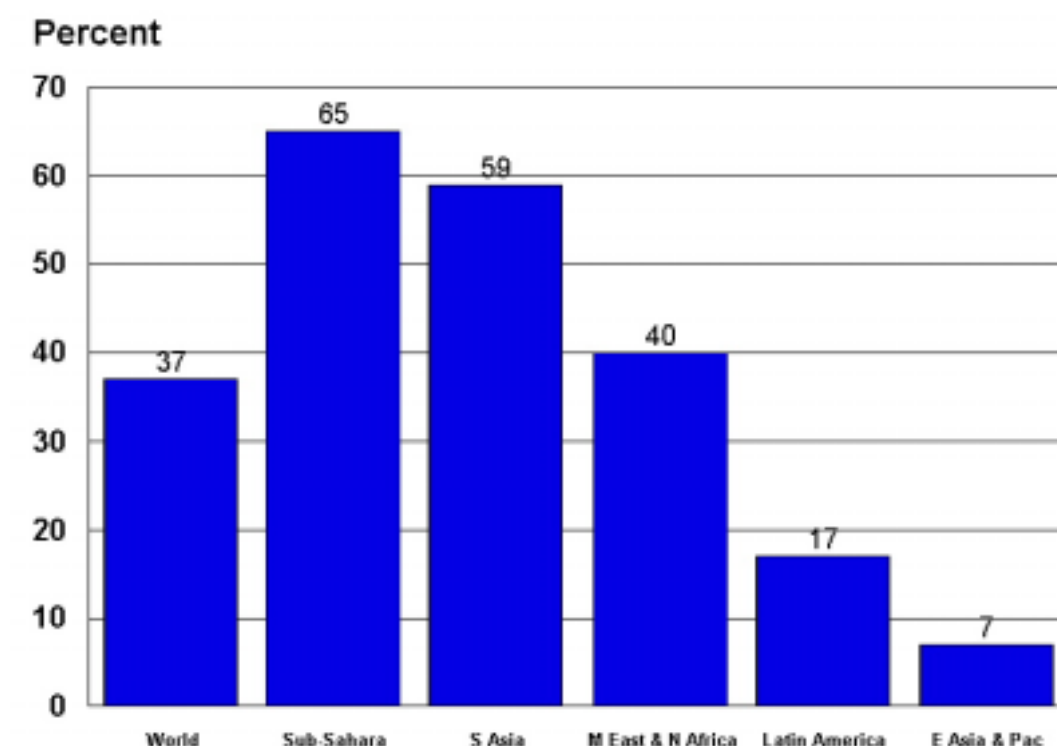
Section Three: Distribution of absolute poverty

The final section of this chapter compares the extent of absolute poverty among the different regions in the developing world. For the purposes of this report, absolute poverty is defined as multiple severe deprivation of basic human need - i.e. children who suffer from two or more different severe deprivations.

Table 4.20: Children suffering from absolute poverty

Region	%	Number ('000s)
Latin America & Caribbean	17	33,085
South Asia	59	329,613
Middle East & North Africa	40	61,153
Sub-Saharan Africa	65	206,927
East Asia & Pacific	7	43,471
Developing world	37	674,249

Figure 4.24: Percent of children in absolute poverty



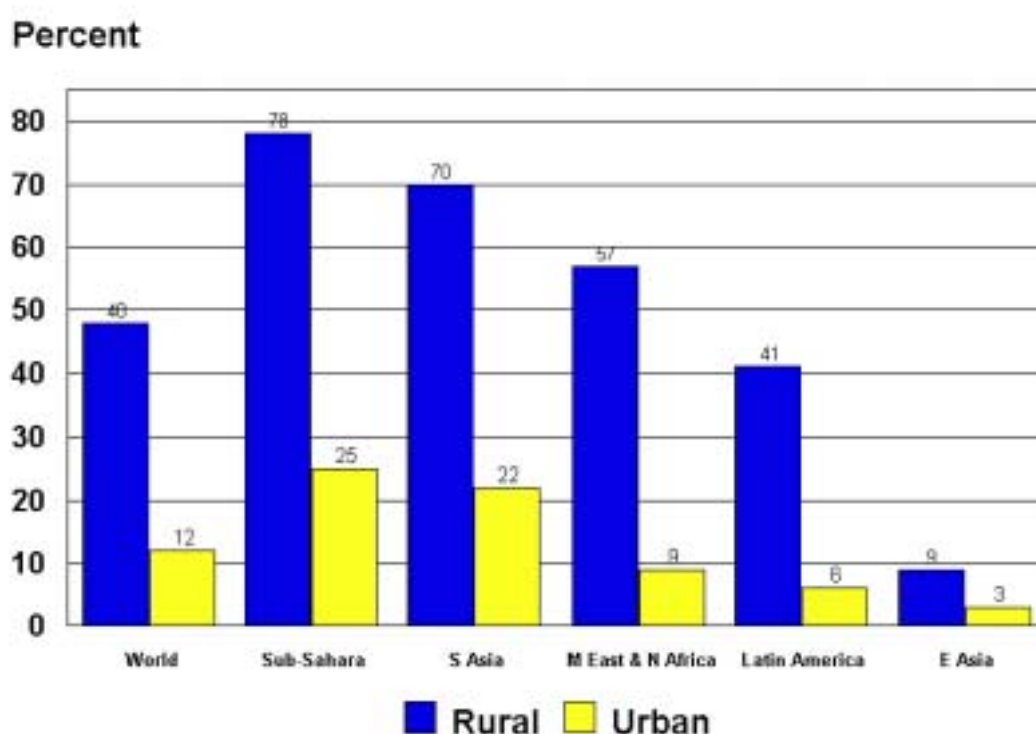
At the global level, it is estimated that 37% of children in the developing world (over 674 million children) are living in absolute poverty. The lowest rate is found in the East Asia and Pacific region, at 7% (43 million children) and the highest rate is in Sub-Saharan Africa, at 65% (nearly 207 million children). South Asia also has a high rate of absolute poverty, with 59% (320 million children) of children suffering two or more forms of severe deprivation.

Most children living in absolute poverty live in rural areas, although rates in the urban areas of some regions are high (Figure 4.25 and Table 4.21). At the overall level, the urban rate of absolute poverty is 12% (65 million children), while the rural rate is much higher at 48% (610 million children).

Table 4.21: Urban and rural children in absolute poverty

Region	Urban children		Rural children	
	%	Number ('000s)	%	Number ('000s)
Latin America & Caribbean	6	7,168	41	25,769
South Asia	22	28,234	70	301,838
Middle East & North Africa	9	4,978	57	56,222
Sub-Saharan Africa	25	19,014	78	188,124
East Asia & Pacific	3	5,385	9	38,276
Developing world	12	64,778	48	610,229

Figure 4.25: Percent of rural and urban children in absolute poverty



The lowest urban and rural rates are found in the East Asia and Pacific region, at 3% (just over 5 million children) and 9% (38 million children), respectively. The highest urban rates of absolute poverty are in Sub-Saharan Africa and South Asia; with Sub-Saharan Africa's urban absolute poverty rate at 25% (19 million children) compared to South Asia's 22% (28 million children). Absolute poverty rates in rural areas are above 50% in all regions (except Latin America and the Caribbean East Asia and Pacific), with rates in both South Asia and Sub-Saharan Africa at 70%-plus.

Chapter 5

Nature and Severity of Deprivation and Poverty amongst Households with Children

Introduction

The purpose of this chapter is to examine both the distribution and the nature of absolute poverty in the developing world at household level. The previous chapters have been concerned with severe deprivation and absolute poverty measured at the level of the individual child. However, policy interventions to combat poverty and deprivation are more often targeted at the family or household. It is therefore of considerable policy importance to understand both the extent and distribution of absolute poverty at household level. It is also important to understand which are the most frequently occurring combinations of severe deprivation that result in absolute poverty.

Deprivation and poverty amongst households with children

Chapter 4 described the regional distribution of severe deprivation and absolute poverty of children in the developing world. Tables 5.1 and 5.2 compare the results discussed in Chapter 4 with the distribution of severe deprivation and absolute poverty measured at the level of households with children. It should be noted that households with children may contain some children who are severely deprived and others who suffer from no deprivations (e.g. the girls may be educationally deprived but not the boys). However, this situation is comparatively rare. Similarly, a household with children may be defined as absolutely poor (e.g. suffering from two or more different types of severe deprivation) without any of the individual children in the household experiencing two deprivations (e.g. a young child may have not been immunised and an older child may never have attended school).

Table 5.1: Distribution of severe deprivation at individual and household level

Region	Children		Households with children	
	%	Number (000s)	%	Number (000s)
Sub-Saharan Africa	83	264,460	84	82,336
South Asia	82	459,444	81	157,077
Middle East & North Africa	65	99,354	62	27,898
Latin America & Caribbean	35	68,493	30	24,277
East Asia & Pacific	23	137,054	20	65,518
Developing World	56	1,028,804	48	357,107

Table 5.1 shows that, while over half (56%) of the developing world's children suffer from severe deprivation, just under half (48%) of households with children are in a similar situation. This is because, in most regions, the risk of severe deprivation increases with household size. Households with more children are often more likely to be deprived than households with fewer children.

Table 5.2: Distribution of absolute poverty at individual and household level

Region	Children		Households with children	
	%	Number (000s)	%	Number (000s)
Sub Saharan Africa	65	206,927	68	67,041
South Asia	59	329,613	63	122,320
Middle East & North Africa	40	61,153	41	18,169
Latin America & Caribbean	17	33,085	14	11,623
East Asia & Pacific	7	43,471	6	18,055
Developing World	37	674,249	32	237,207

Table 5.2 shows that, in the developing world as a whole, 37% of children are living in absolute poverty compared with 32% of households with children. However, in both Sub-Saharan Africa and South Asia, there are slightly higher rates of poverty amongst households with children than amongst individual children. It should be noted that household sizes are significantly larger on average in these two regions than in the rest of the developing world.²⁶

Intensity of poverty and deprivation

The most common measure of poverty is the proportion of individuals, households or families that fall beneath the poverty line. If q is the number of people identified as poor and n the total number of people in the community, then the head count ratio measure H is q/n . The head count ratio ranges from 0 (nobody is poor) to 1 (everybody is poor).

This simple indicator provides useful information on the incidence of poverty among the population. However, the head count ratio does not provide information on the distribution of poverty amongst the poor nor does it capture the intensity of poverty, i.e. how far the poor fall below a given poverty line (Sen, 1981; Hagenaars, 1986).

The use of the head count ratio has been under severe attack for 30 years (Atkinson, 1979). In 1968, Watts (1968, p326) noted that it had *"Little but its simplicity to recommend it"* and Sen (1979, p295) has remarked that, considering its inadequacies, the degree of support commanded by this measure is *"quite astonishing"*.

The head count ratio can even be dangerous for monitoring the effectiveness of pro-poor policies. Successful policies aimed at raising the well-being of the poorest of the poor will not affect the head count ratio if their new living standard is still below the poverty line. On the other hand, successful pro-poor policies aimed at persons just below the poverty line will reduce the head count ratio. Therefore, for anti-poverty policy purposes, it is of crucial importance that the intensity/severity of poverty is measured along with the extent of poverty (Gordon and Spicker, 1998). Table 5.3 provides some information on the intensity of severe deprivation and absolute poverty amongst households with children by region.

²⁶ Similar numbers of children live in India and China but there are many more households with children in China than in India.

Table 5.3: Severity of deprivation for households with children (%)

Number of deprivations	Developing world	Sub-Saharan Africa	South Asia	Middle East & North Africa	Latin America & Caribbean	East Asia & Pacific
0	52	16	19	40	70	80
1	16	16	18	22	15	14
2	12	19	23	16	8	4
3	10	19	21	12	4	1
4	6	16	13	8	2	1
5	3	10	5	3	1	-
6	1	4	1	1	-	-
7	-	1	-	-	-	-
Total	100	100	100	100	100	100

Table 5.3 shows that, of the 32% of households with children in the developing world that are living in absolute poverty (suffering two or more different types of severe deprivation), 12% suffer from two deprivations, 10% from three and 10% from four or more. There is considerable regional variation, with the regions with the highest absolute child poverty head counts also having the severest poverty. In Sub-Saharan Africa, almost a third (31%) of households with children suffer from four or more different severe deprivations of basic human need. In South Asia, almost one in five (19%) of households with children are similarly affected whereas both the Latin America & Caribbean and the East Asia & Pacific region have comparatively few households with children that suffer from these high levels of multiple deprivation.

Combinations of severe deprivations

Information about the intensity of poverty is important for accurate monitoring of the effectiveness of anti-poverty policies. However, in order to develop reliable anti-poverty policies, it is necessary to know both the distribution and frequency with which combinations of severe deprivations occur. This way, policies can be targeted to tackle the most important child deprivation problems in a region or country. Table 5.4 shows the ten most frequently occurring combinations of deprivations which affect 5% or more of the households with children in the developing world.

In Table 5.4, the combination of deprivations that occurs with the greatest frequency in a region is highlighted in **bold**. Globally, shelter and sanitation deprivation are the most frequently occurring combination of severe deprivations in the developing world, affecting 15% of households with children. Information deprivation - in combination with either shelter deprivation or sanitation deprivation - affects 28% of households with children. However, there are considerable regional variations. In Sub-Saharan Africa, the most prevalent combination of deprivations is severe shelter and water deprivation, which is suffered by two out of five (39%) households with children. In South Asia, severe sanitation and information deprivation is the largest problem and, in the Middle East and North Africa, severe education and shelter deprivation occur more frequently than any other combination of deprivations.

Table 5.4: Combinations of deprivations suffered by children in households in the developing world (%)

Deprivation Combination	World	Sub-Saharan Africa	South Asia	Middle East & North Africa	Latin America	East Asia
Shelter & Sanitation	15	30	32	15	8	1
Shelter & Information	14	34	29	15	4	2
Sanitation & Information	14	23	36	7	4	1
Shelter & Water	9	39	9	14	4	1
Sanitation & Water	9	25	14	12	3	1
Shelter & Education	8	26	13	17	2	-
Sanitation & Education	8	18	16	12	2	-
Water & Information	8	28	11	7	2	2
Education & Information	7	21	14	9	1	-
Water & Education	5	19	5	11	1	-
Absolute Poverty	32	68	63	41	14	6

Note: Only deprivation combinations that affect 5% or more of the developing world's households with children are shown. The table does not sum as households with children can suffer from combinations of more than two different deprivations (e.g. 3 deprivations, 4 deprivations, see Table 5.3).

It is very clear, even from this preliminary examination of combinations of severe deprivations, that, in order to eradicate absolute child poverty in the developing world, different policies will be required in different regions and countries. A global, 'one size fits all' anti-poverty policy is unlikely to work effectively or efficiently. If the commitment of the governments of the world to halve absolute poverty amongst children by 2015 is to be achieved, then priorities will need to be set that are region and country specific and based upon the best available scientific evidence. In particular, the problems of severe shelter and sanitation deprivation will need to be tackled.

Chapter 6

Conclusions and Policy Implications

Introduction

This research has produced the first scientific estimates of absolute child poverty in the developing world. Over a third of children (37%) live in absolute poverty and over half (56%) suffer from severe deprivation of basic human need. This means that, in the developing world, over 1 billion children are severely deprived and 675 million are absolutely poor. This is shocking given that severe deprivations of basic human need are those circumstances that are highly likely to have serious adverse consequences for the health, well-being and development of children. Severe deprivations harm children in both the short term and the long term. Many of the absolutely poor children surveyed in this research will have died or had their health profoundly damaged by the time this report is published, as a direct consequence of their appalling living conditions.

Absolute poverty has been measured within the internationally agreed framework of children's rights, using a definition of absolute poverty that has been agreed to by 117 Governments as: *"a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services."* The definitions used in this study to identify severe deprivation of children's basic human needs represent much worse living conditions than are usually reported by UN agencies. They measure absolute poverty in such severe terms that any reasonable person would consider that these living conditions were unacceptable and damaging. No government or parent wants children to have to live like this. Therefore, this final chapter looks at what lessons can be learnt from this research and what could be done to help eradicate absolute child poverty during the 21st Century.

The causes of absolute poverty

This research has shown that the severe deprivations which affect the greatest number of children are shelter, sanitation, information and water deprivation. Fewer children suffer from severe deprivation of food, health and education. This, in part, demonstrates the success of international agencies and donors that have focused on improving children's access to health and education services and preventing malnutrition. However, lessons can be drawn from the experiences of industrialised countries in combating poverty and improving children's health. During the 19th and first half of the 20th Centuries, the major improvements in standard of living and life expectancy of children in industrialised countries was as a result of significant public investment in housing, sewerage and water systems. Safe water, housing and sanitation facilities are a prerequisite for good health and education. If children are made chronically sick as a result of unsafe water supplies or inadequate sanitation or overcrowded housing conditions, then they cannot go to school even if free high quality education is available. Similarly, good health facilities can help alleviate the symptoms of chronic sickness but they cannot tackle the causes. Food aid will not be effective at reducing malnutrition if children suffer from chronic diarrhoea as a result of a lack of sanitation facilities and/or unsafe water.

This evidence points to the conclusion that UNICEF and other international agencies, governments and donors may need to give a higher priority to tackling the problems of severe shelter, sanitation and water deprivation than is presently the case.

There has been some recent debate within the international community about the need to tackle the problems of housing, water and sanitation deprivation. However, much of this debate has focused on facilitating the private sector to provide additional investment and infrastructure in urban areas. This research shows that far more children in rural areas suffer from severe deprivation than their urban peers²⁷. Since the prime motivation of the private sector is the need to optimise profits, it is extremely unlikely that it will be able to provide water and sewerage infrastructure in all poor rural areas as this would not be profitable. The only way to provide all absolutely poor rural children with adequate housing, sanitation and water facilities is by public investment to pay for these infrastructure facilities. International agencies could be more active in campaigning for greater shelter, sanitation and water infrastructure investment in rural areas of the developing world. Improvements to this rural infrastructure would be the most effective method of reducing absolute child poverty.

Sanitation

Children are particularly affected by poor sanitation, since it is directly linked to the most serious of childhood illnesses – diarrhoea and malnutrition. Sanitation facilities provided for communities may often be unsuitable for children. If facilities are constructed for adults, they may be too large for young children and present obvious dangers (such as falling in); facilities lacking adequate lighting may intimidate young children wanting to use them at night; children wanting to use public facilities may be made to wait while adults use them first, etc. The needs of adolescent girls and young women for sanitation and privacy also need to be a priority.

Sanitation facilities require effective drainage systems, which carry sewage away from communities. Children use fields and open spaces to play, areas that are commonly used for defecation in the absence of public or private facilities. UNICEF is already committed to improving children's access to sanitation and should support organisations which try to establish and maintain public sanitation facilities. Such organisations have started to provide child-friendly facilities, which children can use in safety, without fear or intimidation.²⁸ The provision of sanitation facilities in schools is also important and should be supported.

There has been some reluctance in the past to highlight the need to improve sanitation facilities as many people do not like to talk about human excreta disposal and donors have gained greater positive publicity for helping improve children's health and education facilities than for funding latrines. UNICEF could play a lead role in both raising funds and highlighting the crucial importance of eradicating severe sanitation deprivation as a method of helping eradicate absolute child poverty. Toilet facilities are a priority for children.

²⁷ Approximately 530 million rural children suffer from severe shelter deprivation compared with 85 million urban children; 515 million rural children suffer from severe sanitation deprivation compared with 50 million urban children; 335 million rural children suffer from severe water deprivation compared with 40 million urban children – see Chapter 4 for details.

²⁸ One NGO running such schemes is Gramalaya. Based in Tamil Nadu in India, the scheme came about after consultation with the local community. Facilities are constructed adjacent to community toilets. Water with soap is provided for hand washing after defecation. A caretaker from the community toilet teaches hand washing and its importance to the children and observes children's hygiene behaviours. Facilities are provided free to children. (<http://gramalaya.org/childtoilets.html>)

Water

Severe water deprivation is an issue of both quality and quantity. Improving water quality is clearly important for the health of children. Children should not have to use unsafe (or unimproved) sources of water, such as lakes, ponds or streams, as these may become contaminated and dangerous. Communities need to have access to safe water (piped water, stand-pumps, covered wells etc.), through services that they can afford, run and maintain themselves. Such facilities will need to be located and provided near to where people live, to cut journey times for collection. Distance to the water source is of special significance to children since they are often help collect and carry the water. Carrying water over a long distance can result in injuries, especially to necks and backs, and the time spent collecting water can impact on school attendance.

The distance children need to go in order to get to their water supply is arguably of greater importance than water quality (Esrey, 1996). Water quantity is directly linked to distance to water supply, with less water used the further away the water source. The measure of severe water deprivation used in the report takes into account the issue of distance to water source, something the Joint Monitoring Programme (JMP) of UNICEF and WHO does not currently measure (i.e. it focused on water quality issues only). It is important that UNICEF and other international organisations, governments and donors take steps to help increase both the quality and quantity of water available to poor children if absolute poverty is to be eradicated.

Shelter

Overcrowded dwellings facilitate the transmission of disease (e.g. respiratory infections, Measles). It can also result in increased stress and mental health problems for both adults and children and lead to accidents and injuries. Poor quality shelter, constructed from inferior materials, does not protect against the elements. Successive UN conferences and conventions have sought to address the issue of poor housing and shelter deprivation in both developed and developing countries but progress on meeting children's basic shelter needs is slow. Considerable international attention has focused on improving the housing conditions in urban slums, shanty towns and favelas. However, this research has shown that severe shelter deprivation blights the lives of 42% of rural children in developing countries compared with 15% of children in urban areas. Improving the housing conditions of families with children in rural areas needs to be given a higher priority.

Food

This research used severe anthropometric failure, i.e. children more than minus 3 standard deviations below the international reference population median, as a measure of severe food deprivation. However, data on children's height and weights are only usually collected for children up to 5 years old. There is good scientific evidence that older children (particularly during puberty) may also be at risk of suffering from malnutrition. Anthropometric data need to be collected on older children, so that more accurate estimates of child malnutrition in the developing world can be made.

A technical innovation of this research has been the development and use of a composite index of anthropometric failure (CIAF), based on the work of Peter Svedberg (2000). It provides a more comprehensive indicator of malnutrition than existing measures, and thus may be more appropriate for use in target setting and resource allocation. UNICEF may want to consider development of this indicator and its potential use to monitor the international commitments to reduce child malnutrition by half by 2015.

Child and family benefit

Another lesson that can be drawn from the experiences of industrialised countries in reducing child poverty is that, after public infrastructure investment, the most effective anti-poverty policy for children is the establishment of a child or family social security benefit.

It has been argued elsewhere (Townsend and Gordon, 2002) that an international children's investment fund should be established under the auspices of the UN. Half its annual resources should be devoted to countries with extensive child poverty, where schemes of child benefit in cash or kind exist or are introduced. All countries with large numbers of children who are below an internationally recognised poverty line and also with comparatively low GDP should be entitled to participate. Such participation would require dependable information that the benefits are reaching children for whom they are intended. The remaining annual resources of the fund would be made available to countries for investment in housing, sanitation and water infrastructure, education, health and other schemes of direct benefit to children.

Programmes to gradually increase public expenditure so that categories of the extreme poor start to benefit offer a realistic, affordable and successful method for poverty alleviation. For example, in Brazil, the Zero Hunger Programme intends to provide quantity, quality and regularity of food to all Brazilians in conjunction with accelerated Social Security reform. The first includes food banks, popular restaurants, food cards, distribution of emergency food baskets, strengthening of family agriculture and a variety of other measures to fight malnutrition. The Social Security reform programme includes social assistance for low-income 15-17 year-olds, assistance for 7-14 year-olds who are enabled to go to school and avoid the exacting toll of the worst conditions of child labour, minimum income and food scholarships for pregnant and nursing mothers with incomes less than half the minimum wage or who are HIV positive, benefits for elderly disabled with special needs and a range of other transfer programmes for the elderly, widowed, sick and industrially injured and unemployed that are being enlarged year by year (Suplicy, 2003).

The social security systems of developing countries present a diverse picture. Partial systems were introduced by colonial authorities in most of Asia, Africa and the Caribbean. They were extended in the first instance to civil servants and employees of large enterprises. There were benefits for relatively small groups that included health care, maternity leave, disability allowances and pensions (Midgeley, 1984; Ahmad *et al*, 1991). In India, there are differences among major states as well as a range of schemes for smallish categories of population (Ghai, 2001; Prabhu, 2001). In Latin America, some countries introduced schemes before the 1939-45 war and others followed suit after that war. Benefits tended to be limited in range and coverage. There were different systems for particular occupations and categories of workers and a multiplicity of institutions. Between 20% and 60% of the workforce were covered, compared with between 5 and 10% for most of Sub-Saharan Africa and 10 to 30% for most of Asia. *"The greatest challenge facing the developing countries is to extend the benefits of social security to the excluded majority to enable them to cope with indigence and social contingencies."*(Huber, 1996)

These recommendations are the key to a far better future for hundreds of millions of children. But how might social security systems now evolve to provide universal beneficial effects of more substantial redistribution? Human rights now play a central part in discussions of international social policy. This applies to civil and political rights, less so to social and economic rights. Articles 22 and 25 in the Declaration of Human Rights - dealing with the rights to an 'adequate' standard of living and social security - have been often been overlooked in General Assembly and other reports from the UN. The fundamental right to social security is also spelt out in Article 26 of the CRC and

the related rights to an adequate standard of living in Article 27 (see Chapters 1 and 2 and Appendix I).

UNICEF and other international organisations (such as the ILO) should campaign for a legal right to child benefit under Articles 25 and 27 of the Convention on the Rights of the Child.

The needs of children in the 21st Century

The needs of children in the 21st Century are different from those of children in 19th and 20th Centuries and new policies will be required to meet these needs.. For example, in the 21st Century, severe information deprivation is an important constraint on the development of both individual children and societies as a whole – many consider that ‘knowledge is power’. This study provides the first estimates of the extent of severe information deprivation amongst children. A quarter of children in the developing world are severely information deprived with approximately 390 million living in rural areas and 60 million living in urban areas.

Reducing information deprivation will require action at a number of different levels, including getting children into school and increasing literacy rates for both children and adults. Without this, the provision of newspapers and other media would have little effect.

The most cost-effective intervention is through improvements to radio access. Radio is one of the main channels of information in developing countries. They are a cheap, effective means through which communities can be informed about the importance of education and health initiatives (e.g. immunisation for young children, the benefits of hand-washing, effective and cheap ways to treat diarrhoea, availability of food supplements for malnourished children, etc.). All countries have the means to make radio broadcasts. Governments could improve public information services and regularly broadcast programmes that inform communities about simple but effective changes they can make to their lives – e.g. making simple water filters using locally available materials, constructing basic sanitation facilities at low cost, etc. The development of cheap clockwork radios has meant the technology can be made available to all, at an affordable price.

There are many examples of community radio networks which have an important role in the provision of public information (e.g. the Developing Countries Farm Radio Network²⁹, the World Community Radio Movement³⁰, Community Radios Worldwide³¹). Community organisations have campaigned for the installation of small, local transmitters which can provide information to local communities. They have also argued for the granting of broadcast licences to women’s groups, local colleges and universities, cooperatives, etc. However, commercialisation of the airwaves and the imposition of license fees have begun to affect community radio stations, as they are pushed aside by commercial broadcasters.

²⁹ Developing Countries Farm Radio Network is a Canadian-based, not-for-profit organisation working in partnership with approximately 500 radio broadcasters in over 70 countries to fight poverty and food insecurity. It supports broadcasters in meeting the needs of local small-scale farmers and their families in rural communities and helps broadcasters build the skills to develop content that responds to local needs. (<http://www.farmradio.org/>)

³⁰ AMARC is an international NGO serving the community radio movement, with almost 3 000 members and associates in 106 countries. Its goal is to support and contribute to the development of community and participatory radio along the principals of solidarity and international cooperation (<http://www.amarc.org/amarc/ang/>).

³¹ www.radiorobinhood.fi/communityradios/articles

Governments might consider allocating resources to the development of community media funds which would provide information over the airwaves on important issues such as health and education. UN Organisations like the FAO and UNESCO have been committed to community media and radio networks for a number of years and support initiatives providing information to rural areas (Hughes, 2001; Ilboudo (2001). As one UNESCO report stated:

Community radio is low-cost, easy to operate reaches all segments of the community through local languages and can offer information, education, entertainment, as well as a platform for debate and cultural expression. As a grass-roots channel of communication, it maximises the potential for development to be drawn from sharing the information, knowledge and skills already existing within the community. It can therefore act as a catalyst for community and individual empowerment (Hughes, 2001).

UNICEF could help inform both governments and the public on the importance of information access for children and thereby raise the profile of this issue.

The poverty of girls

This study found that gender differences at the global level were greatest for severe education deprivation, with girls 60% more likely to be deprived. Significant regional and country disparities were revealed in the study, with girls in the Middle East and North Africa region three times more likely to be severely education deprived.

The reasons why children (and particularly girls) do not go to school vary and policies need to be targeted at the causes of non-attendance if they are to be effective. For example, children may not attend school because there is no school close enough or because it is too expensive or because the quality of the education is not good enough or because there is discrimination against girls.

Abolishing primary school fees may encourage and enable poor parents to send their children - and particularly their daughters - to school. In some countries, there needs to be a concurrent effort made to change social attitudes about the value of education for girls. This applies to all levels of society including parents, politicians, and schoolteachers. There are other practical interventions that can be pursued including the provision of incentives such as bursaries, free school meals and books, improved sanitation facilities and security. As part of the global *Education For All* campaign, UNESCO recently recommended a number of activities that governments should undertake to meet the goals of eliminating gender disparities in education by 2005 and achieving gender equality by 2015. These are summarised below:

- Prove that they are serious about educating girls by implementing free and compulsory education;
- Set concrete targets and fund them adequately;
- Educate mothers - the most crucial measure for the sustained education of girls;
- Support gender-responsive schools and allow pregnant girls and teenage mothers to continue their education;
- Promote research into the root causes of gender discrimination in education and base policies on the research findings;
- Make educational content relevant to local cultural and economic contexts so that parents see that educating girls improves their quality of life;

- Build bridges between the formal and non-formal education systems so that girls can return to school after early marriages and pregnancy;
- Educate women as well as girls. Women are empowered through education and literate mothers are more likely to send their daughters to school;
- Give families incentives to send girls to school, such as school meals;
- School feeding programs create a demand for education and enhance learning;
- Provide gender-sensitive curricula and textbooks;
- Train more female teachers and make teacher training gender responsive;
- Eliminate child labour. According to a recent ILO report, 352 million children between the ages of 5 and 17 are engaged in economic activities of which 168 million are girls.
- Include HIV/AIDS prevention in the curriculum;
- Education is a powerful ‘social vaccine’ against the pandemic. Learning methods should address the fact that girls are heading households, caring for siblings and being forced to generate income;
- Build schools closer to girls’ homes to increase access, particularly for rural children;
- Make schools safe for girls and equip them with separate toilets.

Regional and country-specific anti-poverty policies

This research has found that the major causes of absolute child poverty vary both between and within regions of the developing world. For the world as a whole, shelter combined with sanitation deprivation affects the greatest number of children. Whereas shelter combined with water deprivation is the biggest problem in Sub-Saharan Africa, in South Asia, almost 36% of households with children suffer from shelter and information deprivation. By contrast, in the Middle East & North African region, shelter combined with education deprivation affects the greatest number of poor children. It is clear that, in order to eradicate absolute poverty amongst children, policies will need to be targeted at the various problems they face. A single set of anti-poverty policies for the planet is not the most effective or efficient way to eradicate child poverty. Aid donors and international agencies need to be aware - and make the public aware - of the need for tailored anti-poverty strategies which deal with the ‘real’ problems faced by children in different countries. Investment in eradicating severe educational deprivation may be a very effective means of reducing absolute child poverty in some countries in North Africa and the Middle East but it would be much less effective in Latin America or South Asia where ending other severe child deprivations should be prioritised.

Further research

A more sophisticated analysis of the needs of poor children would be useful to UNICEF and other international agencies, governments and aid donors. This research could be extended in future in a number of ways, including:

Country level and sub-region analysis

This research used data from the 46 countries where most of the world’s children live and this was aggregated up to regional level. An analysis of the extent and nature of absolute poverty at country level or sub-country level for the larger states like India or China would help identify priorities for anti-poverty policies. The number of countries could also be increased.

A study of trends in child poverty

High quality survey data are available from the late 1980s and many countries have data available from two or more points in time. An analysis of changes in the extent and nature of absolute poverty of children would help identify both the successes and failures of anti-poverty policies.

Severe deprivation and mortality

Mortality data are available for each child born to women interviewed in the surveys. There is considerable scientific evidence that absolute poverty can result in ill health and the death of children. Some severe deprivations or combinations of deprivations may be more likely to kill than others, e.g. water and food deprivation may have fatal consequences whereas education and information deprivation may not. A study could include an analysis of gender disparities and urban/rural differences.

The relationship between absolute poverty, income and standard of living

This research could be extended and validated by comparing the results from the Demographic and Health Surveys (DHS) with those available from the World Bank's LSMS Surveys and UNICEF's MICS Surveys. This would allow the relationship between absolute child poverty and consumption to be established in a number of countries (i.e. how much household income or expenditure is required for children to avoid absolute poverty). Similarly, the relationship between absolute child poverty and a household's standard of living (as measured by an asset index) could be identified. Other causal factors related to child poverty could also be examined on a global scale, such as family structure, employment, land ownership, etc.

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Appendix I

Human Rights Provisions Relating to Poverty

Food	<p>"Everyone has the right to a standard of living adequate for ... the health and well-being of himself and his family, including food, clothing, housing, medical care and necessary social services, and the right to security...." Universal Declaration of Human Rights, Article 25 (1)</p> <p>"The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions." International Covenant on Economic, Social and Cultural Rights, Article 11 (1)</p> <p>"The States Parties to the present Covenant, recognizing the fundamental right of everyone to be free from hunger, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed: (a) To improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources; (b) Taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need." International Covenant on Economic, Social and Cultural Rights, Article 11 (2)</p> <p>"States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures: ...(c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution..." Convention on the Rights of the Child, Article 24</p> <p>"States Parties, in accordance with national conditions and within their means, shall take appropriate measures to assist parents and others responsible for the child to implement this right [to a standard of living] and shall in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing. " Convention on the Rights of the Child, Article 27 (3)</p>
Water	<p>"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services..." Universal Declaration of Human Rights, Article 25</p> <p>"The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions." International Covenant on Economic, Social and Cultural Rights, Article 11 (1)</p>

	<p>“The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for :... (b) the improvement of all aspects of environmental and industrial hygiene...” International Covenant on Economic, Social and Cultural Rights, Article 12 (2)</p> <p>“States Parties shall take all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development and, in particular, shall ensure to such women the right: ...(h) To enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications.” Convention of the Elimination of All Forms of Discrimination Against Women, Article 14 (2)</p> <p>“States Parties shall... take appropriate measures: ...(c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution...” Convention on the Rights of the Child, Article 24 (2)</p>
Sanitation	<p>“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services...” Universal Declaration of Human Rights, Article 25</p> <p>“The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions.” International Covenant on Economic, Social and Cultural Rights, Article 11 (1)</p> <p>“The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for :... (b) the improvement of all aspects of environmental and industrial hygiene...” International Covenant on Economic, Social and Cultural Rights, Article 12 (2)</p> <p>“States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health.” Convention of the Rights of the Child, Article 24 (1)</p> <p>“States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures:... (e) To ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents” Convention of the Rights of the Child, Article 24 (2)</p>

	<p>“States Parties recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development.” Convention of the Rights of the Child, Article 27 (1)</p>
Information	<p>“Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive, and impart information and ideas through the media regardless of frontiers.” Universal Declaration of Human Rights Article 19</p> <p>“Everyone should have the right to hold opinions without interference. Everyone should have the right to freedom of expression; this right shall include freedom to seek, receive and impart information of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice.” International Covenant on Civil and Political Rights, Article 19</p> <p>“The child shall have the right to freedom of expression; this right shall include freedom to seek, receive, and impart information and ideas of all kinds, regardless of frontiers, either orally or in writing or in print, in the form of art, or through any other media of the child’s choice...” The Convention on the Rights of the Child, Article 13</p> <p>“States Parties recognise the important function performed by the mass media and shall ensure that the child has access to information and material from a diversity of national and international sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health.” The Convention on the Rights of the Child, Article 17</p>
Education	<p>“Everyone has the right to education. Education shall be free at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.” Universal Declaration of Human Rights, Article 26 (1)</p> <p>“The States Parties to the present Covenant recognise the right of everyone to education. They agree that education shall be directed to the full development of the human personality and the sense of dignity, and shall strengthen the respect for human rights and fundamental freedoms. They further agree that education shall enable all persons to participate effectively in a free society, promote understanding, tolerance and friendship among all nations and all racial, ethnic or religious groups, and further the activities of the United Nations for the maintenance of peace.” International Covenant on Economic, Social and Cultural Rights, Article 13 (1)</p> <p>The States Parties to the present Covenant recognise that, with a view to achieving the full realization of this right:</p> <ul style="list-style-type: none"> a) Primary education shall be compulsory and available free to all b) Secondary education in its different forms, including technical and vocational secondary education, shall be made generally available and accessible to all by every appropriate means, and in particular by the

	<p>progressive introduction of free education;</p> <p>c) Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education;</p> <p>d) Fundamental education shall be encouraged or intensified as far as possible for those persons who have not received or completed the whole period of their primary education;</p> <p>e) The development of a system of schools at all levels shall be actively pursued, an adequate fellowship system shall be established, and the material conditions of teaching staff shall be continuously improved.”</p> <p>International Covenant on Economic, Social and Cultural Rights, Article 13 (2)</p> <p>“States Parties recognise the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunities, they shall, in particular:</p> <p>a) Make primary education compulsory and available free to all;</p> <p>b) Encourage the development of different forms of secondary education, including general and vocational education, make them available and accessible to every child, and take the appropriate measures such as the introduction of free education and offering financial assistance in case of need;</p> <p>c) Make higher education accessible to all on the basis of capacity by every appropriate means;</p> <p>d) Make educational and vocational information and guidance available and accessible to all children;</p> <p>e) Take measures to encourage regular attendance at schools and the reduction of drop-out rates....”</p> <p>States Parties shall promote and encourage international co-operation in matters relating to education, in particular with a view to contributing to the elimination of ignorance and illiteracy throughout the world and facilitating access to scientific and technical knowledge and modern teaching methods. In this regard, particular account shall be taken of the needs of developing countries. Convention of the Rights of the Child, Article 28</p> <p>“States Parties agree that the education of the child shall be directed to:</p> <p>a) The development of the child’s personality, talents and mental and physical abilities to their fullest potential;</p> <p>b) The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Charter of the United Nations;</p> <p>c) The development of respect for the child’s parents , his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilisations different from his or her own;</p> <p>d) The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin;</p> <p>e) The development of respect for the natural environment....” Convention of the Rights of the Child, Article 29</p>
Health	<p>“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing</p>

	<p>and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.” Universal Declaration of Human Rights, Article 25 (1)</p> <p>The States Parties to the present Covenant recognize the right of everyone to the enjoyment of just and favourable conditions of work which ensure, in particular: ...(b) Safe and healthy working conditions.” International Covenant on Economic, Social and Cultural Rights, Article 7</p> <p>“The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions...” International Covenant on Economic, Social and Cultural Rights, Article 11 (1)</p> <p>“The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.” International Covenant on Economic, Social and Cultural Rights, Article 12 (1)</p> <p>“The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for:</p> <ul style="list-style-type: none"> (a) The provision for the reduction of the stillbirth-rate and of infant mortality and for the healthy development of the child; (b) The improvement of all aspects of environmental and industrial hygiene; (c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases; (d) The creation of conditions which would assure to all medical service and medical attention in the event of sickness” International Covenant on Economic, Social and Cultural Rights Article 12 (2) <p>“States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services” Convention of the Rights of the Child, Article 24 (1)</p> <p>“States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures:</p> <ul style="list-style-type: none"> (a) To diminish infant and child mortality; (b) To ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care; (c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution; (d) To ensure appropriate pre-natal and post-natal health care for mothers; (e) To ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health
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	<p>and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents;</p> <p>(f) To develop preventive health care, guidance for parents and family planning education and services. Convention of the Rights of the Child, Article 25 (2)</p>
Shelter	<p>“Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood....” Universal Declaration of Human Rights, Article 25 (1)</p> <p>“The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions”. International Covenant on Economic, Social and Cultural Rights, Article 11 (1)</p> <p>“States Parties in accordance with national conditions and within their means shall take appropriate measures to assist parents and others responsible for the child to implement this right [to an adequate standard of living] and shall in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing”. International Covenant on Economic, Social and Cultural Rights, Article 27(3)</p>

Appendix II

International Agreements on Poverty and Human Rights

Food	<p>"Every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop their physical and mental faculties."</p> <p>Universal Declaration on the Eradication of Hunger and Malnutrition, Art. 1</p> <p>"Considering intolerable that more than 800 million people throughout the developing world and millions in more affluent societies do not have enough food to meet their basic needs; that millions more experience prolonged hunger during part of the year or suffer birth defects, growth retardation, mental deficiency, lethargy, blindness or death because they do not have the diversity of food necessary to meet their total needs; ... convinced that world resources, human skills and technological potential do permit the achievement within one generation of sustainable food security if determined and concerted efforts are undertaken; we confirm our individual and common commitment to take considered action to ensure that all people have at all times secure access to the food they need for an active and healthy life with human dignity."</p> <p>1996 Rome Declaration of the World Food Summit</p> <p>"Sustainable development must be achieved at every level of society.... Governments ... should ...[promote] food security and ... food self-sufficiency within the context of sustainable agriculture.... All countries need to assess ... the impacts of [economic] policies on ... food security.... The major thrust of food security ... is to ... increase ... agricultural production in a sustainable way and to achieve a substantial improvement in people's entitlement to adequate food."</p> <p>Agenda 21, Chapter 3, para. 8 and Chapter 14, para. 6</p> <p>"Lack of food and the inequitable distribution of food for girls and women in the household ... have a negative effect on their health. Good health is essential to leading a productive and fulfilling life, and the right of all women to control aspects of their health ... is basic to their empowerment. Discrimination against girls, often resulting from son preference, in access to nutrition ... endangers their current and future well-being.... Actions to be taken: ... Give particular attention to the needs of girls.... Ensure that girls have continuing access to necessary health and nutrition information and services.... Promote and ensure household and national food security ... and implement programmes aimed at improving the nutritional status of all girls and women ..., including a reduction worldwide of ... malnutrition among children under ... five by one half of 1990 levels by ... 2000, giving special attention to the gender gap in nutrition, ... and a reduction in iron deficiency anaemia in girls and women by one third of the 1990 levels by the year 2000.... Ensure the availability of an universal access to safe drinking water...."</p> <p>Beijing Platform for Action, paras. 92, 93, and 106</p> <p>"Human health and quality of life are at the centre of the effort to develop sustainable human settlements. We therefore commit ourselves to ... the highest attainable standard of ... health....Sustainable human settlements</p>
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	<p>depend on the interactive development of policies and concrete actions to provide access to food and nutrition.... Governments ... should ... formulate and implement human settlements development policies that ensure ... food security ..., giving priority to the needs and rights of women and children, who often bear the greatest burden of poverty...."</p> <p>Habitat Agenda, paras. 36 and 116</p>
Water	<p>"All peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs"</p> <p>Mar del Plata conference, United Nations, 1977</p> <p>Countries were set the task of 'universal coverage' of safe water and sanitation by 1990.</p> <p>International Drinking Water Supply and Sanitation Decade, 1981-1990</p> <p>"Lack of food and inequitable distribution of food for girls and women in the household, inadequate access to safe water, sanitation facilities and fuel supplies, particularly in rural and poor urban areas, and deficient housing conditions, all overburden women and their families and have a negative effect on their health."</p> <p>Government's should "ensure that clean water is available and accessible to all by the year 2000 and that environmental protection and conservation plans are designed and implemented to restore polluted water systems and rebuild damaged watersheds." Fourth World Conference on women, Beijing, China, 1995, para 92</p> <p>"We commit ourselves to...providing adequate and integrated environmental infrastructure facilities in all settlements as soon as possible with a view to improving health by ensuring access for all people to sufficient, continuous and safe freshwater supplies, sanitation, drainage and waste disposal services, with a special emphasis on providing facilities to segments of the population living in poverty..." Chapter 3, Habitat Agenda, para 43</p> <p>"Governments...[should]... provide the poor with access to fresh water and sanitation"</p> <p>"[Health] is also dependent on a healthy environment, including the provision of a safe water supply and sanitation and the promotion of a safe food supply and proper nutrition. Particular attention should be directed towardscomprehensive and sustainable water policies to ensure safe drinking water and sanitation to preclude both microbial and chemical contamination...."</p> <p>"National Governments...should....develop and strengthen primary health care systems that are practical, community-based, scientifically sound, socially acceptable and appropriate to their needs and that meet basic health needs for clean water, safe food and sanitation..."(Chapter 6, Agenda 21</p> <p>Governments agreed to establish a "dialogue", under the auspices of the UN Commission on Sustainable Development (UNCSD) "aimed at</p>

	<p>building a consensus on the necessary actions... in order to consider initiating a strategic approach for the implementation of all aspects of the sustainable use of freshwater for social and economic purposes..." (1997 UN General Assembly Special Session in New York (Earth Summit II or Plus 5))</p> <p>"We are resolved through decisions on targets, timetables and partnerships to speedily increase access to basic requirements such as clean water, sanitation, adequate shelter, energy, health care, food security and the protection of bio-diversity ... [We aim to] halve, by the year 2015, the proportion of people without access to safe drinking water" The Johannesburg Declaration on Sustainable Development, 2002</p>
Sanitation	<p>Countries were set the task of 'universal coverage' of safe water and sanitation by 1990. International Drinking Water Supply and Sanitation Decade, 1981-1990</p> <p>Governments should "ensure the availability of and universal access to safe drinking water and sanitation and put in place effective public distribution systems as soon as possible" Fourth World Conference on women, Beijing, China, 1995, para 106</p> <p>"We commit ourselves to ...providing adequate and integrated environmental infrastructure facilities in all settlements as soon as possible with a view to improving health by ensuring access for all people to sufficient, continuous and safe freshwater supplies, sanitation, drainage and waste disposal services, with a special emphasis on providing facilities to segments of the population living in poverty" Chapter 3, Habitat Agenda, 1996, para 3</p> <p>"National Governments...should develop and strengthen primary health care systems that are practical, community-based, scientifically sound, socially acceptable and appropriate to their needs and that meet basic health needs for clean water, safe food and sanitation..." Chapter 6, Agenda 21</p> <p>"[We aim to] halve, by the year 2015, the proportion of people who do not have access to basic sanitation" The Johannesburg Declaration on Sustainable Development, 2002</p>
Information	<p>"Societies that make the necessary investments in information technology and infrastructure and enable and empower their citizens to make effective use of such technology can expect to foster significant productivity gains in industry, trade and commerce. This improved information technology should be appropriately and optimally utilized to preserve and share cultural and moral values and enhance and improve education, training and public awareness of the social, economic and environmental issues affecting the quality of life, and to enable all interested parties and communities to exchange information on habitat practices, including those that uphold the rights of children, women and disadvantaged groups in the context of growing urbanization.... [action will be taken to] develop, upgrade and maintain information infrastructure and technology and</p>

	<p>encourage their use by all levels of government, public institutions, civil society organizations and community-based organizations, and consider communications as an integral part of human settlements policy;... implement programmes that encourage the use, especially by children, youth and educational institutions, of public libraries and communication networks..." Habitat Agenda, 1996, Chapter 4</p>
Education	<p>"Education ... should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues.... Governments should take active steps to ... eliminate illiteracy ... and to expand the enrolment of women ... in educational institutions, to promote the goal of universal access to primary and secondary education...." Agenda 21, Chapter 36, para. 3; Chapter 3, para. 2; Chapter 24, para. 3</p> <p>"We commit ourselves to ... the goals of universal and equitable access to quality education ... making particular efforts to rectify inequalities relating to social conditions and without distinction as to race, national origin, gender, age or disability.... We will: Formulate and strengthen ... strategies for the eradication of illiteracy and universalization of ... early childhood education, primary education and education for the illiterate...; Emphasize lifelong learning by seeking to improve the quality of education to ensure that people of all ages are provided with useful knowledge, reasoning ability, skills, and the ethical and social values required to develop their full capacities in health and dignity and to participate fully in the social, economic and political process of development...." Copenhagen Declaration, Commitment 6</p> <p>"Education is a human right and an essential tool for achieving the goals of equality, development and peace.... Actions to be taken: ... Advance the goal of equal access to education by taking measures to eliminate discrimination in education at all levels on the basis of gender, race, language, religion, national origin, age or disability, or any other form of discrimination.... By the year 2000, provide universal access to basic education and ensure completion of primary education by at least 80 per cent of primary school-age children; close the gender gap in primary and secondary school education by the year 2005; provide universal primary education in all countries before the year 2015.... Reduce the female illiteracy rate to at least half its 1990 level.... [Ensure] that women have equal access to career development, training.... Improve ... quality of education and ... equal ... access ... to ensure that women of all ages can acquire the knowledge, capacities, ... skills ... needed to develop and to participate fully ... in the process of ... development...." Beijing Platform for Action, paras. 69, 80, 81, and 82</p> <p>"We ... commit ourselves to promoting and attaining the goals of universal and equal access to quality education,... making particular efforts to rectify inequalities relating to social and economic conditions ... without distinction as to race, national origin, gender, age, or disability, respecting and promoting our common and particular cultures. Quality education for all [is] fundamental to ensuring that people of all ages are able to develop their full capacities ... and to participate fully in the social, economic and political processes of human settlements.... We ... commit ourselves to ...</p>

	<p>Promoting... appropriate facilities for ... education, combating segregation and discriminatory and other exclusionary policies and practices, and recognizing and respecting the rights of all, especially of women, children, persons with disabilities, people living in poverty and those belonging to vulnerable and disadvantaged groups...." Habitat Agenda, paras. 2.36 and 3.43</p> <p>"... Education is a fundamental right for all people, women and men, of all ages, throughout the world.... Every person -- child, youth and adult -- shall be able to benefit from educational opportunities designed to meet their basic learning needs.... to be able to survive, to develop their full capacities, to live and work in dignity.... to improve the quality of their lives, to make informed decisions...." World Declaration on Education for All, Preamble and Article 1</p> <p>"Education is empowerment. It is the key to establishing and reinforcing democracy, to development which is both sustainable and humane and to peace founded upon mutual respect and social justice. Indeed, in a world in which creativity and knowledge play an ever greater role, the right to education is nothing less than the right to participate in the life of the modern world." Amman Affirmation, 1996</p> <p>Our collective commitments are to: "expand and improve comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children; ensure that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to and complete free and compulsory education of good quality; ensure that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes; achieve a 50% improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adult; eliminate gender disparities in primary and secondary education by 2005, and achieve gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality; improve all aspects of the quality of education and ensure excellence of all so that recognised and measurable learning outcomes are achieved by all, especially literacy, numeracy and essential life skills." Dakar Framework of Action Education for All, Senegal, 2000</p>
Health	<p>"Health and development are intimately interconnected. Both insufficient development leading to poverty and inappropriate development ... can result in severe environmental health problems.... The primary health needs of the world's population ... are integral to the achievement of the goals of sustainable development and primary environmental care.... Major goals ... By the year 2000 ... eliminate guinea worm disease...; eradicate polio;... By 1995 ... reduce measles deaths by 95 per cent...; ensure universal access to safe drinking water and ... sanitary measures of excreta disposal...; By the year 2000 [reduce] the number of deaths from childhood diarrhoea ... by 50 to 70 per cent..." Agenda 21, Chapter 6, paras. 1 and 12</p> <p>"Everyone has the right to the enjoyment of the highest attainable standard of physical and mental health. States should take all appropriate measures</p>

to ensure, on a basis of equality of men and women, universal access to health-care services, including those related to reproductive health care....The role of women as primary custodians of family health should be recognized and supported. Access to basic health care, expanded health education, the availability of simple cost-effective remedies ... should be provided...." **Cairo Programme of Action, Principle 8 and para. 8.6**

"We commit ourselves to promoting and attaining the goals of universal and equitable access to ... the highest attainable standard of physical and mental health, and the access of all to primary health care, making particular efforts to rectify inequalities relating to social conditions and without distinction as to race, national origin, gender, age or disability...." **Copenhagen Declaration, Commitment 6**

"The explicit recognition ... of the right of all women to control all aspects of their health, in particular their own fertility, is basic to their empowerment.... We are determined to ... ensure equal access to and equal treatment of women and men in ... health care and enhance women's sexual and reproductive health as well as Health."

Beijing Declaration, paras. 17 and 30

"Women have the right to the enjoyment of the highest attainable standard of physical and mental health. The enjoyment of this right is vital to their life and well-being and their ability to participate in all areas of public and private life.... Women's health involves their emotional, social and physical well-being and is determined by the social, political and economic context of their lives, as well as by biology.... To attain optimal health, ... equality, including the sharing of family responsibilities, development and peace are necessary conditions." **Beijing Platform for Action, para. 89**

"Strategic objective ... Increase women's access throughout the life cycles to appropriate, affordable and quality health care, information and related services.... Actions to be taken: ... Reaffirm the right to the enjoyment of the highest attainable standards of physical and mental health, protect and promote the attainment of this right for women and girls and incorporate it in national legislation...; Provide more accessible, available and affordable primary health care services of high quality, including sexual and reproductive health care...; Strengthen and reorient health services, particularly primary health care, in order to ensure universal access to health services...; reduce maternal mortality by at least 50 per cent of the 1990 levels by the year 2000 and a further one half by the year 2015;... make reproductive health care accessible ... to all ... no later than ... 2015...; take specific measures for closing the gender gaps in morbidity and mortality where girls are disadvantaged, while achieving ... by the year 2000, the reduction of mortality rates of infants and children under five ... by one third of the 1990 level...; by the year 2015 an infant mortality rate below 35 per 1,000 live births.... Ensure the availability of and universal access to safe drinking water and sanitation...." **Beijing Platform for Action, para. 106**

"Human health and quality of life are at the centre of the effort to develop sustainable human settlements. We ... commit ourselves to ... the goals of universal and equal access to ... the highest attainable standard of physical, mental and environmental health, and the equal access of all to primary health care, making particular efforts to rectify inequalities relating to

	<p>social and economic conditions ..., without distinction as to race, national origin, gender, age, or disability. Good health throughout the life-span of every man and woman, good health for every child ... are fundamental to ensuring that people of all ages are able to ... participate fully in the social, economic and political processes of human settlements Sustainable human settlements depend on ... policies ... to provide access to food and nutrition, safe drinking water, sanitation, and universal access to the widest range of primary health-care services...; to eradicate major diseases that take a heavy toll of human lives, particularly childhood diseases; to create safe places to work and live; and to protect the environment.... Measures to prevent ill health and disease are as important as the availability of appropriate medical treatment and care. It is therefore essential to take a holistic approach to health, whereby both prevention and care are placed within the context of environmental policy...." Habitat Agenda, paras. 36 and 128</p>
Shelter	<p>"The right to adequate housing, ... derived from the right to an adequate standard of living, is of central importance for the enjoyment of all economic, social and cultural rights.... The right to adequate housing applies to everyone.... [I]ndividuals, as well as families, are entitled to adequate housing regardless of age, economic status, group or other affiliation or status.... [T]his right must ... not be subject to any form of discrimination.... [T]he right to housing should not be interpreted in a narrow or restrictive sense.... Rather it should be seen as the right to live ... in security, peace and dignity...." Committee on Economic, Social and Cultural Rights, General Comment No. 4, paras. 1, 6 and 7</p> <p>"States should undertake ... all necessary measures for the realization of the right to development and shall ensure ... equality of opportunity for all in their access to basic resources, education, health services, food, housing, employment...." Declaration on the Right to Development, Article 8</p> <p>"Access to safe and healthy shelter is essential to a person's physical, psychological, social and economic well-being and should be a fundamental part of national and international action.... An integrated approach to the provision of environmentally sound infrastructure in human settlements, in particular for ... urban and rural poor, is an investment in sustainable development that can improve the quality of life, increase productivity, improve health and reduce the burden of investments in curative medicine and poverty alleviation.... As a first step towards the goal of providing adequate shelter for all, all countries should take immediate measures to provide shelter to their homeless poor.... All countries should adopt and/or strengthen national shelter strategies with targets....; facilitate access of urban and rural poor to shelter by adopting and utilizing housing and finance schemes and new innovative mechanisms adapted to their circumstances.... People should be protected by law against unfair eviction from their homes or land...." Agenda 21, Chapter 7, paras. 6 and 9</p> <p>"We reaffirm our commitment to the full and progressive realization of the right to adequate housing.... We shall seek ... to ensure legal security of tenure, protection from discrimination and equal access to affordable, adequate housing for all persons and their families.... As we move into the twenty-first century, we offer ... an exhortation to join ... [in] building together a world where everyone can live in a safe home with the promise</p>

	<p>of a decent life of dignity, good health, safety, happiness and hope." Istanbul Declaration, paras. 8 and 15</p> <p>"We recognize that access to safe and healthy shelter and basic services is essential to a person's physical, psychological, social and economic well-being and should be a fundamental part of our urgent actions for the more than one billion people without decent living conditions. Our objective is to achieve adequate shelter for all, especially the deprived urban and rural poor, through an enabling approach to the development and improvement of shelter that is environmentally sound.... We reaffirm... our commitment to ensuring the full realization of the human rights set out in international instruments and in particular ... the right to adequate housing.... Equitable human settlements are those in which all people, without discrimination of any kind ... have equal access to housing, infrastructure, health services, adequate food and water, education and open spaces.... Such human settlements provide equal opportunity for a productive and freely chosen livelihood; equal access to economic resources, including the right to inheritance, the ownership of land and other property, credit, natural resources and appropriate technologies; equal opportunity for personal, spiritual, religious, cultural and social development; equal opportunity for participation in public decision-making; equal rights and obligations with regard to the conservation and use of natural and cultural resources; and equal access to mechanisms to ensure that rights are not violated...."</p> <p>Habitat Agenda, paras. 3, 26, and 27</p> <p>"We reaffirm our commitment to the full and progressive realization of the right to adequate housing.... We recognize an obligation by Governments to enable people to obtain shelter and to protect and improve dwellings and neighbourhoods. We commit ourselves to the goal of improving living...conditions on an equitable and sustainable basis, so that everyone will have adequate shelter that is healthy, safe, secure, accessible and affordable and that includes basic services, facilities and amenities, and will enjoy freedom from discrimination in housing and legal security of tenure. We shall implement and promote this objective in a manner fully consistent with human rights standards.... We... commit ourselves to ... Providing legal security of tenure and equal access to land to all people...; Promoting access for all people to safe drinking water, sanitation and other basic services, facilities and amenities...; Eradicating and ensuring legal protection from discrimination in access to shelter and basic services, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status...."</p> <p>Habitat Agenda, paras. 39, 40, and 43</p>
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Appendix III

Constructing a Combined Index of Anthropometric Failure

The extent of food deprivation was measured using data on anthropometric failure (i.e. a failure to achieve expected heights and weights for age) from the DHS surveys. Using a theory by Swedish development economist Peter Svedberg (Svedberg, 2000), a Composite Index of Anthropometric Failure (CIAF) was constructed using height, weight and age data for young children. An advantage of the CIAF is that it avoids the problem of overlap that exists between current anthropometric indices (stunting, wasting and underweight), and thus gives a more comprehensive estimate of the number of children who are stunted and/or wasted and/or underweight. Diagram AIII.1 illustrates the first stage in the construction of the CIAF.

Diagram AIII.1 - Svedberg's Original Model of Anthropometric Failure

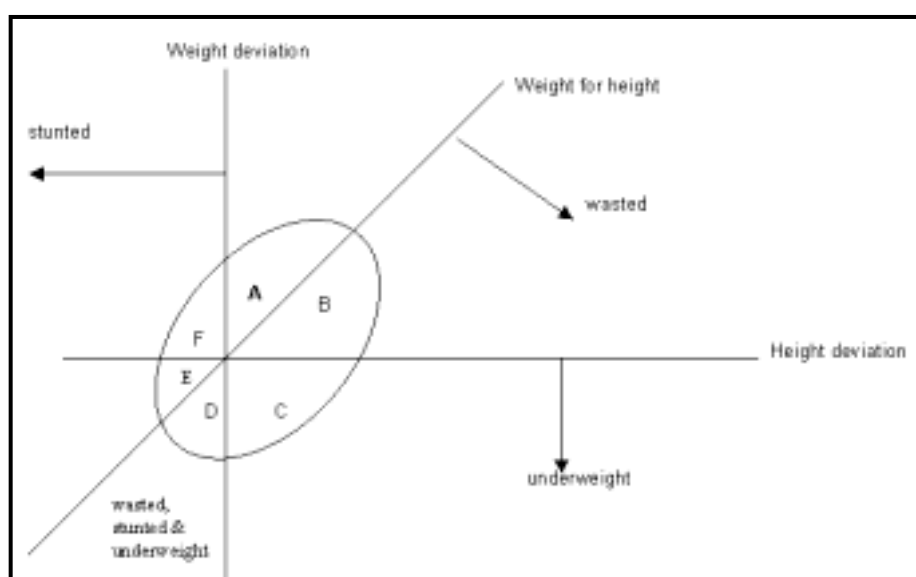


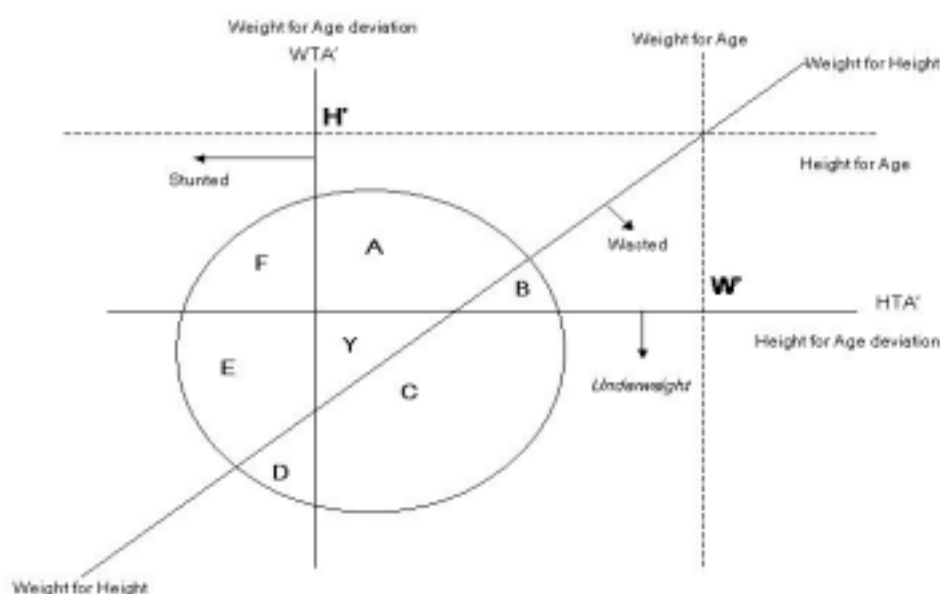
Diagram AIII.1 illustrates Svedberg's original model of anthropometric failure. Groups A to F represent the different combinations of anthropometric failure possible, which are summarised in Table AIII.1.

Table AIII.1 - Groups of anthropometric failure

Groups		Wasted	Stunted	Underweight
A	No failure	No	No	No
B	Wasted only	Yes	No	No
C	Wasted & Underweight	Yes	No	Yes
D	Wasted, Stunted & Underweight	Yes	Yes	Yes
E	Stunted & Underweight	No	Yes	Yes
F	Stunted only	No	Yes	No
Y	Underweight only	No	No	Yes

Children in group A have acceptable heights and weights and thus do not suffer from anthropometric failure - i.e. they are not stunted, wasted or underweight. Children in group B are wasted, although not stunted or underweight; those in group C are wasted and underweight but not stunted; those in group D are simultaneously wasted, stunted and underweight; those in group E are stunted and underweight, but not wasted and those in group F are only stunted. An additional group, Y, was revealed when the index was constructed, and these are children who are underweight only, but who are not stunted or wasted. This last group was missed by Svedberg's original model. The modified model is presented in Diagram AIII.2.

Diagram AIII.2 - Modification of Svedberg's Model



Svedberg argued that, if children who are stunted, wasted or underweight (i.e. groups B to F) are all considered to have anthropometric failure, then the only true estimate of overall anthropometric failure could be measured by the sum of areas B, C, D, E, F and Y. Thus, the CIAF includes all children in groups B to Y.

Showing distinct groups of anthropometric failure in this way can, in addition, show which groups (or what proportions of children) are missed by existing estimates based on the standard underweight and stunting measures. Tables AIII.2 and AIII.3 and Diagram AIII.3 provide an example.

Table AIII.2: Anthropometric failure at mild/moderate and severe levels in Indian children 0-2 years old (N=24,396)

	Number of children	% children
<i>Mild to moderate</i>		
Stunting	11,024	45.2
Wasting	3,904	15.9
Underweight	11,493	47.1
Combined anthropometric failure	14,590	59.8

<i>Severe</i>		
Stunting	5,557	22.8
Wasting	716	2.9
Underweight	4,366	17.9
Combined anthropometric failure	7,105	29.1

The data in Table AIII.2 show rates of wasting, stunting and underweight at mild/moderate (i.e. below -2 standard deviations) and severe (i.e. below -3 standard deviations) levels. Also presented are the results of the new measure of combined anthropometric failure. As can be seen in Table AIII.2, the three standard anthropometric indices show quite different levels of anthropometric failure. Each, however, is considerably lower than the combined anthropometric failure figure. This is true at both mild/moderate and severe levels. Groups of anthropometric failure produced during the construction of the CIAF are shown below, at both mild/moderate and severe levels.

Table AIII.3: Groups of anthropometric failure at mild/moderate and severe levels (N=24,396)

Mild to Moderate	Number of children	% of children
Group A - No failure	9,806	40.2
Group B - Wasted only	630	2.6
Group C - Wasted & Underweight	1,489	6.1
Group D - Wasted, Stunted & Underweight	1,756	7.2
Group E - Stunted & Underweight	6,801	27.9
Group F - Stunted only	2,467	10.1
Group Y - Underweight only	1,447	5.9
Total	24,396	100.0

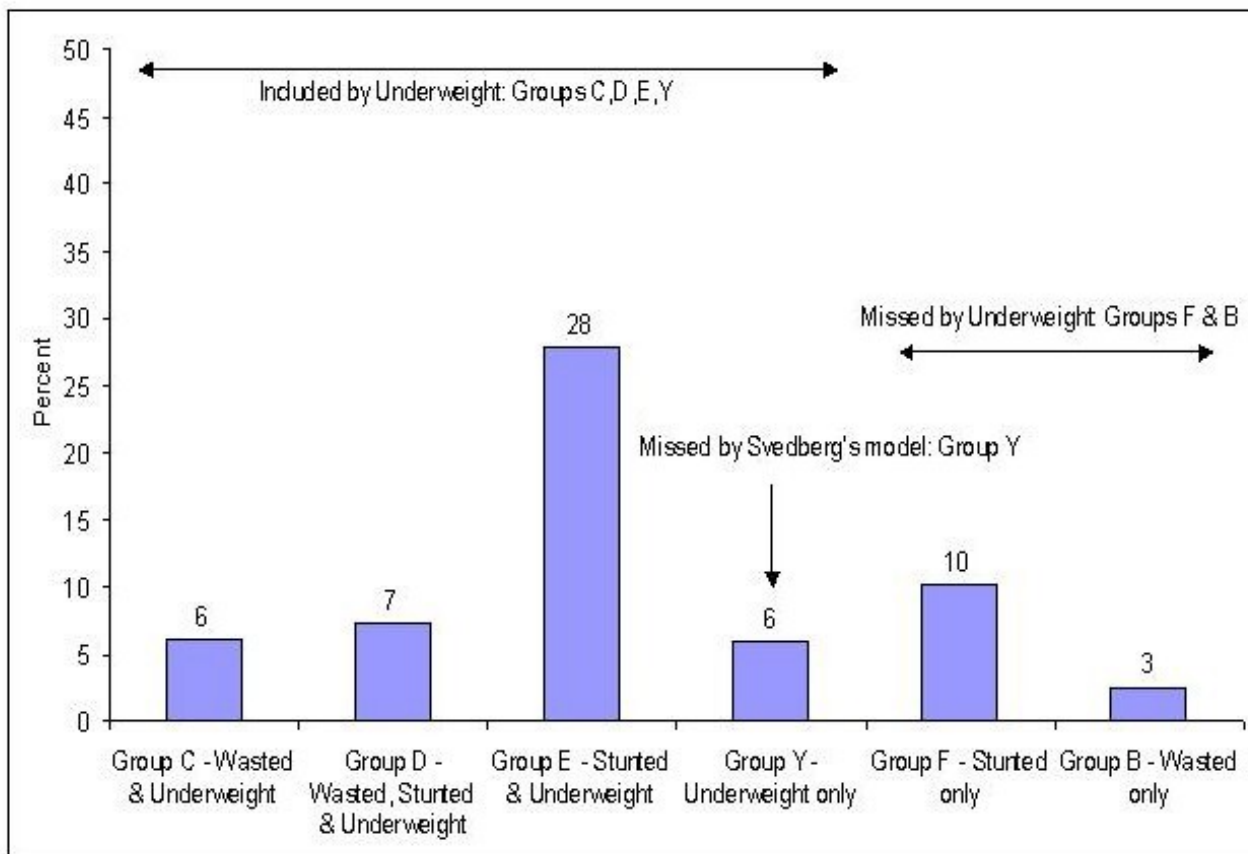
Severe	Number of children	% of children
Group A - No failure*	1,7291	70.9
Group B - Wasted only	256	1.0
Group C - Wasted & Underweight	324	1.3
Group D - Wasted, Stunted & Underweight	132	0.5
Group E - Stunted & Underweight	2,941	12.1
Group F - Stunted only	2,484	10.2
Group Y - Underweight only	968	4.0
Total	24,396	100

* Includes children with anthropometric failure at mild to moderate level.

Data from Table AIII.3 are illustrated in Diagram AIII.3 which shows which groups are missed by the commonly used anthropometric measures. The underweight (low weight for age) measure includes children in groups C, D, E and Y but misses those in groups B, and F. This means that, at the mild/moderate level, 12.7 % of children with anthropometric failure (i.e. those who are stunted only and wasted only) are missed. At the severe level, 11.2% of children suffering from anthropometric failure are missed. The stunting (low height for age) measure includes children in groups D, E and F but misses those in groups B, C and Y - i.e. 14.6% of children at the

mild/moderate level, and 6.3% at the severe level. The wasting measure (low weight for height) misses the greatest proportion of children - those in groups E, F and Y, a total of 43.9% at the mild/moderate level and 26.3% at the severe level.

Diagram AIII.3: Groups of anthropometric failure



Extrapolations of anthropometric failure data

In the DHS, anthropometric data were collected for children 0-2 or 0-4, depending on the country. Overall rates of severe anthropometric failure were calculated, and results broken down by age, gender and place of residence (i.e. urban/rural).

When data were broken down by age (in years), it was observed that between 0-1 years, anthropometric failure (at both moderate and severe levels) was significantly lower than in years 2-4, which affected the overall figure. This meant those states that collected data only on children 0-2 years appeared to have lower rates compared to states with data on children 0-4. To adjust for this effect, data were extrapolated for years 3-4 in those states that only collected data on 0-2 year olds, by repeating the prevalence rate at age 2 for years 3 and 4.

This was done because, in those states where data were collected for years 3 and 4, a levelling of the anthropometric failure rate was observed after age 2 and 3. Diagrams AIII.5 and AIII.6 below illustrate the pattern of anthropometric failure by age (in months) for two states, Pakistan and Ethiopia.

Diagram AIII.5: Pattern of anthropometric failure in Pakistan, children 0-59 months

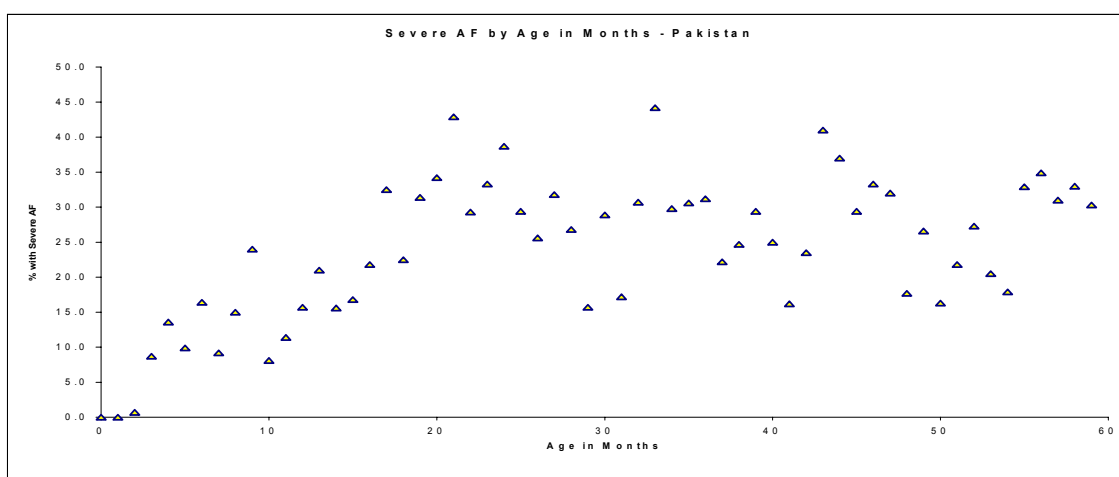
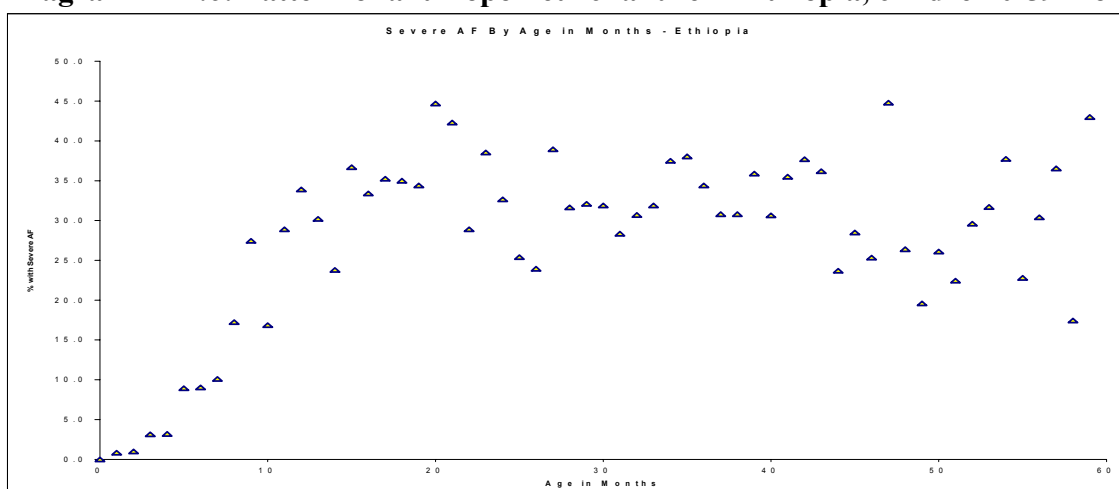


Diagram AIII.6: Pattern of anthropometric failure in Ethiopia, children 0-59 months



It is important to extrapolate beyond age 2 (in those countries where data are not collected), because gender differences only really begin to present themselves at this point. In most states, girls tend to have lower rates of anthropometric failure in years 0, 1 and 2 than boys. However, in years 3 and 4 the gap narrows and, in some states, (particularly in South Asia) girls start to have higher rates of anthropometric failure. The reasons for this have been widely discussed in the literature.

Table AIII.4 shows how extrapolations were made for countries in South Asia. Extrapolated data are italicised. The 'DHS total' figure is the original overall rate from the DHS data (i.e. based on children 0-2 or 0-4 years). The 'Adjusted total' is calculated from the AF prevalence rate for each year, extrapolating the data from year 2 to years 3 and 4 where necessary, and then taking an average.

Table AIII.4: Extrapolations of anthropometric failure data by age, South Asia (%)

State	Age in years					DHS total	Adjusted total
	0	1	2	3	4		
Bangladesh	12.6	37.7	35.4	33.4	32.9	30.2	
India	9.6	30.2	30.6	30.6	30.6	23.2	26.3
Nepal	7.3	30.6	33.0	33.0	33.0	23.6	27.4
Pakistan	9.3	24.8	28.3	29.1	26.1	22.9	

Had the DHS total been used for India and Nepal, the two states which only collected data on children 0-2 years, then countries like Nepal and Pakistan would have appeared to have had relatively higher rates of anthropometric failure, since their DHS totals include the higher rates observed in ages 3 and 4. It is for this reason that anthropometric failure rates were extrapolated for those states which did not collect data on children over two years old.

Extrapolating anthropometric failure rates for older children

Due to the lack of studies on anthropometric failure in older children, there are no reliable estimates of for children over the age of 5. Staff at the WHO Global Database on Child Growth and Malnutrition have confirmed that prevalence rates of stunting, wasting and underweight (i.e. anthropometric failure) are not the same across different age groups (i.e. from pre-school age to adolescence), and there are a number of studies which show this. A long-term study of the heights of first grade students (for ages 6 to 9) in Latin American and Caribbean countries, found that rates of stunting persist in older children, as Table AIII.5 shows. Thus, in households where children under 5 experience severe anthropometric failure, it is likely that older children will also be affected.

Table AIII.5: Stunting in 1st Grade schoolchildren in Latin America and the Caribbean

State	Year	Number of children	Stunting prevalence (%) by age in years				
			6	7	8	9	Total
Costa Rica	1997	85,786	4.6	6.4	13.5	23.2	7.5
Belize	1996	22,426	15.8	15.7	14.7	15.4	15.4
Mexico	1993	2,589,577	13.1	19.6	32.7	40.3	18.4
Dominican Republic	1995	188,091	12.1	18.6	24.0	30.9	19.0
Nicaragua	1986	100,265	16.5	23.3	28.9	37.2	23.9
Panama	1994	59,921	17.0	24.0	41.0	51.0	23.9
El Salvador	1988	120,457	20.5	25.9	32.7	37.8	29.8
Honduras	1997	234,111	17.0	28.0	43.0	51.0	40.6
Guatemala	1986	205,959	35.0	43.6	56.5	67.2	50.6

Source: ACC/SCN (2000).

Similar rates and patterns in older children (i.e. over age five) have been reported in other regions (Partnership for Child Development, 1998).

There are studies that look at the risk of undernutrition in older children. The International Centre for Research on Women (ICRW) studied the heights of adolescent girls, and concluded that the Height for Age measure (in children who were already stunted) did not improve during the eight years of adolescence (Kurz and Johnson-Welch, 1994). Another study (Sellen, 2000) looked at the anthropometric status of children aged 0-18 years in an African pastoral community and noted that

the risk of undernutrition was not uniformly distributed within the child population. It noted that *"comparison of cross-sectional mean anthropometric scores suggested that children over 5 years, girls 5-8 years, boys 9-12 years and teenagers were found to be at highest risk of undernutrition as assessed by various indicators"*.

While the WHO is collecting data for development of an international reference population, data will only be available for young children (i.e. under 5). To assess properly the extent of anthropometric failure in all children in the developing world, data need to be collected on older children, ideally up to 18 years of age. Until that is done, the only estimates that can be made are of children under 5.

The combined index of anthropometric failure used in the report allows for more comprehensive and accurate estimates, and shows that the extent of anthropometric failure among children under 5 in the developing world is considerably higher than is currently thought.

Appendix IV: Severe Deprivation and Absolute Poverty of Children: Country Data

State	Child (<18) Population (‘000s) in 2000	% Water Deprived	% Sanitation Deprived	% Shelter Deprived	% Information Deprived	% Education Deprived	% Food Deprived	% Health Deprived	% Severely Deprived	% in Absolute Poverty	% Urban Children in Absolute Poverty	% Rural Children in Absolute Poverty
Bolivia	3,830	14.8	37.1	43.9	13.1	1.3	9.2	9.5	58.9	32.9	11.7	64.9
Brazil	59,515	..	15.0	11.8	8.3	2.4	2.7	5.5	25.3	10.0	4.3	27.7
Colombia	16,302	9.1	11.0	11.9	4.0	2.0	3.0	5.8	24.4	10.5	2.0	28.5
Dominican Republic	3,359	23.0	11.1	17.1	8.1	4.2	2.9	3.4	40.7	15.2	4.3	30.2
Guatemala	5,764	12.3	15.9	58.7	14.4	11.4	19.3	8.0	63.8	33.7	16.6	44.1
Haiti	3,915	42.6	44.9	49.8	41.6	18.2	16.2	25.5	74.6	56.6	15.8	77.7
Nicaragua	2,533	12.0	16.9	62.6	15.6	11.0	8.8	3.2	67.2	30.8	11.9	54.4
Peru	10,198	22.9	25.6	56.1	7.9	0.9	7.4	5.7	62.0	35.4	11.9	66.2
Egypt	28,663	8.3	6.2	41.9	27.6	11.3	14.0	8.0	56.7	26.6	8.5	38.9
Morocco	12,302	37.1	43.5	40.7	14.4	34.6	9.0	10.3	64.0	47.0	7.2	72.3
Yemen	10,295	49.8	58.9	59.1	19.0	36.3	6.5	45.6	86.6	67.6	17.8	78.5
Cambodia	6,832	59.1	80.8	8.6	37.6	17.3	12.1	29.2	91.8	70.8	8.0	92.0
China	378,939	3.7	1.7	3.0	3.3	0.3	4.5	0.3	13.1	1.6	1.8	1.5
Indonesia	78,233	24.0	15.6	21.7	21.1	2.6	..	9.8	51.2	19.8	5.3	27.3
Philippines	33,835	18.7	15.6	23.9	11.9	2.7	..	11.2	46.7	19.8	7.5	30.2
Bangladesh	62,494	2.5	24.6	89.7	47.4	19.7	30.2	16.5	92.5	62.4	24.9	66.6
India	399,798	19.4	68.3	36.8	38.3	15.6	26.3	21.4	79.9	57.2	21.2	68.4
Nepal	10,921	37.0	85.1	93.9	41.6	28.7	27.4	32.6	98.3	90.3	52.5	93.2
Pakistan	68,231	19.5	51.0	46.7	45.3	38.4	22.9	33.5	83.0	61.0	25.0	77.1
Benin	3,360	29.2	74.5	49.7	65.7	47.7	13.0	19.1	92.6	74.7	48.0	89.4
Burkina Faso	6,457	46.6	78.2	75.8	48.9	67.6	16.4	18.8	93.4	84.0	18.6	93.0
Cameroon	7,453	53.1	10.3	57.9	29.7	16.4	12.3	20.0	77.4	54.3	17.3	70.6
Central African Republic	1,844	51.9	24.0	80.7	30.7	30.7	18.9	24.2	88.9	65.4	39.2	85.6
Chad	4,172	55.2	72.1	95.9	54.0	59.1	23.3	51.2	97.3	88.2	54.5	97.7
Comoros	355	51.8	0.3	55.3	42.8	35.4	14.1	13.6	87.5	56.5	33.0	64.8
Côte d'Ivoire	7,943	21.1	42.2	30.2	37.3	40.7	13.0	26.4	72.0	47.3	13.7	66.4
Ethiopia	32,456	74.9	83.9	95.1	56.5	61.1	28.5	32.3	97.8	94.0	58.6	99.2
Ghana	9,303	50.8	25.6	29.1	37.4	14.8	10.8	10.3	77.7	47.0	18.7	58.1
Guinea	4,145	44.4	43.5	57.0	48.1	55.7	8.9	25.9	87.9	71.1	31.5	86.7
Kenya	15,705	63.1	17.1	74.0	29.3	6.0	13.6	41.3	86.8	65.8	19.8	73.7
Madagascar	8,174	70.8	63.0	38.6	43.1	24.8	25.2	24.0	89.7	74.2	45.7	82.5
Malawi	6,002	52.8	24.9	85.1	42.6	30.1	22.6	9.9	91.6	74.6	28.9	80.9
Mali	5,980	18.8	26.7	79.3	31.3	67.9	26.2	33.1	87.2	63.5	26.8	77.3
Mauritania	1,353	37.5	51.6	77.1	44.2	19.7	17.8	22.3	90.1	70.5	47.4	85.9
Mozambique	9,231	56.7	59.7	74.7	45.6	28.0	17.9	29.1	89.7	76.3	37.8	87.5
Namibia	884	46.2	67.6	71.9	19.0	6.6	8.9	9.4	80.9	69.8	12.3	89.8
Niger	6,123	37.1	79.8	85.3	42.8	69.2	30.0	46.3	91.8	85.2	31.9	97.4
Nigeria	59,108	44.0	26.0	45.1	35.4	22.1	16.0	39.7	78.8	52.6	22.1	64.5
Rwanda	3,941	88.7	5.8	89.2	39.4	23.9	20.5	9.2	97.3	86.9	39.2	89.3
Senegal	4,804	23.1	33.3	45.8	22.4	63.1	39.4	9.0	55.9
South Africa	17,589	28.5	16.2	25.8	12.9	2.1	..	3.5	45.5	24.3	3.9	42.2

Tanzania	18,258	67.0	13.3	83.2	49.8	34.9	18.3	20.4	91.9	78.1	36.1	88.5
Togo	2,310	31.4	66.9	33.3	45.5	21.1	12.0	19.4	83.5	61.9	23.4	73.0
Uganda	13,062	87.2	16.8	87.7	38.6	17.0	16.6	22.0	96.7	85.4	39.7	91.1
Zambia	5,571	45.8	26.9	59.8	34.2	20.1	18.1	7.3	75.6	56.8	17.9	81.9
Zimbabwe	6,645	41.5	31.9	34.8	31.1	5.2	9.7	11.9	66.7	45.3	1.0	60.8

Note: Percentages for Health and Food Deprivation are for the population aged under 5 and for Education Deprivation it is for the population aged 7 to 18.

Exploration of methodological issues In the development of HRDC's Market Basket Measure

(Draft Version)

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Updated: 23/07/03

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1. Introduction

Canada, like most industrialised countries, does not have an official measure of poverty. One of the main reasons for this is the absence of consensus on the meaning of poverty. At one pole are those who see poverty as a subsistence standard of living with an income that is not sufficient to purchase the bare necessities. At the other pole are those who see poverty as being unable to fully participate in the life of the community, using levels closer to median or average income or spending. This is often referred to as a social inclusion definition.

There is also a lack of consensus on how to measure income poverty. The approach can be relative, usually based on a percentage of average or median income, adjusted to take household size into account. Or alternatively, an absolute measure can be used where a specific standard of living is represented by the cost of a basket of goods and services.

While there is no official measure of poverty in Canada, Statistics Canada has been producing Low Income Cutoffs (LICOs) since the late 1960s. LICOs are established using data from the Family Expenditure Survey, now known as the Survey of Household Spending. They convey the income level at which a family may be in straitened circumstances because it has to spend 20% more of its income on food shelter and clothing than the average family of similar size. There are separate cut-offs for seven sizes of family – from unattached individuals to families of seven or more persons – and for five community sizes – from rural areas to urban areas with a population of more than 500,000. A more detailed discussion on the LICO methodology can be found in Cotton (2001).

Although the LICOs have been employed by Statistics Canada for three decades to determine low income prevalences for various socio-economic groups, their use has not been without controversy. Critics have indicated that the LICO methodology is difficult to understand intuitively. The fact that the LICOs are a relative measure of low income, based on average expenditures for basic needs, is problematic for some. Others have argued that the LICOs do not provide an appropriate base for inter-provincial comparisons, because they are calculated at the national level and do not properly adjust for provincial variations in the spatial distribution of the population. LICOs assume that all large cities are alike, all rural areas are alike, and so on. The debate about the perceived shortcomings of the LICOs has been accompanied by suggestions that there is a need for an alternate low income measure which addresses these identified weaknesses of the current LICO methodology.

With this ongoing debate as a backdrop, a Federal/Provincial/Territorial Working Group on Social Development Research and Information has been created to define a measure to complement the LICOs in order to assess the effectiveness of the Child Tax Benefit program. The committee recommended an absolute measure of low income called the Market Basket Measure (MBM). In summary, the MBM attempts to measure a standard of living that is a compromise between subsistence and social inclusion that reflects differences in living costs across the country. Reports of the Working Group can be found in HRDC reference.

The MBM represents the cost of a basket that includes: a nutritious diet, clothing and footwear, shelter transportation, and other necessary goods and services (such as personal care items or household supplies).

The cost of the basket is compared to a family's disposable income to determine low income rates. Disposable income corresponds to the income, once taxes, mandatory payroll deductions, child support and alimony payments made to other households have been removed.

The MBM thresholds are produced for a reference family of two adults and two children for each size of area of residence in each province. An equivalence scale determines income thresholds for other family sizes.

In 2000, HRDC asked Prices Division of Statistics Canada to collect prices that would be required to calculate the MBM. Some questions to determine disposable income were also collected by the Survey of Labour and Income Dynamics. At the same time, Statistics Canada started to document the methodology behind the MBM and to identify various methodological issues.

The purpose of this document is to describe the detailed methodology and assumptions behind the construction of the MBM, to raise some issues and to highlight some data limitations.

There are many elements that must be considered in the calculation of the MBM. Section 2 discusses the calculation of each component of the basket. Section 3 describes the measure of disposable income. Section 4 lists the cities and areas for which thresholds could be produced in the future, and examines equivalence scale for various family types. Section 5 discusses the updating of the basket. Outstanding issues are mentioned in several sections, but Section 6 summarizes the issues that are particularly important.

The authors gratefully acknowledge the contribution of the Federal/Provincial/Territorial Working Group, and the feedback received through HRDC, especially Michael Hatfield, in the development of this document. The work in Statistics Canada is the joint contribution of various divisions, particularly Income Statistics Division and Prices Division. The authors would like to particularly acknowledge the contribution of the following members of the working group: Cynthia Baugmarten, George Beelen, Barbara Campbell, John Deagan, Claude Dionne, Peter Hower, Heather Lathe, Joanne Moreau and Marc Prudhomme. The authors would also like to thank the steering committee in providing useful comments and feedback for the project.

2. Methodology for the calculation of HRDC's MBM

The concept underlying the Market Basket Measure (MBM) low-income, as specified by the Federal/Provincial/Territorial Working Group on Social Development Research and Information, falls within the family of absolute measures. It attempts to identify a standard of living lying between the poles of subsistence and social inclusion. It goes beyond a *subsistence* standard of living, allowing for the acquisition of resources necessary for taking part in the life of the community. At the same time, it is intended to fall short of an income level that could purchase a high percentage of average or median levels of consumption and would enable *full social inclusion*, that is, a standard of living not visibly different from that of the middle of the Canadian income distribution.

The MBM approximates this *basic social inclusion* standard of living as:

- A nutritious diet as described by the 1998 version of Health Canada's Nutritious Food Basket
- The basket of clothing and footwear defined by the Social Planning Council of Winnipeg's 2000 Acceptable Living Level (A.L.L. 2000) clothing list
- The median rental unit in each community size in each province and territory
- Transportation, using public transportation when available in a region
- Other necessary goods and services.

Data sources are described along with each component of the basket. In some cases it has been possible to compare the cost of the component with expenditure data. These are conceptually different: the basket price represents the cost of a fixed selection of goods, and services while expenditure data represent the amount spent and therefore reflect the behaviours and choices or spending patterns of Canadians. The cost of the basket has been compared to expenditures of households in the second decile and for the median household as benchmarks.

The basket has been priced to reflect the cost of living for a family of two adults and two children. In theory, a basket could be defined for other family sizes and priced separately. However, it is proposed to apply an equivalence scale for simplicity.

The goal is to calculate the cost of a basket by province and the size of area of residence currently used for the LICOs. Both dimensions are desirable because they reflect differences in the cost of living in different parts of Canada and allow the comparison of urban and rural areas within a province.

The following sections detail each component of the basket, along with the proposed methodology to calculate their prices.

2.1 Food

The working group specified the National Nutritious Food Basket (Health Canada, 1998) for a family of four to represent a basket of food that would be appropriate for the MBM. In 2000, Prices Division started to collect prices in 40 cities to be able to provide the annual cost of purchasing that basket in those cities. A different basket was suggested for the Territories, which was considered more reflective of northern diets, with a selection of locally-obtained fish and game substituted for a number of items in the National Nutritious Food Basket. However, Statistics Canada's survey of food prices in northern communities does not currently cover the local food items specified for the MBM Northern Basket. As a result, the National Nutritious Food Basket will be used initially for the Territories as well, until such time as Statistics Canada surveys the prices of the northern food items that have been specified for the Northern Basket.

The items in the basket, with the purchase units and suggested weekly quantities are provided in Appendix 1. Prices are collected in the 40 cities listed in Appendix 2.

2.1.1 Calculation of food prices

Each month, prices are collected for the items in the Nutritious Food Basket in 40 cities. The suggested purchase unit price is converted into a weekly expenditure according to the quantities specified in the Nutritious Food Basket. An example for Milk products illustrates the process. The price quoted is an average of prices for the standard unit of quantity collected in Ottawa in January 2000.

Dairy Products (as defined in the Nutritious Food Basket)	Standard unit of quantity	Average price per standard unit	Approximate weekly quantity (per Nutritious Food Basket)	Price for weekly quantity (\$)
2% milk	4 litres	3.49	10.45 litres	9.12
Yoghurt, fruit, 2% b.f.	500 grams	2.49	230 grams	1.15
Cheddar Cheese, medium	227 grams	2.79	245 grams	3.01
Processed cheese slices	500 grams	3.79	275 grams	2.08
Mozzarella Cheese, 16.5% b.f.	227 grams	2.89	365 grams	4.65
Vanilla Ice cream, 10 % b.f.	2 litres	2.29	930 ml	1.06

For 2% milk, the standard unit of quantity is 4 litres. The average price of 4 litres of milk as surveyed by Prices Division was \$3.49. Since the weekly quantity is 10.45 litres, as defined by the Food Basket for the reference family of four, the price for the weekly quantity of 2% milk is \$9.12 (or 10.45 litres/4.0 litres * \$3.49 = \$9.12).

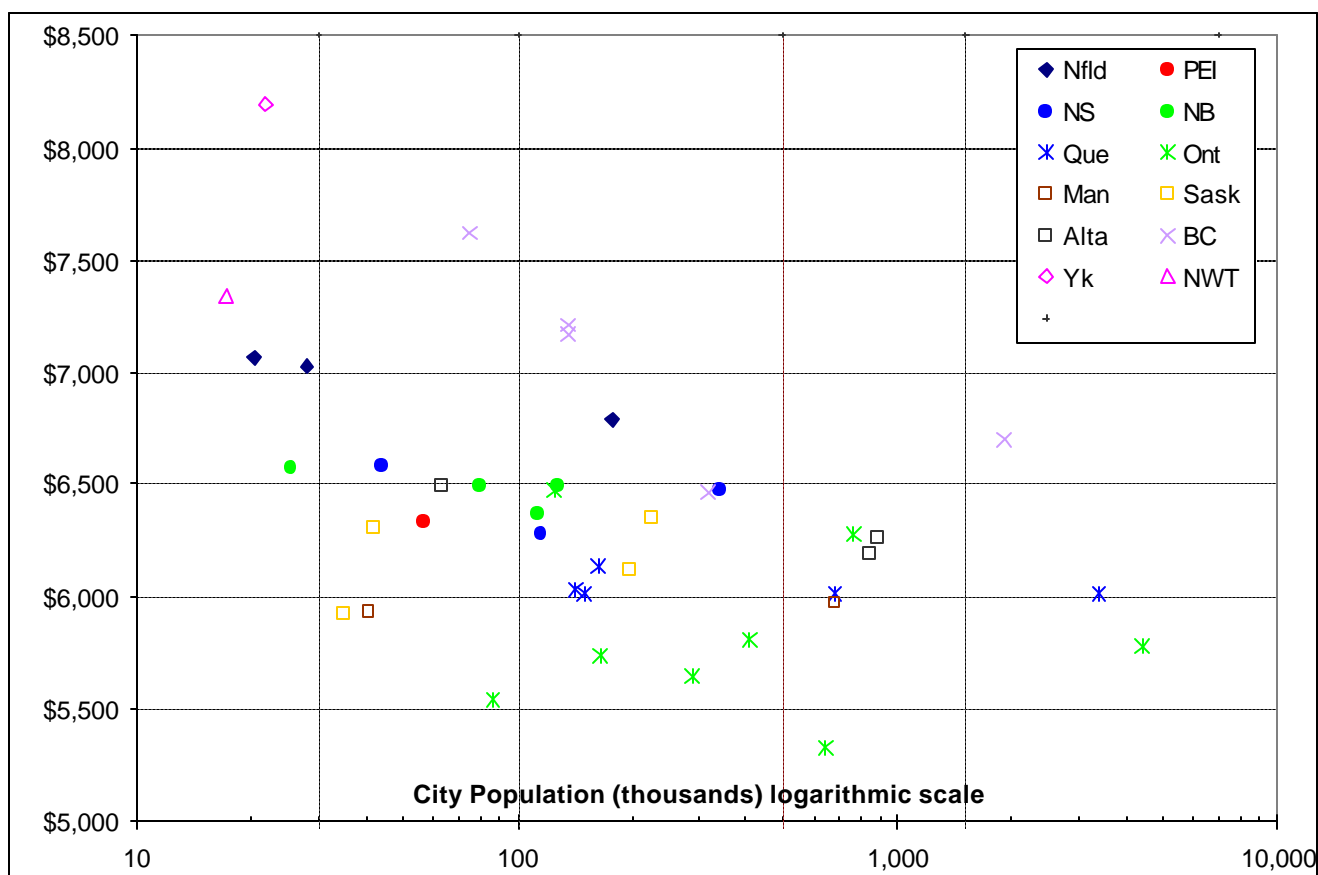
Suggested purchase units are given for some food items but not for others. For example, round steak has no suggested purchase unit identified, while the weekly as purchased quantity is given as 500 grams. In these cases, the price provided by Prices Division is converted directly from the units as priced. In the example of round steak, pricing would be provided "per 100 g.", which would be converted into the Food Basket price for 500 grams.

For each month and each city, an estimate of the cost of a *weekly basket* of food is calculated using this approach. Then the average of the 12 weekly estimates is multiplied by 52 to obtain the annual cost of the food basket for each city. The sampled cities represent 60% of the population of the 10 provinces, ranging from about 40% of the population in New Brunswick to 66% of the population in British Columbia. With the exception of Prince Edward Island, prices are collected in at least two cities per province.

Graph 1 shows the annual cost of the food basket for the various cities. The city sizes are taken from the 1996 Census population counts and are graphed on a logarithmic scale. There are two elements worth noting:

- 1) There is a fair variation in the cost of the food basket within and across provinces. For example, in British Columbia, the annual cost of the food basket varies from about \$6,500 to \$7,600.
- 2) It cannot always be assumed that food prices are cheaper in the CMAs and more expensive in smaller cities.

Graph 1: Food prices for 40 cities, based on 2000 Prices.



Cost of the basket versus provincial consumption patterns

The cost of the food basket obtained in 2000 has been compared to actual spending patterns as indicated by the SHS. Median expenditures from 1997, 1998 and 1999 have been averaged for the second decile and for the entire distribution of two-parent, two-children families, within each province. All amounts have been converted to 2000 prices using the provincial CPI for food purchased in stores.

SHS food expenditures cover spending in stores and in restaurants. However, the amounts paid by consumers in restaurants represent more than the input cost of food. These restaurant outlays by consumers should not be ignored in the analysis of the SHS food expenditure data, since a portion of these expenses would have to be replaced by additional grocery costs if restaurant meals were replaced by home-prepared meals. Therefore, an adjusted food expenditure was calculated, consisting of spending in grocery stores plus a percentage of spending in restaurants. A sensitivity analysis was done, using adjustment factors of 50% and 25%. Conclusions were the same in both cases, so only the analysis based on 50% of restaurant spending is used in the rest of this section. The cost of the Nutritious Food Basket and the spending on adjusted food are shown in Table 1.

The adjusted food expenditure = spending in stores + (50% x spending in restaurants)

Table 1- Estimates of cost of food basket and food expenditures, in 2000 constant dollars

Province	Cost of the Nutritious Food Basket (1)	2nd income de cile median spending on adjusted food SHS 97-99 (2)	% Diff. MBM to 2nd decile ((1)-(2))/(2)	All income deciles median spending on adjusted food SHS 97-99 (3)	Add %
Canada	6,103	5,672	7%	6,654	-8%
Newfoundland	6,849	4,797	43%	5,867	17%
Prince Edward Island	6,335	5,384	18%	6,125	3%
Nova Scotia	6,441	4,864	32%	5,994	7%
New Brunswick	6,461	5,286	22%	6,016	7%
Quebec	6,021	6,033	0%	7,194	-16%
Ontario	5,797	5,466	6%	6,681	-13%
Manitoba	5,970	5,303	13%	6,290	-5%
Saskatchewan	6,225	4,698	33%	5,849	6%
Alberta	6,232	5,453	14%	6,599	-6%
British Columbia	6,747	5,778	17%	6,554	3%

At the Canada level, the cost of the Nutritious Food Basket is higher than the SHS median adjusted food expenditure in the second decile, but lower than the overall median adjusted food expenditure. However, this pattern does not hold for all provinces. In the case of six provinces, the cost of the basket is higher than the median spending of all two-parent, two-children households. The basket is higher from 3% of median spending in PEI to BC to 17% in Newfoundland. One reason for this is that the basket represents a “theoretical” consumption of food and may be quite different from what is actually consumed. For example, in a given province, the relative amounts of fish and beef actually purchased could vary from those specified by the basket.

2.1.2 Issues

- Prices are not currently collected in rural areas, and there is a relatively low representation of communities of smaller sizes. A study is currently being carried out to determine if food prices in these areas are similar to prices in the larger centres. In the interim, the food component in these areas should be based on the estimate in the closest available size range in the same province.
- The items in the Northern Food Basket are not currently being priced. A MBM food component for the territories would have to use the Nutritious Food Basket as priced in Whitehorse and Yellowknife.

2.2 Clothing

Initially, the MBM Clothing component was to be derived by taking 75 % of the 1991 budget provided for clothing¹ from the Social Planning Council of Metropolitan Toronto (Federal/Provincial/ Territorial Working Group on Social Development Research and Information, 1998, p.9). However, HRDC has since recommended that the Acceptable Living Level (A.L.L.) 2000 clothing list, prepared by the Social Planning Council of Winnipeg, be used instead (Federal/Provincial/Territorial Working Group on Social Development Research and Information, December 1999, p.5). The items in the A.L.L. basket are provided in [Appendix 3](#). The use of the A.L.L. clothing basket creates difficulties, however, when attempting to determine a cost for the clothing component based on the pricing that is done for the CPI.

2.2.1 Calculation of an annual estimate for the clothing basket

The A.L.L. 2000 clothing basket is formulated to provide a complete wardrobe of essential clothing, with pro-rating for clothing items that normally last for more than one year. (For example, the purchase price of a winter coat is spread over four years.) The A.L.L. basket for two-adult, two-children families is used. It identifies items of clothing, along with quantities and dollar costs. As with food, the intention was to apply prices from Prices Division surveys in order to derive the cost of the clothing basket for the MBM reference family. However, two major problems arise when attempting this exercise.

First, many of the A.L.L. item descriptions are not precise enough to make appropriate matches with items priced for the CPI. For example, the A.L.L. item “shirts” for women could refer to a blouse, but without more specifics regarding the type of material or quality of construction, there is a broad range of

¹ Clothing excluding shoe repair and dry cleaning.

possible prices that could apply to the item. Second, a significant number of A.L.L. items are not currently priced for the CPI.

A basket of clothing items was priced. The procedure used a combination of Prices Division data (covering items for which a good match or a good substitute was found for components of the A.L.L. list) and A.L.L. prices for Winnipeg (covering items for which no good CPI item match was found). [Appendix 3](#) presents the list of items in the A.L.L. basket and indicates which items could be matched to prices collected for the CPI. In total, 36% of the A.L.L. items were priced based on good matches, 12% were priced with substitute items, and 52% used A.L.L. prices, where items were not surveyed by Prices.

As with food, Prices Division collects clothing prices in each province. Items in the clothing basket are priced in 16 cities (see [Appendix 2](#)). The sampled cities represent 53% of the population of the 10 provinces, (ranging from 37% in New Brunswick to 62% in Alberta). Four of the provincial estimates are based on prices from a single city. There is no representation of smaller communities or rural areas in the clothing basket.

The current sample size for clothing prices in each city is small. A given commodity may have 5-15 prices measurements depending on the number of retail outlets priced in the city. The outlets represent a broad spectrum of retailers – including boutiques, department stores and “big-box” stores – and a broad range of prices. It should be noted that prices are not obtained in some “discount” outlets because the quality and availability of items vary from month to month.

There were some concerns that prices from ‘high-end’ retailers, required for CPI purposes, would have a large impact on average prices. To solve this problem, two methods of averaging the price quotes for a commodity were compared. First, an arithmetic mean was calculated, excluding the outlets that represent high cost outlets. Second, the geometric mean was used with no exclusions of outlets. (The geometric mean gives less weight to extreme values at the high end of the distribution.) Both methods produced similar results, so it is recommended to use the geometric mean, since no judgement need be applied to exclude certain outlets or prices.

2.2.2 Cost of the basket versus provincial consumption patterns

As with the food basket, the cost of the clothing basket obtained in 2000 has been compared to actual spending patterns as reported in SHS. Median expenditures from 1997, 1998 and 1999 have been averaged for the second decile and for the entire distribution of two-parent, two-children families, within each province. All values were converted to 2000 constant dollars using the provincial CPI for clothing and footwear.

The A.L.L. 2000 price quote for the clothing basket, as specified by the Social Planning Council of Winnipeg, was also included in the comparison. To estimate an A.L.L.-based cost of the clothing component for each province, inter-city spatial indexes of retail price differentials for clothing and footwear, were applied to the A.L.L. estimate for the city of Winnipeg. The resulting index-adjusted city estimates represent the respective provincial prices for clothing based on A.L.L.

The comparisons of clothing prices and expenditures are shown in [Table 2](#).

Table 2 - Estimates of clothing costs and expenditures, in 2000 constant dollars

Province	A.L.L. 2000 specified cost (index- adjusted) (1)	Cost of the A.L.L. from pricing activity (2)	2 nd decile median spending SHS 97-99 (3)	(1)-(3) /4	All deciles median spending SHS 97-99 (4)	(1)-(4) /(4)
Newfoundland	2,292	3,158	1,316	74%	2,075	10%
Prince Edward Island	2,110	3,329	1,651	28%	1,669	26%
Nova Scotia	2,292	3,418	1,515	51%	1,942	18%
New Brunswick	2,269	3,232	1,251	81%	1,742	30%
Quebec	2,269	3,634	1,304	74%	2,108	8%
Ontario	2,292	3,422	1,327	73%	2,110	9%
Manitoba	2,269	3,202	1,094	107%	1,653	37%
Saskatchewan	2,246	3,165	1,270	77%	1,906	18%
Alberta	2,156	3,379	1,350	60%	1,869	15%
British Columbia	2,292	3,423	1,252	83%	1,761	30%

Table 2 reveals that there are significant difference between cost and spending in the clothing component. The amount quoted by the A.L.L. (first column of the table) is considerably higher than the median spending on clothing and footwear reported to the SHS by two-adult, two-children families in the second income decile (third column) in all provinces. This ranges from a low of 28% of spending in PEI to 107% of spending of the second income decile in Manitoba. It is also higher than the median spending reported by all two-adult, two-children families, (from 8% in Quebec to 37% in Manitoba). The cost quoted by the A.L.L. is more typical of the clothing expenditures of the seventh income decile of the reference family.

The second column of Table 2 shows the cost of the clothing basket based on the pricing of items that matched CPI lists. The estimates are higher than those quoted by A.L.L. for the city of Winnipeg and are therefore higher than the median spending of the second decile and of the overall population of two-adult, two-children families. In this case, the cost estimate is more typical of the clothing expenditures of the ninth income decile of the reference family.

2.2.3 Issues

- From the point of view of the MBM, one problem with the CPI pricing activity is that the data collection scheme is designed to provide accuracy in price *trends* or *direction* and not in price *level*. A different sampling scheme may be needed to produce provincial and sub-provincial estimates of price levels.

- The description provided in the clothing specification for the A.L.L. is very general and requires clarification before precise matching with the existing price sample can be achieved. The cost of clothing such as shoes, pants and winter coats varies greatly according the quality of the product. Without precise qualitative specifications and collection control procedures, inter-provincial price level comparisons will be meaningless.
- Many items identified in the A.L.L. basket are not currently surveyed. Few children's clothing items are priced for the CPI. In some cases substitutions can be made. In other cases, prices collected on similar items for adults could be adjusted to estimate the price of the corresponding children's item. A more preferable solution, however, would be to expand the set of clothing items surveyed in order to improve the match with the A.L.L. basket.
- Since the inter-city indexes of retail price differentials for clothing and footwear from Prices Division is based on the cost of the clothing and footwear items surveyed by Prices, the application of these indexes to the Winnipeg A.L.L. basket to calculate prices for other jurisdictions may not be appropriate.
- For the years 2000 and 2001, an interim specification should be used. HRDC has recommended that the clothing basket presently identified by A.L.L. be used, with the base price being the cost of the basket in Winnipeg for the reference family, as determined by the Winnipeg Harvest and the Winnipeg Social Planning Council. To determine the cost of the clothing basket in other urban centres, the relative spatial indexes for clothing and footwear will be used. These indices will generate a cost for the clothing and footwear basket in ten urban centres across the country in addition to Winnipeg. The assumption should be that price in the urban centres in each province and territory for which relative spatial indices are produced approximates the price in other community sizes within each jurisdiction. As a result, clothing basket prices at the provincial level would be used in the MBM calculations. It is recognised, however, that the differences between the content of the A.L.L. basket and the basket priced by Statistics Canada presently could result in some bias in these provincial estimates.

2.3 Shelter

The basket for shelter consists of rental accommodation for the MBM reference family, including utilities (electricity, heat and water) and some amenities (refrigerator, stove, clothes washer and dryer).

The Federal/Provincial/Territorial Working Group recommends that calculation of shelter cost for the reference family of four be based on the average of the median prices for rental units with two bedrooms and for rental units with three bedrooms. Subsidised rent households are included in the calculation, while those paying no rent are excluded. In its first attempt at defining a measure, HRDC used the median rents as measured by Canada Mortgage and Housing Corporation's 1996 rental survey. The costs were estimated within each province and within each area size. Subsequently, HRDC recommended an alternate approach, due to the limitations of CMHC rental data.

A number of sources of shelter data were examined. Unfortunately, there is no single source that can supply all the components of shelter at the required level of geographic detail. The rest of this section describes the data sources and proposes a method for combining them to produce the cost of the shelter basket.

Finally, the issue of subsidised housing is examined to determine its potential impact on shelter costs.

2.3.1 Sources of information on shelter within Statistics Canada

In Statistics Canada, there are a number of surveys that could be used to estimate rental costs.

1) The Canadian Census of Population

The Census of Population is conducted every five years. The long form (asked of 20 % of households in Canada) includes eight questions on housing: who pays the rent, is the dwelling owned or rented, the number of rooms/bedrooms, the age of the building, the requirements for repairs and renovations, whether electricity, heat and water costs are included in the rent and if not, the costs for these utilities, along with the rental price. There is no information on whether or not the rent reported by the respondent is subsidised.

The sample size of the Census makes it an attractive choice for producing statistics at a detailed geographical level. However, a Census is conducted only every five years, and some method of updating is needed between censuses. The Census also has content limitations such as the lack of information on subsidies, or on appliances that are included in the rent.

2) The LFS Rent Supplement Survey

The Labour Force Survey (LFS) rent supplement collects a broad range of information on the type of rental dwelling. This includes the floor on which the dwelling occupants live, the age of the building, the number of bedrooms, whether the rent is subsidised (but not the value of the subsidy), changes in the rent since the previous month, whether parking is included in the rent, (and if so, the type of parking and how many parking spaces), changes in services, equipment and facilities every month and what is included in

the rent (heat, heating of water, cold water, electricity, cable, refrigerator, range, washer, dryer, other major appliances, and furniture). The costs of elements not included in the rent are not measured.

Each month, rent supplement data is collected from approximately 7,500 two and three bedroom renter households. The rent supplement survey has the same population coverage and restrictions as the Labour Force Survey. In particular, military barracks, Indian reserves, collective dwellings and dwellings located in special areas (such as institutions and remote areas) are excluded.

The LFS Rent Supplement is conducted on a monthly basis, with one-sixth of the sample replaced each month, and it identifies which units are subsidised or are used for business. Finally, the Rent Supplement indicates which appliances are included in the rental price, information not available from the Census. However, its sample size is too small to produce reliable estimates at the level of province and community size.

3) The Survey of Household Spending (SHS)

The SHS is an annual survey that began in 1997 as a redesign of the Family Expenditure Survey (FAMEX). SHS provides amounts paid in rent each month for the previous calendar year, as well as expenditures on household furnishings, appliances and equipment. Information is obtained from approximately 17,000 responding households, but since the sub-population of renters by province ranges from 18% in Newfoundland to 37% in Quebec (as estimated by the LFS rent supplement), the actual useable sample size is much smaller.

2.3.2 Appliances included in the rental prices

The Census can supply the cost of rent, electricity and water by province and size of area of residence. However, the Census has no information on whether a refrigerator, stove, washer or dryer are included as part of the rent. [Table 3](#) shows that the practice of including these appliances varies considerably across the country. For example, a fridge is included in 12% of two bedroom units in Quebec and in 90% of similar units in Manitoba. The data in [Table 3](#) represent averages of seven months of LFS rent supplement data. Examination of the variability of these monthly estimates suggests that an annual average should be used rather than any one monthly value.

Table 3 - Percentage of rental units in which various appliances are included in the rent, LFS rent supplement, average of June to December 2000.

Province	NF	PE	NS	NB	QC	ON	MB	SK	AB	BC
2 bedrooms rental units										
Fridge	82	91	87	81	12	84	90	85	91	91
Stove	81	92	89	80	13	85	89	88	91	92
Washer	13	12	9	8	3	9	27	36	18	31
Dryer	13	11	7	6	2	8	27	32	18	28
3 bedrooms rental units										
Fridge	85	81	69	70	8	63	76	73	82	82
Stove	84	79	71	69	8	63	76	73	83	84
Washer	11	8	15	11	2	18	34	38	36	38
Dryer	9	8	14	10	2	18	38	37	37	36

Some adjustment should be made to allow for the extra expense that some renters must incur in supplying themselves with various appliances. In theory, a cost could be imputed at a micro-record level before the median rent is determined. However there is not enough information to properly identify the type of households for which appliances are included. Therefore it is proposed that the imputation be done at the provincial level, after the median rents have been determined. The adjustment is made up of two parts: the cost of the appliance (averaged over its lifetime), multiplied by the percentage of renters who do not have that appliance included as part of their rent.

Table 4 shows the average expenditure on three types of appliances by two adult, two children families in the second decile of the Survey of Household Spending. These expenditures represent an average of three years, updated to 2000 dollars using the CPI for household equipment. The amount spent is averaged over all families, not only those who actually purchase any given major appliance in a given year. This produces an average annual amount that a family would spend to supply itself with that appliance over the lifetime of the appliance.

Table 4 – Expenditure on various appliances by second decile households, average of SHS 1997-99, and 1997 to 1999, adjusted to 2000 constant dollars

	Average 97-99	1997	1998	1999
Refrigerator	51	50	40	64
Stove	16	5	22	21
Washer and dryer	48	45	57	43

2.3.3 Construction of the shelter component

Given the large sample size, it is proposed that Census data be used to provide the basic rent level by province and size of area of residence, where sample size permits such a calculation. If insufficient sample does not permit such a calculation, the community sizes closest together in population will be amal-

gamated. This basic amount is made up of rent, as well as the additional cost of heat, electricity and water, if they are not included in the rent.

In order to ensure a certain standard of accommodation, only rental units that are not in need of major repairs will be used to calculate the basic cost of rent. A more sophisticated method of adjusting for a range of factors could be studied for the future.

It is proposed that the median rent as calculated from the Census of Population be adjusted to account for the different provincial practices in including major appliances along with the stated cost of rent. The adjustment would multiply the percentage of renters who do not have certain appliances included (from the LFS rent supplement) times the expenditure by the second decile, averaged over the lifetime of the appliance (from SHS).

Between censuses, the CPI rental index for each province could be used to update the amounts. The rental index is produced using data from the LFS Rent Supplement. Two ways of producing yearly updates were examined; a yearly measure of change was calculated for comparable months (for example from July in year T and July in year T-1) versus the comparison of the yearly change in the average index levels between two years. Study of the indexes suggest the use of the annual averages, as opposed to comparing specific months, because of the variability that is observed depending on which month is selected for the comparisons.

An example presented in [Table 5](#) illustrates the proposed methodology. The first line of the table shows the median rents in two provinces. Before any adjustment is applied, the rent in province A is 71% of that in province B. The next line shows the adjustment for refrigerators. In province A, 90% of rental units do not include refrigerators, so the rent must be increased by $90\% \times \$51$ (the amortised cost of a refrigerator). In province B the rent must be increased by $15\% \times \$51$. Similar calculations are applied for stoves, washers and dryers to produce a new adjusted rent. The adjusted rent of province A is 80% that of province B. The rent in province A is lower than in province B, but part of the difference is due to the fact that appliances are typically not included in province B.

In practice, this exercise would be carried out separately for two bedroom units and for three bedroom units. The final value for the rent would be the average of the adjusted two bedroom median and the adjusted three bedroom median.

Table 5 - Impact of the rent adjustment for appliances

	Province A	Province B
Median rent	\$500	\$700
Allowance for fridge	$90\% \times \$51 = \46	$15\% \times \$51 = \8
Allowance for stove	$90\% \times \$16 = \14	$15\% \times \$16 = \2
Allowance for washer / dryer	$95\% \times \$48 = \46	$90\% \times \$48 = \43
Adjusted two bedroom rent	\$606	\$753

2.3.4 Subsidised rent

The median costs of rental units have been calculated excluding zero rents. This means that basic MBM shelter expenses will slightly overestimate actual costs since a proportion of the population pay no rent, or do not pay the full cost of rent. This is really part of the bigger issue of imputed rent. The proposed MBM income concept does not take account of the fact that some families are in situations that result in a considerable decrease in their net shelter costs. This could be due to the fact that they own a home or to the fact that a home is available to them at no cost or at a reduced cost.

In 1999, the Survey of Financial Security (SFS) requested information on home ownership and mortgage. [Table 6](#) presents these results. There are provincial differences in the percentage of home owners without mortgages: in BC, 24% of families lived in a house without a mortgage, while this was true for twice as many families in Newfoundland (49%).

Table 6 - Distribution of families by rent status and by province

	NF	PE	NS	NB	QC	ON	MB	SK	AB	BC	Canada
% rent	27	33	36	30	45	40	36	31	34	42	40
% own with mortgage	24	31	30	32	30	34	31	29	38	33	33
% own without mortgage	49	37	34	39	25	26	33	40	28	24	28

Additional questions would have to be asked on the income survey to calculate an imputed rent value. It is worth noting that the Expert Group on Household Income Statistics (the Canberra Group) identified imputed rent as one of four areas that are achievable in practice and would contribute most to producing a fairer and more accurate picture of income distribution. It is however not possible to do an adjustment for imputed rent with the existing data.

2.4 Transportation

The MBM includes a component to meet the basic transportation needs of the reference family members for work, school, shopping and participation in community activities. The transportation component is specified by the Federal/Provincial/Territorial Working Group as one of the following:

- in urban areas served by public transit: 2 monthly transit passes and 12 round-taxi trips per year
- in areas not served by public transit: the cost of operating a vehicle and of purchasing a five-year-old car once every five years.

Virtually all of the items specified for inclusion in the transportation component are surveyed by Prices Division. Appendix 4 presents the availability of quotes by urban centres, while Appendix 5 indicates the frequency of quotes for the transportation items. These tables show that number of cities surveyed varies by item, as does the frequency of price quotes. For example, public transit prices are surveyed in 58 cities, while gasoline is priced in 40 cities. Commodities with frequent price changes (such as gasoline) are surveyed monthly while items with infrequent price adjustments (such as bus passes) are surveyed twice annually. Other items (such as automobile registration fees) are monitored and priced as needed.

2.4.1 Recommendations on where to apply public and private transit

The MBM transportation component calls for a separate calculation for public and private transit. Coverage of the Canadian population by public transit systems was determined using the data from the Canadian Urban Transit Association and the Quebec Ministry of Transportation. Coverage rates indicate that:

- Rural areas, as expected, have virtually no coverage
- Less than one-third of all urban areas under 30,000 are served by public transit, though estimates vary from province to province
- The vast majority of all urban areas with 30,000+ population are served by public transit.

Based on these results, the following treatment is proposed.

- **Urban areas 500,000+ and Urban areas 100,000 – 499,999** - The public transportation component applies since transit systems are present in every urban centre in these categories.
- **Urban areas 30,000 – 99,999, except Charlottetown** - Of the 49 centres in this category, 46 have public transit systems. It is proposed that the public transportation component be applied to all centres in this size class except for Charlottetown.
- **Charlottetown, P.E.I.** - Charlottetown is not served currently by public transit. Since Charlottetown is the only centre of this size in the province, it is recommended that the private transportation component be applied.
- **Urban areas less than 30,000 and rural areas** – The private transportation component applies to these two categories. There will a separate private transportation calculation for each province and territory.

2.4.2 Calculating the public transportation component

The public transportation basket consists of the total annual cost of two monthly transit passes and 12 round-taxi trips per year.

Public transit fares

Public transit fares are collected in 58 cities. Since transit fares are priced twice yearly, the average of the two observations represents the monthly cost of one adult pass. This is multiplied by 24 (2 adults x 12 months) to give an annual value. Where monthly passes are not available, 40 adult tickets substitute for one monthly adult pass in the calculation.

Whenever public transit quotes are available from Prices Division from more than one city in an urban size category in a province, the public transit estimate is based on a population-weighted average of the surveyed cities.

Taxi fares

The MBM specifies 12 taxi fares per reference family per year, at a cost of \$16 each in constant 2000 dollars. The total for taxi fares is \$192 per year in all urban size categories where the public transportation applies. This amount will be updated annually using the provincial CPI for taxi fares.

Total public transportation component

The annual public transit fare values calculated for each urban size category are summed with the annual amount for taxi fares, giving the total public transportation component value for each urban size category within each province. For 2000 reference year, this amount ranges from about \$1,200 in Quebec centres from 30,000 to 99,999 to about \$2,300 in Toronto.

2.4.3 Calculating the private transportation component

Calculation of the private transportation component involves estimating values for each of the six private transportation items identified by the MBM specifications, summed to give the total private transportation component.

Annual private transportation component

- = 1/5 x cost of a 5-year-old used vehicle, including interest charges
- + annual drivers license fee
- + annual vehicle registration fee
- + annual mandatory vehicle insurance
- + cost of 1,500 litres of gasoline
- + cost of two oil changes and one tune-up

Purchase price of a used car

The MBM specifications for private transportation component allows for the purchase of a five-year-old, four-door compact car, once every five years. Purchase price includes interest charges for a 36-month loan on the entire purchase amount.

An acceptable procedure for determining the market value of such a vehicle first must be established, given that Prices Division does not survey used car prices. The monthly publication *Canadian Red Book – Official Used Car Valuations* is suggested price source, since it is the accepted benchmark for used ve-

hicle valuations in the auto retail sector. The make and model specified by HRDC is a four-door, four-cylinder Chevrolet Cavalier.

The initial calculation is based on the October 2000 edition of the *Red Book* for a 1995 Cavalier. The quoted *Red Book* price is divided by five, to represent the annual purchase price, since the MBM specification calls for vehicle replacement every five years. *Red Book* publications also include adjustment factors for provincial price variations, and these are used to adjust the vehicle price estimates by province.

Interest charges are added to cover the cost of a loan for the entire purchase price. Since loan rates vary with time, depending on market conditions, an average annual interest rate is calculated. This rate is based on monthly quotes provided by a representative financial institution. The annual interest rate then determines total interest charges for a 36-month loan for the vehicle's entire purchase price. Total interest charges, divided by five, give the annual interest charge for the loan.

The annual purchase price plus the annual interest charge gives the total annual price, by province, of purchasing the MBM-specified vehicle.

Driver's license

Provincial and territorial driver's license fees are surveyed annually by Prices Division. Where license fees cover more than one year, an annual rate is calculated. There are separate quotes for each province and territory. The driver's license calculation for the MBM assumes that there is one adult driver in the reference family.

Vehicle registration

Provincial and territorial vehicle registration fees are monitored and priced as needed by Prices Division. There are separate quotes for each province and territory.

Mandated vehicle insurance

The MBM specifies mandated vehicle insurance, meaning only the basic insurance required by law, including coverage to drive a vehicle to work. Specifications assume that the one adult driver has had six years without an accident. There are separate MBM vehicle mandated insurance calculations for each province and territory.

Where only one center is surveyed in a province, prices quoted for that centre represent mandated vehicle insurance for the entire province. Where price quotes are available from more than one urban center in a province, the cost is based on a population weighted average of the smaller cities surveyed. There are two reasons for omitting the larger cities. First, many of the centres surveyed are classified in larger urban areas where the public transportation component applies, and insurance quotes should be restricted as much as possible to centres where the private transportation component applies. Second, insurance rates tend to be higher in the larger, more traffic-congested urban areas: any estimates incorporating price quotes from the largest centres have the potential of overestimating vehicle insurance costs in the smaller urban and rural areas where the private transportation component applies.

Adjustment for mandated vehicle insurance

In some jurisdictions, vehicle registration fees also include minimum mandated insurance, while in others, vehicle owners must arrange for their own auto insurance coverage. In jurisdictions where mandated in-

insurance is included with registration fees, the annual estimate for vehicle insurance is included in the registration estimate. In jurisdictions where vehicle insurance and registration fees are paid separately, annual mandated insurance prices are derived from Price Division vehicle insurance quotes.

Where vehicle insurance quotes are independent from registration fees, the quoted vehicle insurance prices include all elements of vehicle insurance, not just the mandated minimum required by law (e.g., additional collision, fire and theft coverage). For these jurisdictions, an adjustment must be made to the insurance quotes from Prices Division to obtain a value for the mandated portions.

The adjustment is a reduction of the total annual vehicle insurance price, to estimate the minimum mandated by law. Auto insurance industry administrative data is used to estimate the percentage of total vehicle insurance consisting of mandated insurance in each jurisdiction. This percentage is applied to the annual total price, giving the mandated vehicle insurance for each jurisdiction.

The calculations for MBM mandated vehicle insurance indicate that there is significant variation in the estimates among jurisdictions. This is due to differences among jurisdictions regarding minimum insurance required by law. It is assumed that the mandated vehicle insurance calculation must reflect these jurisdictional differences, so prices will vary accordingly.

Gasoline

The MBM specifies 1,500 litres of gasoline for the private transportation component. Gasoline is surveyed monthly by Prices Division in 41 cities. Given the variability in gasoline prices over time, the annual calculation is based on the sum of the monthly prices. The geometric mean of the monthly prices for non-leaded gas at both full-service and self-serve outlets is used to calculate the monthly gas price. The annual allocation of 1,500 litres is distributed evenly over 12 months, at 125 litres per month. Then the 12 monthly per-litre prices, multiplied by 125, are summed, resulting in the annual MBM value for gasoline.

Calculation of gasoline prices is also restricted to the smallest surveyed centers in each province. As with price quotes for other items, most of the 41 centres surveyed for gasoline are the larger urban areas. Restricting gasoline estimates to smaller centres minimizes the potential price impact of greater competition among outlets in larger centres. As a result, gasoline prices are based on quotes from only one urban center in eight provinces and territories (PEI, Nova Scotia, Ontario, Manitoba, Alberta, BC and the three territories) and from two or three in the others.

Vehicle maintenance

The MBM specifies annual vehicle maintenance as one annual tune-up and two oil changes. Prices Division surveys tune-up prices in 21 centres. None of the surveyed centres (with the exception of Charlottetown) are from urban areas where the private transportation component applies. In the absence of price quotes from centres where private transportation applies, the estimates for annual tune-ups and oil changes are based on population-weighted averages of the surveyed centres.

Total private transportation component

The annual estimate of each private transportation item is summed within each province, producing the MBM private transportation component value. For reference year 2000, these totals range from about \$3,500 in Alberta to \$4,100 in Manitoba. While there were provincial differences in all the items priced, the majority of the variation is due to differences in the cost of insurance.

The age of the used car and the frequency of replacement of that car have an effect on the amount of the private transportation component. For example, if a six-year-old car were purchased every six years, instead of a five-year-old car every five years, the cost of private transportation would be reduced by \$900.

2.4.4 Issues

Public transportation

- For some urban size classes, the public transit value is based on limited price quotes. In Ontario, for example, the value for the size category 30,000 – 99,999 is based on the quote from one city, while the category contains thirteen Ontario urban centres in total. In Nova Scotia, there are no quotes available, so the next largest size class was used. The impact of this methodology should be examined.

Private transportation

- Ideally, the estimates for insurance, gasoline and tune-ups would be based on quotes from centres in which the private transportation component applies. Larger urban centre price quotes were excluded from the calculations when possible, but it was frequently necessary to use any available quote. This would result in an overestimation of the insurance portion, because insurance rates are higher in larger cities. The impact on gasoline and tune-up costs is not known.
- Prices division did not have a complete set of books for insurance quotes for the whole CPI in 2000. A complete set was available for 2002 only. No good deflator adjustment was available to convert the prices in the auto insurance industry and so the insurance prices really reflect the situation as of 2002 and this may overstate the cost of the private component in 2000 and 2001.

2.5 Other Expenses

The MBM has a final component defined for other expenses, to cover all other goods and services that would be considered necessities according to the current societal norms.

To balance effort spent with benefits returned, the methodology for pricing other expenses would preferably avoid the costly task of pricing, then updating estimates for the numerous items categorized as other expenditures. It is suggested to use SHS data to determine a value for the relationship between spending on other expenses and spending on food and clothing. This value is then applied to the estimated costs of the food and clothing components of the MBM to produce a dollar amount for other expenses.

2.5.1 Calculating Other Expenses

The procedure used to derive a dollar estimate for other expenses. All calculations are based on the reference families (two parents, two children for the whole year) in the second income decile of the SHS.

- Calculate the other expenses average spending by MBM reference families, based on the set of items specified in Appendix 6A.
- Calculate food, clothing and footwear average spending by MBM reference families, based on the set of items specified in Appendix 6B.

- Express the other expenses average spending as a percentage of the food, clothing, and footwear average spending. The result is the other expenses multiplier.
- Apply the Canada-level other expenses multiplier to the MBM estimates for the food, clothing and footwear components in each province/urban size class.

$$\text{Other expenses multiplier} = \frac{\text{Spending on other necessary goods and services}}{\text{Spending on food, clothing and footwear}}$$

$$\begin{array}{l} \text{Other expenses} \\ \text{annual estimate} \end{array} = \text{Other expenses multiplier} \times \begin{array}{l} \text{Estimate of cost of food, clothing} \\ \text{and footwear components} \end{array}$$

The estimate for the other expenses multiplier, based on SHS 1999 data, is 68.1%. Calculations based on SHS 1998 and 1997 data are 64.7% and 73.8% respectively. These results indicate significant variation in the annual estimates for the multiplier, suggesting that a moving average would be preferable for the MBM other expenses multiplier value. The three-year average based on SHS 1997-1999 data is 68.9%.

2.5.2 Issue

If either the food or the clothing component is out of line with actual spending, then the other expenses amount will be similarly affected. This is of concern, given the relationship between the A.L.L. clothing basket estimate and median family spending on clothing.

3. Determination of MBM disposable income

3.1 MBM definition of income

The income concept used for MBM is the income available to purchase the goods and services that are contained in the MBM basket. The general approach is to begin with total income and to subtract income taxes and other non-discretionary expenses from that amount. This extends the traditional after-tax income concept, which takes income taxes into account but does not consider any other expenses.

Total Income refers to income from all sources including government transfers. To calculate MBM income, subtract the following from Total Income.

- **Income tax**, that is, federal and provincial taxes on income, capital gains and RRSP withdrawals, after taking into account exemptions, deductions, non-refundable tax credits, and the refundable Quebec abatement.
- **CPP/QPP contributions** that are deducted from earnings due to paid employment. (*Receipts* from CPP/QPP are included in Total Income.)
- **Employment Insurance (EI) contributions** that are deducted from earnings due to paid employment. (*Receipts* from EI are included in Total Income.)
- **Registered Pension Plan (RPP) contributions** that are deducted from earnings due to paid employment.
- **Union and professional dues** including union dues, fees associated with collective agreements, professional membership dues and liability or malpractice insurance premiums
- **Child/spousal support payments** *paid* to a former spouse or partner, as covered by an agreement to pay a fixed amount on a regular basis. (*Receipts* from support payments are included in Total Income.)
- **Work-related child care expenses** incurred for child care which enable the parent(s) or guardian(s) to work for pay.
- **Out-of-pocket medical expenses** for medically recommended health care and equipment
- **Public health insurance premiums** as required in some provinces.

The components are factored into the calculation of MBM income at the individual level. The result is then summed for all economic family members to derive the MBM income for the economic family. The economic family MBM income is then compared to the annual cost for the MBM basket of goods and services for the appropriate category to determine whether the family is above or below the MBM line.

3.2 Source of income data

The Survey of Labour and Income Dynamics (SLID) provides the income amounts that are used to estimate MBM rates. SLID is a longitudinal survey designed to capture changes in the economic well-being of individuals and families over time. The SLID sample is composed of two panels with a combined sample size of approximately 35,000 households. A panel is surveyed for a period of six consecutive years. A new panel is introduced every three years, so there are always two overlapping panels in the survey.

SLID conducts up to 12 interviews over the six-year period that each household is in the survey. In January, interviewers collect information regarding labour market experience, educational activity and family relationships. In May information on income is collected. The income interview is deferred until May to take advantage of income tax time when respondents are more familiar with their income situation.

To reduce response burden, respondents can give Statistics Canada permission to use their tax information for the purposes of SLID. Those who do so are only contacted for the labour interviews. Close to three-quarters of SLID's respondents give their consent to the use of administrative records.

3.3 Deductions from income

The non-discretionary expenses described in the MBM specifications are obtained in a variety of ways: tax data (for SLID respondents who give permission), reported values in the SLID labour and income interviews, direct calculation based on published algorithms and imputation from SHS. [Table 7](#) describes how each expense is derived, often with one approach for respondents who give permission to use tax data and another method for respondents who choose to respond by interview.

Table 7 – Items to deduct from after-tax income to arrive at MBM income

	Respondents who give permission to use tax data	Respondents who give income data by interview
CPP/QPP Contributions	Calculation based on earnings and published contribution rates Edit using lines 308 and 310 from tax form	Calculation based on earnings and published contribution rates
EI contributions	Calculation based on earnings and published contribution rates Edit using line 312 from tax form	Calculation based on earnings and published contribution rates
Registered pension plans contributions	Line 207 from tax form	Reported in income interview
Annual union and professional dues	Line 212 from tax form	Reported in income interview
Support payments paid	Reported in labour interview Edit using line 220 from tax form	Reported in labour interview
Work-related child care expenses	Reported in labour interview Edit using line 214 from tax form	Reported in labour interview
Direct medical expenses	Use line 330 from the tax form, if present Otherwise, impute from SHS	Impute from SHS
Public health insurance premiums	Calculation based on province and net income	Calculation based on province and net income

SLID asks respondents to report how much they spend in total on child care expenses each year. This includes child care for which no receipts are obtained and which is not claimed as a deduction on the parent's tax form.

According to the MBM specifications, a family's income should be reduced by the actual out-of-pocket medically-recommended health care expenditures because this amount is not discretionary and is not available to purchase the MBM basket of goods and services. SLID has information on medical expenses claimed on the tax form by respondents who give tax permission, while SHS has information on several categories of health care expenditures. The proposed approach to estimating medical expenses is to combine these two sources of information.

First, if a claim has been made on the income tax form then that amount will be used as the cost of medically-recommended health care. Although this applies to only about 10% of families (14% of families with a disabled member), the amounts involved are often substantial and it is important to include their impact on the income that a family has at its disposal to purchase the MBM basket. Only the total dollar amount of the medical claim is available; there is no description of the individual medical expenses that make up the total. Therefore, using tax data requires that we adopt the tax definition for allowable medical expenses. The General Income Tax and Benefit Guide – 2000, published by the Canada Customs and Revenue Agency, gives the following five examples of the most common medical expenses that can be claimed.

- Payments to a medical doctor, dentist, nurse, or public or licensed private hospital
- Payments for artificial limbs, wheelchairs, crutches, hearing aids, prescription eyeglasses or contact lenses, dentures, pacemakers, prescription drugs, and certain prescription medical devices
- Amounts paid for attendant care, or care in an establishment
- Expenses relating to guide and hearing-ear dogs
- Premiums paid under the *Quebec Prescription Drug Insurance Plan*, and premiums paid to private health services plans (other than those paid by an employer)

The cost of health insurance premiums paid for travel outside of Canada is an example of an expense that is included in the tax definition but is not included in the MBM definition because it is not a necessary expense. Such expenses would be subtracted from total income, because they cannot be separated from other allowable medical expenses that are claimed in line 330 of the tax form.

The majority of Canadians do not claim medical expenses on their tax forms, presumably because their expenses are below the allowable limit. For the tax year 2000 this limit was 3% of net income or \$1,637, whichever was lower. SLID imputes medical expenses for such families, based on the expenditure patterns reported in SHS by similar families, that is families who would not have claimed medical expenses on their tax returns. The categories of health care expenditures in SHS that fall within the MBM definition of non-discretionary medically-recommended expenses are listed below. Only direct out-of-pocket costs incurred by household members are reported in these categories. Payments for which respondents have been or will be reimbursed are not included.

- **Premiums for private health insurance plans**, including supplementary coverage to public hospital and medical plans, extended health benefit packages, drug plans, out-of-country benefits and visitors' benefits

- **Premiums for dental plans**
- **Prescription eye wear**, e.g. contact lenses, eyeglasses and insurance on lenses
- **Other eye care goods**, e.g., non-prescription eye wear, eyeglass cases and supplies for contact lenses
- **Eye exams, eye surgery (e.g. laser surgery)** and other eye care services. For MBM purposes, this category is capped at \$200 to exclude discretionary laser surgery.
- **Dental services and orthodontic and periodontal procedures**, e.g., examinations, cleanings, fillings, extractions, x-rays, root canals, and the prescription and fitting of dentures
- **Physicians' care**, including general practitioners and specialists
- **Other health care practitioners**, e.g., nurses, therapists, chiropractors, osteopaths and podiatrists
- **Hospital care**, paid directly by the respondent
- **Weight control programs, quit-smoking programs and other medical services**, e.g. ambulances, rental of medical equipment, laboratory services and nursing homes.
- **Medicines, drugs and pharmaceutical products prescribed by a doctor**
- **Health care supplies and goods**, e.g., first aid kits, bandages, hearing aids, thermometers, wheel chairs and other appliances, bathroom scales and elastic hosiery.

The average per capita expenditure in the total of the above categories was calculated for each province based on the 1997, 1998 and 1999 SHS data. Table 8 shows these values, as well as the average of the three years. All figures have been converted to 2000 constant dollars using the provincial CPI for Health Care. These data were collected at the household level and divided by the average household size to create per person expenditures.

Table 8 - Average out-of-pocket medical expenses from SHS

	Average medical expense per person in 2000 dollars			
	Average 97-99	1997	1998	1999
Newfoundland	103	91	102	114
Prince Edward Island	155	142	147	175
Nova Scotia	131	121	134	137
New Brunswick	126	125	127	126
Quebec	151	156	133	163
Ontario	129	136	124	127
Manitoba	144	131	148	153
Saskatchewan	132	142	124	130
Alberta	171	155	177	181
British Columbia	153	156	167	135

3.4 Issues

Shelter costs are attributed to all households. However, 28% of families live in a house that is mortgage free (refer to table 6 in section 2.3.4). The proportion of families living in a house that is mortgage free

varies significantly among provinces; Newfoundland having a proportion roughly double to what is observed in BC, Quebec and Ontario (NFLD 49%, BC: 24%, PQ: 25% and ON: 26%).

There is also a proportion of families that lives in subsidised housing. For some of these families, their costs for housing may be lower than the shelter cost that is attributed to them by assuming that they have to pay for the median value of a two or three bedroom apartment. This issue has been raised in the shelter cost.

In theory, imputed rent is the difference between the cost of renting one's living arrangements (in a competitive market) minus the cost actually incurred in owning the home (or renting it below market price). To reflect a true disposable income, one should probably add the value of the imputed rent to the current measure of disposable income. However, there are a lot of difficulties in trying to estimate a value of imputed rent.

Housing questions have been added to SLID for 2003. Research should be done to see if a value of imputed rent could be calculated. This would probably affect the rates of low-income for seniors, and could also have an effect in a number of provinces, and in rural areas.

4. MBM thresholds

4.1 48 thresholds for the provinces

The preceding sections have described how the food, clothing, shelter, transportation and other expenses components of the Market Basket Measure are constructed, based on a reference family of two adults and two children. To produce the threshold for that reference family, the food, clothing, shelter, transportation and other expenses amounts are simply added together.

$$\begin{aligned} \text{Threshold for the reference family} = & \text{cost of food component} \\ & + \text{cost of food component} \\ & + \text{cost of clothing component} \\ & + \text{cost of shelter component} \\ & + \text{cost of transportation component} \\ & + \text{other expenses multiplier} \times (\text{total of food and clothing components}) \end{aligned}$$

Whenever possible, the food, clothing, shelter and transportation components should be based on the corresponding community size within province. When this is not possible, the next largest community size within the same province will be used. In some cases, particularly in the food and transportation components, prices are collected from two or more communities within the same size of area of residence and province. Then the cost of the component is based on a population weighted average of the surveyed centres. For example, assume that the cost of the food basket has been obtained for two cities in the same community size and province. One city has 40% of the population in that province, and the other has 15%. The cost of the component would be:

$$\text{Cost of the component} = \frac{40\% \text{ of cost in city 1} + 15\% \text{ of cost in city 2}}{55\%}$$

The MBM specifications state that a separate threshold should be produced for each of the eleven urban centres for which a relative spatial price index for clothing and footwear is produced. In addition, thresholds are to be produced for each community size within each province. Applying these requirements results in 48 thresholds for the 10 provinces. This list is based on population counts from the 2001 census and should be revised whenever new results of a census became available. For example, a separate threshold would be produced for Fredericton in 2001 because that is the only city in the 30,000 – 99,999 size range in New Brunswick. If a future census shows that another city had entered that size range, a threshold that would apply to both cities would be calculated.

Appendix 7 shows the detailed source of each component of the 48 lines listed below and also gives the names of the communities that would fall in the 30,000-99,999 and the 100,000-499,999 size ranges.

Newfoundland	• Charlottetown
• St. John's	• small urban <30,000
• small urban <30,000	• rural
• rural	Nova Scotia
Prince Edward Island	• Sydney

- Halifax
- 30,000 – 99,999
- small urban <30,000
- rural

New Brunswick

- Moncton
- Saint John
- Fredericton
- small urban <30,000
- rural

Quebec

- Montreal
- Quebec City
- 100,000 – 499,999
- 30,000 – 99,999
- small urban <30,000
- rural

Ontario

- Toronto
- Hamilton / Burlington
- Ottawa
- 100,000 – 499,999
- 30,000 – 99,999
- small urban <30,000
- rural

Manitoba

- Winnipeg
- Brandon
- small urban <30,000
- rural

Saskatchewan

- Regina
- Saskatoon
- 30,000 – 99,999
- small urban <30,000
- rural

Alberta

- Calgary
- Edmonton
- 30,000 – 99,999
- small urban <30,000
- rural

British Columbia

- Vancouver
- 100,000 – 499,999
- 30,000 – 99,999
- small urban <30,000
- rural

Even if 48 thresholds are available, the current sample may not allow the production of MBM rates in all those communities, because of sample sizes of the income survey.

4.2 Thresholds for the territories

There are some additional challenges involved in producing MBM thresholds and rates for the three territories.

Food - The Federal/Provincial/Territorial Working Group suggested that the food component for the Territories be more reflective of northern diets, with a selection of locally-obtained fish and game substituted in place of a number of items in the Nutritious Food Basket. However, Statistics Canada's survey of food prices in northern communities does not currently cover the local food items specified for Health Canada's Northern Food Basket. At present, the only option for the food component is to use the Whitehorse and Yellowknife estimates for the Nutritious Food Basket. Following the methodology for the provinces, the cost of the food basket in Whitehorse would apply to Whitehorse and to areas in the Yukon outside of Whitehorse, and the cost of the food basket in Yellowknife would apply to Yellowknife and to areas in the Northwest Territories

outside of Yellowknife. Iqaluit and the rest of Nunavut could use one of these estimates, or a combination of the two.

Clothing - The interim approach for the clothing component cannot be applied to the territories in the same way as the provinces because there is no spatial index produced for the north. One possibility would be to use Edmonton's spatial index. The long term goal of a well specified clothing basket could be applied, as long as the pricing of clothing items were extended to the territories.

Shelter - The basic cost of shelter comes from the Census, which is available for all three territories. The amortised cost of appliances could be based on the national values, or on territorial values in the alternate years when SHS is conducted in the territories. However, the rate of inclusion of amenities is not available, so some assumptions would have to be made on that front.

The pattern of subsidised rent in the territories may be quite different from the provinces. The impact of subsidised rents would have to be studied and evaluated.

Transportation - Public transportation costs are available for Whitehorse and Yellowknife. Most of the components needed for the private transportation component are available for the Yukon and the Northwest Territories. One important issue is whether the Red Book quote for a used car is applicable to the territories. Whether the items in the private transportation basket reflect the cost of transportation in Nunavut is not known.

Other Expenses - The Other Expenses multiplier is based on national spending patterns. This ratio is multiplied by the actual cost of the food and clothing components. Adopting the Northern Food Basket could mean that a separate multiplier would be necessary for the territories. Small sample sizes would likely result in very unstable estimates.

Income - SLID does not collect income data in the north. Administrative tax data could supply some information, but these data have limitations. Of particular concern are the lack of demographic variables and the capacity to combine individual tax information into family units. While rates based on such data could reveal trends, they would not be directly comparable to MBM rates in the provinces.

4.3 Comparing between families type (equivalence scale)

The MBM is based on a reference family of two adults and two children. While it would be possible to specify and price all the components for other family sizes and compositions, it is simpler to use an equivalence scale to transform one line so that it is applicable to other families.

Equivalence scales recognize that there are economies of scale achieved by several persons living together. They can range from a per capita scale (assuming two people need twice as much income as one person) to using no equivalence scale (assuming the two people need the same income as one person). Scales can be one dimensional, using only family size, or can incorporate other characteristics such as age, sex and labour force status.

The equivalence scale specified for use in the Market Basket Measure is the same scale that is used in the calculation of Statistics Canada's Low Income Measure (LIM).

Low Income Measure (LIM) Scale

- The oldest person in the family receives a factor of 1.0.
- The second oldest person receives a factor of 0.4.
- All other family members 16 and over receive a factor of 0.4.
- All other family members under 16 receive a factor of 0.3.

[Table 9](#) shows the values assigned to various families by this equivalence scale. The first column shows the values obtained for various family types by adding the contribution of each family member. For instance, a family of two adults and two children receives 1.0 for the first adult, 0.4 for the second adult, and 0.3 for each of the children. This adds up to 2.0 – twice as much as an unattached individual. Since the MBM methodology will price a basket of goods and services for a reference family of two adults and two children, it makes sense to present the equivalence scale so that it is standardized to a value of 1.0 to the reference family. This is shown in the second column of [Table 9](#).

Table 9 - LIM Equivalence scales, standardized to 1 adult = 1.0 and to 2 adults + 2 children = 1.0

	1 adult = 1.0	2 adults + 2 children = 1.0
1 adult	1.0	0.50
2 adults	1.4	0.70
1 adult, 1 child	1.4	0.70
3 adults	1.8	0.90
2 adults, 1 child	1.7	0.85
1 adult, 2 children	1.7	0.85
4 adults	2.2	1.10
3 adults, 1 child	2.1	1.05
2 adults, 2 children	2.0	1.00
1 adult, 3 children	2.0	1.00
5 adults	2.6	1.30
4 adults, 1 child	2.5	1.25
3 adults, 2 children	2.4	1.20
2 adults, 3 children	2.3	1.15
1 adult, 4 children	2.3	1.15
6 adults	3.0	1.50
5 adults, 1 child	2.9	1.45
4 adults, 2 children	2.8	1.40
3 adults, 3 children	2.7	1.34
2 adults, 4 children	2.6	1.30
1 adult, 5 children	2.6	1.30

Table 9 shows the information that is used to convert from the threshold for the reference family to the threshold for a family of any given size and type. For example, if the MBM threshold for the reference family was \$25,000, then the threshold for a single person would be $\$25,000 \times 0.5 = \$12,500$. The threshold for a family of two adults, or a family of one adult and one child, would be $\$25,000 \times 0.7 = \$17,500$.

The square root of family size is another equivalence scale that is often used in analysis. The LIM scale will give similar results to the square root scale because they assign similar values. In fact, these scales will give exactly the same rate for unattached individuals, because both scales assess the needs of a single person as half the needs of a family of four. Using similar reasoning, the LIM scale would give a slightly lower rate for families of 2, and a higher rate for families of 4 and larger, compared to the square root scale.

Although not usually presented as such, the low income cutoffs (LICO) do have an implied equivalence scale incorporated in them. Because it is derived from the data, the scale is not controlled directly, but varies with each LICO base year. Within the same base year, the before-tax and after-tax sets of cutoffs have slightly different scales. Table 10 shows the values assigned to various families by these three equivalence scales. The table also includes a column for the 1992 base LICOs.

Table 10 - Comparison of Equivalence scales, standardised to 1 adult = 1.0

	LIM	Square root	92 LICO
1 adult	1.0	1.00	1.00
2 persons	1.4	1.41	1.22
3 persons	1.7 to 1.8	1.73	1.54
4 persons	2.0 to 2.1	2.00	1.92
5 persons	2.3 to 2.6	2.24	2.15
6 persons	2.6 to 3.0	2.45	2.54

5. Updating of the thresholds

5.1 Annual updating

Components based on the collection of prices

Food, clothing and transportation are calculated based on continuous pricing activity. Every year an average will be recalculated.

When more than one community is sampled in a size of area of residence category within a province, a weighted average is used to obtain a cost that is suitable for use in that combination of size of area of residence and province. Initially, the weights for this average were taken from the 1996 Census of Population. These weights will be updated as population counts become available from subsequent censuses.

The coverage rates for public transportation should be reviewed on a periodic basis to ensure that the appropriate approach is being applied.

The Multiplier Component

The actual value of the multiplier will be updated as each annual Survey of Household Spending becomes available. In other words, the other expenses and the food, clothing and footwear expenses will be recalculated for the relevant population, as described in Section 2.5 [Other expenses](#) of this report. The final dollar contribution will be a combination of the multiplier and the sum of the food, clothing and footwear components, which are themselves calculated for the reference year as described above.

The Shelter Component

Four surveys are used to arrive at a cost of shelter in the MBM. The basic cost of shelter is provided by the census, which is available on a five year cycle. In between census years, the basic cost of shelter will be updated using the CPI for provincial rental accommodation. Data from the SHS provide the cost of amenities. These costs are updated annually by using the results that correspond to the MBM reference year. Data from the LFS rent supplement provide the percentage of rental accommodation, by province, that does not include the specified amenities. These percentages are updated by using the results that correspond to the MBM reference year.

6. Summary of issues

The document has outlined the proposed methodology to construct a market basket measure of poverty. The development of the methodology has raised the following issues.

1. Collection of prices in rural areas.

The majority of the CPI pricing activity takes place in urban centres, with some activity in smaller communities and no representation in rural areas. A study has been undertaken to determine if food prices in these smaller areas are similar to prices in other areas, but the results of this study are not yet available. At the present, the approach is to use the estimate in the closest available size range in the same province.

2. One food basket for all provinces

The same food basket has been used in all provinces. While the cost of the basket at the Canada level falls between the median spending for reference families in the second income decile and the overall median spending for reference families, there are important provincial variations. In six provinces, even the median family of four does not spend as much as the price suggested by the MBM.

3. The clothing component

Collecting price quotes based on the items and quantities of the A.L.L. clothing list did not yield reasonable results. The item descriptions were not precise enough to allow proper matching with the current pricing activities. In addition, clothing prices are collected from a range of outlets that includes “high end” establishments. Simply relying on the prices that came with the A.L.L. clothing basket did not solve the problem. That approach gave estimates that were lower, but still clearly beyond the level that is envisaged by the MBM.

Even if a new basket were specified, the issue of whether the same basket would be suitable for all regions of the country would remain.

4. The shelter component methodology

Zero rents have been excluded from the calculation of median rental prices, since they represent exceptional situations. This will result in an overestimation of shelter costs because it ignores the fact that some families do not pay rent. Estimation of rental costs will include cases of subsidised rent. At the present we do not have the data sources that would allow us to add the value of rental subsidies to the rent itself and to the income of families receiving such subsidies.

5. Public Transportation

For some urban size classes, the public transit value is based on limited price quotes. In Ontario, for example, the value for the size category 30,000 – 99,999 is based on the quote from one city, while the category contains thirteen Ontario urban centres in total. In Nova Scotia, there are no quotes available, so the next largest size class was used.

6. Private Transportation

Whenever possible, price quotes from large urban centres were excluded from these calculations because private transportation applies only to urban areas less than 30,000 and rural areas. However, insurance, gasoline and tune-up estimates are based on quotes from centres in urban size categories larger than those in which private transportation applies.

Mandated insurance varies significantly among jurisdictions, due to differences in minimum insurance required by law. This results in significant provincial variation in total private transportation estimates. There is also a considerable difference between the total cost of the private and public transportation components. Depending on the city and province, the private transportation basket is between \$1,500 and \$2,500 more costly than the public transportation basket. In many cases this would more than balance the lower cost of shelter in areas with a population of less than 30,000.

7. Other Expenses Multiplier

The proposed methodology bases the multiplier itself on the relationship between spending on other expenses and spending on food and clothing. Then the dollars allocated to other expenses is the product of the multiplier and the actual cost of the food basket and the clothing basket. If either the food or the clothing component is out of line with actual spending, then the other expenses amount will be similarly affected. This is of concern, given the relationship between the A.L.L. clothing basket estimate and median family spending on clothing.

8. Non-discretionary expenses to be deducted from income

Some health expenses, such as insurance premiums paid for travel outside of Canada, would be subtracted from total income, even though they are not necessary expenses. This is done because they cannot be separated from other allowable medical expenses that are claimed on the tax form.

9. MBM thresholds and MBM income in the territories

See [Section 4.2](#) for a discussion of the issues involved in the calculation of each component in the territories.

Appendix 1: Health Canada's National Nutritious Food Basket-1998

Suggested Purchase Units and Approximate Weekly As-Purchased Quantities, National Nutritious Food Basket-1998

Food	Suggested Purchase Unit	Approximate Weekly As Purchased Quantities
Milk Products		
2% milk	4 L	10.45 L
Yoghurt, fruit, 2% BF	500 g	230 g
Cheddar cheese, medium	227 g	245 g
Processed cheese slices	500 g	275 g
Mozzarella cheese, 16.5% BF	227 g	365 g
Vanilla ice cream, 10% BF	2 L	930 ml
Eggs		
Grade A large	12 (1 doz)	12
Meats, Poultry, Fish		
Round steak	-	500 g
Boneless stewing beef	-	210 g
Ground beef, medium	-	655 g
Pork chops, loin	-	400 g
Chicken legs, no back	-	1.34 kg
Wieners, beef & pork	450 g	165 g
Sliced ham, 11% fat	175 g	335 g
Frozen fish fillets	400 g	200 g
Pink salmon, canned	213 g	115 g
Tuna, canned, in water	170 g	65 g
Meat Alternatives		
Baked beans, tomato sauce, canned	398 mL	330 mL
White beans, dry	454 g	80 g
Peanut butter	500 g	365 g
Grain Products		
Bread, enriched, white	675 g	1.4kg
Bread, whole wheat	675 g	1.4 kg
Hot dog/hamburger rolls	8 pack	18 rolls
Flour, all purpose	2.5 kg	655 g
Flour, whole wheat	2.5 kg	165 g
Spaghetti/macaroni, enriched	900 g	755 g
Rice, long-grained, white, parboiled	900 g	550 g
Macaroni/cheese dinner, dry	225 g	155 g

Appendix 1: Health Canada's National Nutritious Food Basket-1998 (concluded)

Food	Suggested Purchase Unit	Approximate Weekly As Purchased Quantities
Oatmeal, regular/quick-cooking	1 kg	55 g
Corn flakes	675 g	345 g
Shreddies TM	800 g	345 g
Soda crackers	450 g	205 g
Social teas	400 g	455 g
Citrus Fruits and Tomatoes		
Oranges	-	710 g
Apple juice, canned, vitamin C added	1.36 L can	1 L
Orange juice, frozen concentrate	355 mL	330 mL
Tomatoes	-	560 g
Whole tomatoes, canned	796 mL	240 mL
Tomato juice	1.36 L can	165 mL
Other Fruit		
Apples	-	1.8 kg
Bananas	-	2.3 kg
Grapes	-	480 g
Pears	-	755 g
Raisins, seedless	750 g	100 g
Fruit cocktail, canned in juice	398 mL	335 mL
Potatoes		
Potatoes, fresh	4.54 kg	5.5 kg
French-fried potatoes, frozen	1 kg	615 g
Other Vegetables		
Broccoli	-	585 g
Cabbage	-	255 g
Carrots, fresh	1.1 kg bag	885 g
Celery	-	345 g
Cucumber	-	455 g
Lettuce, iceberg	-	450 g
Lettuce, romaine	-	595 g
Onions	-	740 g
Green peppers	-	305 g
Turnips (rutabaga)	-	360 g
Mixed vegetables, frozen	1 kg	330 g
Kernel corn, canned	341 mL	565 mL
Green peas, canned	540 ml	215 ml

Appendix 1: Health Canada's National Nutritious Food Basket-1998 (concluded)

Fats and Oils		
Margarine, tub, non-hydrogenated	454 g	365 g
Butter	454 g	190 g
Canola oil	1 L	230 ml
Salad dressing (mayo type, <35% oil)	500 ml	195 ml
Sugar and Other Sweets		
Sugar, white	2 kg	845 g
Strawberry jam	500 ml	155 ml

Appendix 2: Cities in which food and clothing prices are collected

Province	City	Food	Clothing
Newfoundland	St. John's	X	X
	Corner Brook	X	
	Grand Falls	X	
P.E.I	Charlottetown/Summerside	X	X
Nova Scotia	Sydney	X	
	Truro	X	
	Halifax	X	X
New Brunswick	Moncton	X	
	Fredericton	X	
	Bathurst	X	
	Saint John	X	X
Québec	Chicoutimi/Jonquière	X	
	Québec City	X	X
	Sherbrooke	X	
	Trois-Rivière	X	
	Montréal	X	X
Ontario	Ottawa	X	X
	Toronto	X	X
	Hamilton/Burlington	X	
	London	X	
	Windsor	X	
	Sarnia	X	
	Sudbury	X	
	Thunder Bay	X	X
Manitoba	Winnipeg	X	X
	Brandon	X	
Saskatchewan	Regina	X	X
	Moose Jaw	X	
	Prince Albert	X	
	Saskatoon	X	X
Alberta	Lethbridge	X	
	Edmonton	X	X
	Calgary	X	X
British Columbia	Kelowna	X	
	Abbotsford/Mission	X	
	Prince George	X	
	Vancouver	X	X
	Victoria	X	X
Whitehorse	Whitehorse	X	
Yellowknife	Yellowknife	X	

Appendix 3: Social Planning Council of Winnipeg and Winnipeg Harvest – Jan 2001 Acceptable Living (A.L.L.) 2000

Item	A.L.L. Quantity and Unit Cost	A.L.L. Yearly Estimated Cost	Prices Division Substitute Item	Match Status
Runners (child 1)	3 @ \$12	36.00	boys athletic shoes	match
Runners (child 2)	3 @ \$12	36.00	boys athletic shoes	match
Runners (adult 1)	1 @ \$40	40.00	men athletic shoes	match
Runners (adult 2)	1 @ \$40	40.00	men athletic shoes	match
Dress Shoes (child 1)	1 @ \$20	20.00	boys dress shoes	match
Dress Shoes (child 2)	1 @ \$20	20.00	girls dress shoes	match
Dress Shoes (adult 1)	1 @ \$60	60.00	men medium-grade dress shoes, men casual shoes	substitute
Dress Shoes (adult 2)	1 @ \$60	60.00	women medium-grade dress shoes, women casual shoes	substitute
Sandals (child 1)	1 @ \$15	15.00	—	no match
Sandals (child 2)	1 @ \$15	15.00	—	no match
Sandals (adult 1)	1 @ \$20	20.00	—	no match
Sandals (adult 2)	1 @ \$20	20.00	—	no match
Winter Boots (child 1)	1 @ \$40	40.00	—	no match
Winter Boots (child 2)	1 @ \$40	40.00	—	no match
Winter Boots (adult 1)	1 @ \$90	30.00 (for 3 years)	—	no match
Winter Boots (adult 2)	1 @ \$90	30.00 (for 3 years)	—	no match
Rubber Boots (child 1)	1 @ \$12	12.00	—	no match
Rubber Boots (child 2)	1 @ \$12	12.00	—	no match
Rubber Boots (adult 1)	1 @ \$25	6.25 (for 4 years)	—	no match
Rubber Boots (adult 2)	1 @ \$25	6.25 (for 4 years)	—	no match
Socks (child 1)	8 @ \$ 2.38	19.04	boys socks	match
Socks (child 2)	8 @ \$ 2.38	19.04	girls socks	match
Socks (adult 1)	5 @ \$ 2.20	11.00	men dress socks and men athletic socks	match
Socks (adult 2)	5 @ \$ 2.20	11.00	men dress socks and men athletic socks	match
Underwear (child 1)	6 @ \$2	12.00	-	no match
Underwear (child 2)	6 @ \$2	12.00	-	no match
Underwear (adult 1)	4 @ \$9	36.00	men briefs	match
Underwear (adult 2)	4 @ \$9	36.00	women briefs	match
Bra (adult 2)	3 @ \$26	78.00	women bras	match
Long Underwear (child 1)	5 @ \$3.46	17.30	—	no match
Long Underwear (child 2)	5 @ \$3.46	17.30	—	no match
Long Underwear (adult 1)	1 @ \$40	20.00 (for 2 years)	—	no match
Long Underwear (adult 2)	1 @ \$40	20.00 (for 2 years)	—	no match

Appendix 3: Social Planning Council of Winnipeg and Winnipeg Harvest – Jan 2001 Acceptable Living (A.L.L.) 2000 (Concluded)

Item	A.L.L. Quantity and Unit Cost	A.L.L. Yearly Estimated Cost	Prices Division Substitute Item	Match Status
Pants (child 1)	6 @ \$12	72.00	boys jeans	substitute
Pants (child 2)	6 @ \$12	72.00	boys jeans	substitute
Pants (adult 1)	2 @ \$40	80.00	men jeans, and men casual pants	match
Pants (adult 2)	2 @ \$40	80.00	men jeans, women summer slacks, women winter slacks	match
Shorts (child 1)	3 @ \$13	39.00	-	no match
Shorts (child 2)	3 @ \$13	39.00	-	no match
Shorts (adult 1)	1 @ \$20	20.00	-	no match
Shorts (adult 2)	1 @ \$20	20.00	-	no match
T-shirts / Shirts (child 1)	3 @ \$10	30.00	boys knit shirts	match
T-shirts / Shirts (child 2)	3 @ \$10	30.00	boys knit shirts	match
T-shirts / Shirts (adult 1)	3 @ \$15	45.00	men knit shirts, men dress shirts	match
T-shirts / Shirts (adult 2)	3 @ \$15	45.00	men knit shirts, women blouses	match
Sweater / Sweatshirt (child 1)	2 @ \$20	40.00	boys sweatshirt, girls sweater	match
Sweater / Sweatshirt (child 2)	2 @ \$20	40.00	boys sweatshirt, girls sweater	match
Sweater / Sweatshirt (adult 1)	2 @ \$30	60.00	men sweatshirt, men sweater	match
Sweater / Sweatshirt (adult 2)	2 @ \$30	60.00	men sweatshirt, women sweater	match
Pyjamas (child 1)	2 @ \$15	30.00	—	no match
Pyjamas (child 2)	2 @ \$15	30.00	—	no match
Pyjamas (adult 1)	1 @ \$40	40.00	—	no match
Pyjamas (adult 2)	1 @ \$40	40.00	—	no match
Bathing suit (child 1)	1 @ \$15	15.00	—	no match
Bathing suit (child 2)	1 @ \$15	15.00	—	no match
Bathing suit (adult 1)	1 @ \$40	20.00 (for 2 years)	men swimsuit	match
Bathing suit (adult 2)	1 @ \$40	20.00 (for 2 years)	women swimsuit	match
Jacket (child 1)	1 @ \$60	60.00	boys ski jacket	substitute
Jacket (child 2)	1 @ \$60	60.00	boys ski jacket	substitute
Jacket (adult 1)	1 @ \$150	75.00 (for 2 years)	men ski jacket, men parka, men winter coat, men golf jacket	substitute
Jacket (adult 2)	1 @ \$150	75.00 (for 2 years)	men ski jacket, men parka, women winter coat, men golf jacket	substitute

**Appendix 3: Social Planning Council of Winnipeg and Winnipeg
Harvest – Jan 2001 Acceptable Living (A.L.L.) 2000
(Concluded)**

Item	A.L.L. Quantity and Unit Cost	A.L.L. Yearly Estimated Cost	Prices Division Substitute Item	Match Status
Rain Gear (child 1)	1 @ \$25	25.00	—	no match
Rain Gear (child 2)	1 @ \$25	25.00	—	no match
Rain Gear (adult 1)	1 @ \$40	20.00 (for 2 years)	—	no match
Rain Gear (adult 2)	1 @ \$40	20.00 (for 2 years)	—	no match
Miscellaneous (child 1)	n/a	15.00	—	no match
Miscellaneous (child 2)	n/a	15.00	—	no match
Miscellaneous (adult 1)	n/a	15.00	—	no match
Miscellaneous (adult 2)	n/a	15.00	—	no match

Legend	Adult 1 = man	Adult 2= woman	Child 1= boy	Child 2=girl
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Appendix 4: Cities in which transportation items are collected¹

Urban Centre	Urban Size ²	Bus Fares	Insurance	Gasoline	Tune-ups
St. John's	2	x	(x)	(x)	x
Cornerbrook	4	(x)	x	x	
Grand Falls	4			x	
Charlottetown	3		x	x	x
Halifax	2	x	(x)	(x)	x
Sydney	2	x	x	(x)	
Truro	3			x	
Moncton	2	x	(x)	(x)	x
Saint John	2	x	(x)	(x)	x
Fredericton	3	x	(x)	(x)	
Bathurst	4		x	x	
Montreal	1	x ³	(x) ³	(x)	x
Quebec City	1	x	(x)	(x)	x
Hull	2	x	(x)		
Chicoutimi/Joncquière	2	x	(x)	x	
Sherbrooke	2	x	(x)	x	
Trois-Rivières	2	x	(x)	x	
Drummondville	3	x	x		
Shawinigan/Shawinigan Sud	3	x	x		
St. Jean	3	x	x		
Granby	3	x	x		
Baie-Comeau	3		x		
Rouyn-Noranda	3		x		
Sorel	3		x		
Saint-Hyacinthe	3		x		
Valleyfield	3		x		
Victoriaville	3	x			
Thetford Mines	4		x		

Appendix 4: Cities in which transportation items are collected¹ (Concluded)

Urban Centre	Urban Size ²	Bus Fares	Insurance	Gasoline	Tune-ups
Toronto	1	x	(x)	(x)	(x)
Ottawa	1	x	(x)	(x)	(x)
Hamilton	1	x	(x)	(x)	
London	2	x	(x)	(x)	
Kitchener	2	x	(x)		
St.Catharines/Niagara	2	x ⁴	(x)		
Windsor	2	x	(x)	(x)	
Oshawa	2	x	(x)		
Sudbury	2	x	(x)	(x)	
Kingston	2	x	(x)		
Thunder Bay	2	x	(x)	(x)	x
Barrie	2		(x)		
Guelph	2		(x)		
Brantford	2		(x)		
Peterborough	2		(x)		
Cornwall	3		x		
Belleville	3		x		
Chatham	3		x		
Sarnia	3	x	x	x	
North Bay	3		x		
Timmins	3		x		
Sault Ste. Marie	3		x		
Winnipeg	1	x	(x)	(x)	x
Brandon	3	x	x	x	
Thompson	4	(x)			
Regina	2	x	(x)	(x)	x
Saskatoon	2	x	(x)	(x)	x
Moose Jaw	3	x	x	x	
Prince Albert	3	x		x	
Swift Current	4	(x)			
Yorkton	4	(x)			
Calgary	1	x	(x)	(x)	x
Edmonton	1	x	(x)	(x)	x
Lethbridge	3	x	x	x	
Medicine Hat	3	x			
Red Deer	3	x			
Fort McMurray	3	x			

Appendix 4: Cities in which transportation items are collected¹ (Concluded)

Urban Centre	Urban Size ²	Bus Fares	Insurance	Gasoline	Tune-ups
Vancouver	1	x	x	(x)	(x)
Victoria	2	x	x	(x)	x
Kelowna	2	x	(x)	(x)	
Abbotsford/ Matsqui/Mission	2	x	(x) ⁵	(x)	x
Chilliwack	3		x		
Penticton	3		x		
Nanaimo	3	x			
Kamloops	3	x	x		
Prince George	3	x	x	x	
Williams Lake	4		x		
Whitehorse	4	x	x	x	x
Yellowknife	4	x	x	x	x
Iqaluit	4				x

Note: Quotes in brackets () are not used in MBM Transportation calculations

1 - Source: Prices Division

2 - Size of area of residence:
1 - 500,000+

2 - 100,000 - 499,000

3 - 30,000 - 99,000

4 - Urban <30,000

3 - includes separate quote for "St. Jérôme" within the Montreal CMA

4 - includes separate quote for "Welland" and "Niagara Falls" within the St. Catharines/Niagara CMA

5 - includes separate quote for "Matsqui" and "Mission"

Appendix 5: Frequency of pricing for the transportation component

Item	Pricing Frequency
Local transit fares	twice yearly
Automobile registration	annually
Drivers license	annually
Automobile insurance	monthly
Regular unleaded gasoline, With service	monthly
Regular unleaded gasoline, Self serve	monthly
Tune-up	three times yearly
Lubrication/oil change	three times yearly

Appendix 6A: SHS items included in Other Expenses calculation: numerator

SHS Item Number	SHS Item Description
2200	Purchase of telephones and equipment
2202-2204	Telephone services
2230	Postal and other communication services
2310	Household cleaning supplies
2320-2330	Paper, plastic and foil household supplies
2380	Other household supplies
2500	Furniture
2510	Rugs, mats and underpadding
2520	Window coverings and household textiles
2540	Room air conditioners, portable humidifiers and dehumidifiers
2552	Microwave and convection ovens
2560	Small electric food preparation appliances
2580	Vacuum cleaners and other rug cleaning equipment
2584	Sewing machines
2586	Other electric equipment and appliances
2590	Attachments and parts for major appliances
2640	Lamps and lampshades
2650	Non-electric kitchen and cooking equipment
2660	Tableware, flatware and knives
2670	Non-electric cleaning equipment
2672	Luggage
2674	Home security equipment
2680	Other household equipment, parts and accessories
2690-2710	Maintenance and repairs of furniture and equipment
2720-2730	Services related to furnishings and equipment
3312	Other medicines and pharmaceutical products
3500-3580	Personal care
3700	Sports and athletic equipment
3720	Toys and children's vehicles
3730	Electronic games and parts
3830	Video game rental
3770-3774	Photographic goods and services
3900	Bicycles, parts and accessories
3950	Bicycle maintenance and repairs
4000-4070	Home entertainment equipment and services
4100	Movie theatres
4110	Live sports events
4120	Live performing arts
4130	Admission to museums and other activities

**Appendix 6A: SHS items included in Other Expenses calculation:
numerator (Concluded)**

SHS Item Number	SHS Item Description
4140	Rental of cablevision and satellite services
4150	Membership fees for sports and recreation facilities
4160	Single use fees for sports and recreation facilities
4170	Children's camps
4300-4340	Reading materials and other printed matter
4400-4410	Education supplies
4420-4430	Textbooks
4630	Service charges from banks
5220-5230	Contributions to charity

Appendix 6B: SHS items included in Other Expenses calculation: denominator

SHS Item Number	SHS Item Description
1000-1520	Food purchased from stores
1530-1532	Board paid to private households
1560	Food purchased from restaurants ²
2800	Women's and Girls' wear (4 years and over) – Clothing
2810	Women's and Girls' wear (4 years and over) – Footwear
2820	Women's and Girls' wear (4 years and over) – Accessories
2850	Men's and Boys' wear (4 years and over)- Clothing
2860	Men's and Boys' wear (4 years and over)- Footwear
2870	Men's and Boys' wear (4 years and over)- Accessories
2900	Children's wear (under 4 years) – Clothing and cloth diapers
2910	Children's wear (under 4 years) – Footwear

² Restaurant spending, though not a part of the MBM food basket per se, was accounted for by reducing the restaurant expenditure dollar amount by 50% to account for the cost of these meals had they been prepared at home (i.e. a home-cooked food cost equivalent).

Appendix 6C: SHS items excluded from Other Expenses calculation

SHS Item Number	SHS Item Description
2210	Cellular services
2220	Internet services
2260	Domestic and other custodial services
2270-2300	Pet expenses
2340-2370	Garden supplies and services
2530-2534	Art, antiques and decorative ware
2554	Gas barbecues
2582	Portable Dishwashers
2600-2602	Home and workshop tools and equipment
2610-2630	Lawn, garden and snow-removal tools and equipment
2830	Women's and Girls' wear: Jewellery and watches
2840	Women's and Girls' wear clothing gifts to non-household members
2880	Men's and Boys' wear: Jewellery and watches
2890	Men's and Boys' wear: Clothing gifts to non-household members
2920	Childrens' Clothing gifts to non-household members
2950	Clothing material (excluding household textiles)
2960	Notions
2970	Dressmaking, tailoring, clothing storage and other clothing services
3010	Purchase of automotive accessories
3020-3040	Rented and leased automobiles and trucks
3220	Airplane
3230	Train
3240	Highway bus
3250	Other passenger transportation
3260	Household moving, storage and delivery services
3710	Playground equipment, above-ground pools and accessories
3740	Artists' materials, handicraft and hobbycraft kits and materials
3750-3760	Computer equipment and supplies
3780	Musical instruments, parts and accessories
3790	Collectors' items (e.g. stamps, coins)
3800	Camping, picnic equipment and accessories (excluding BBQ's)
3810	Supplies and parts for recreational equipment
3820	Rental, maintenance and repairs of equipment
3910-3918	Purchase of other recreational vehicles and outboard motors
3960-3980	Operation of recreational vehicles (except for bicycles[3950])
4162	Video, pinball and carnival games
4180	Package travel tours
4190	Other recreational services

Appendix 6C: SHS items excluded from Other Expenses calculation (Concluded)

SHS Item Number	SHS Item Description
4440-4450	Tuition fees
4460	Other courses and lessons (excluding driving)
4470	Other educational services
4500-4540	Tobacco products and alcoholic beverages
4600	Expenses on other property owned
4620	Legal services not related to dwellings
4640	Stock and bond commissions
4650	Administration fees
4660	Other financial services
4680	Contributions and dues for social clubs and other organizations
4690	Forfeit of deposits, fines, and money lost or stolen
4700	Tools and equipment purchased for work
4710-4720	Other miscellaneous goods and services
4800-4840	Games of chance (net)
5000-5084	Personal insurance payments and pension contributions
5205	Gifts of money and other support payments to persons living inside Canada
5210	Gifts of money and other support payments to persons living outside Canada

Appendix 6D: SHS items accounted for elsewhere in MBM

SHS Item Number	SHS Item Description
2000-2052	Shelter ³
2542	Refrigerators and freezers ⁴
2550	Cooking stoves and ranges ⁵
2570	Washers and dryers ⁶
2972	Laundry and dry-cleaning service
2974	Laundromats and self-service dry cleaning
2975	Clothing maintenance, repair and alteration
3000-3004	Purchase of automobiles and trucks ³
3050-3130	Operation of owned and leased automobiles and trucks ³
3200	City or commuter bus, subway, street car and commuter train ³
3210	Taxi ³
3300	Health care supplies
3310	Medicinal and pharmaceutical products - Prescribed
3320	Physicians' care
3360	Other health care practitioners
3330-3334	Eye-care goods and services
3340	Dental services
3350	Hospital care
3362	Other medical services
3370-3384	Health insurance premiums ⁷
4670	Dues to unions and professional associations ⁸
4900-4930	Personal Taxes ⁹
5200	Alimony and child support ¹⁰

³ Shelter and transportation costs are excluded from the Other Expenses Multiplier “denominator” due to substantial variation among various communities.

⁴ Fridges and freezers are accounted for in the computation of shelter costs.

⁵ Stoves and ranges are accounted for in the computation of shelter costs.

⁶ Washers and dryers are accounted for in the computation of shelter costs.

⁷ Health insurance premiums are accounted for in the computation of MBM income.

⁸ Union and professional dues are accounted for in the computation of MBM income.

⁹ Personal taxes are accounted for in the computation of MBM income.

¹⁰ Alimony and child support are accounted for in the computation of MBM income.

Appendix 7: Source of each component in the MBM thresholds

Community names refer to Statistics Canada's Census Metropolitan Areas (CMA) and Census Agglomerations (CA).

Newfoundland	
St. John's	Food: St. John's Clothing: St. John's spatial index applied to A.L.L. estimate Shelter: St. John's rents with provincial rates of amenities Public transportation: St. John's
small urban <30,000	Food: Newfoundland <30,000 (Corner Brook, Grand Falls) Clothing: St. John's spatial index applied to A.L.L. estimate Shelter: Newfoundland <30,000 rents with provincial rates of amenities Private transportation: Newfoundland
rural	Food: Newfoundland <30,000 (Corner Brook, Grand Falls) Clothing: St. John's spatial index applied to A.L.L. estimate Shelter: Newfoundland rural rents with provincial rates of amenities Private transportation: Newfoundland
Prince Edward Island	
Charlottetown	Food: Charlottetown Clothing: Charlottetown spatial index applied to A.L.L. estimate Shelter: Charlottetown rents with provincial rates of amenities Private transportation: Prince Edward Island
small urban <30,000	Food: Charlottetown Clothing: Charlottetown spatial index applied to A.L.L. estimate Shelter: Prince Edward Island <30,000 rents with provincial rates of amenities Private transportation: Prince Edward Island
rural	Food: Charlottetown Clothing: Charlottetown spatial index applied to A.L.L. estimate Shelter: Prince Edward Island rural rents with provincial rates of amenities Private transportation: Prince Edward Island

Appendix 7: Source of each component in the MBM thresholds (Concluded)

Nova Scotia	
Sydney	Food: Sydney Clothing: Halifax spatial index applied to A.L.L. estimate Shelter: Sydney rents with provincial rates of amenities Public transportation: Sydney
Halifax	Food: Halifax Clothing: Halifax spatial index applied to A.L.L. estimate Shelter: Halifax rents with provincial rates of amenities Public transportation: Halifax
30,000 – 99,999 (Truro, New Glasgow)	Food: Nova Scotia 30,000 – 99,999 (Truro) Clothing: Halifax spatial index applied to A.L.L. estimate Shelter: Nova Scotia 30,000-99,999 rents with provincial rates of amenities Public transportation: Nova Scotia 100,000 – 499,999
small urban <30,000	Food: Nova Scotia 30,000 – 99,999 (Truro) Clothing: Halifax spatial index applied to A.L.L. estimate Shelter: Nova Scotia <30,000 rents with provincial rates of amenities Private transportation: Nova Scotia
rural	Food: Nova Scotia 30,000 – 99,999 (Truro) Clothing: Halifax spatial index applied to A.L.L. estimate Shelter: Nova Scotia rural rents with provincial rates of amenities Private transportation: Nova Scotia
New Brunswick	
Moncton	Food: Moncton Clothing: Saint John spatial index applied to A.L.L. estimate Shelter: Moncton rents with provincial rates of amenities Public transportation: Moncton
Saint John	Food: Saint John Clothing: Saint John spatial index applied to A.L.L. estimate Shelter: Saint John rents with provincial rates of amenities Public transportation: Saint John
30,000 – 99,999 (Fredericton)	Food: New Brunswick 30,000 – 99,999 (Fredericton) Clothing: Saint John spatial index applied to A.L.L. estimate Shelter: New Brunswick 30,000 – 99,999 rents with provincial rates of amenities Public transportation: Fredericton
small urban <30,000	Food: New Brunswick <30,000 (Bathurst) Clothing: Saint John spatial index applied to A.L.L. estimate Shelter: New Brunswick <30,000 rents with provincial rates of amenities Private transportation: New Brunswick
rural	Food: New Brunswick <30,000 (Bathurst) Clothing: Saint John spatial index applied to A.L.L. estimate Shelter: New Brunswick rural rents with provincial rates of amenities Private transportation: New Brunswick

Appendix 7: Source of each component in the MBM thresholds (Concluded)

Quebec	
Montreal	Food: Montreal Clothing: Montreal spatial index applied to A.L.L. estimate Shelter: Montreal rents with provincial rates of amenities Public transportation: Montreal
Quebec City	Food: Quebec City Clothing: Montreal spatial index applied to A.L.L. estimate Shelter: Quebec City rents with provincial rates of amenities Public transportation: Quebec City
100,000 – 499,999 (Hull, Chicoutimi/Jonquière, Sherbrooke, Trois-Rivières)	Food: Quebec 100,000 – 499,999 (average of Chicoutimi/Jonquière, Sherbrooke, Trois-Rivières) Clothing: Montreal spatial index applied to A.L.L. estimate Shelter: Quebec 100,000 – 499,999 rents with provincial rates of amenities Public transportation: Quebec 100,000 – 499,999 (average of Hull, Chicoutimi/Jonquière, Sherbrooke, Trois-Rivières)
30,000 - 99,999 (Saint-Jean-sur-Richelieu, Drummondville, Shawinigan, Granby, Saint-Hyacinthe, Rimouski, Sorel, Victoria - ville, Salaberry-de- Valleyfield, Rouyn-Noranda, Joliette, Val-D'or, Alma)	Food: Quebec 100,000 – 499,999 (average of Chicoutimi/Jonquière, Sherbrooke, Trois-Rivières) Clothing: Montreal spatial index applied to A.L.L. estimate Shelter: Quebec 30,000 – 99,999 rents with provincial rates of ameni- ties Public transportation: Quebec 30,000 – 99,999 (average of Saint-Jean- sur-Richelieu, Drummondville, Shawinigan, Granby, Victoria ville)
small urban <30,000	Food: Quebec 100,000 – 499,999 (average of Chicoutimi/Jonquière, Sherbrooke, Trois-Rivières) Clothing: Montreal spatial index applied to A.L.L. estimate Shelter: Quebec <30,000 rents with provincial rates of amenities Private transportation: Quebec
rural	Food: Quebec 100,000 – 499,999 (average of Chicoutimi/Jonquière, Sherbrooke, Trois-Rivières) Clothing: Montreal spatial index applied to A.L.L. estimate Shelter: Quebec rural rents with provincial rates of amenities Private transportation: Quebec

Appendix 7: Source of each component in the MBM thresholds (Concluded)

Ontario	
Toronto	Food: Toronto Clothing: Toronto spatial index applied to A.L.L. estimate Shelter: Toronto rents with provincial rates of amenities Public transportation: Toronto
Hamilton/Burlington	Food: Hamilton Clothing: Ottawa spatial index applied to A.L.L. estimate Shelter: Hamilton/Burlington rents with provincial rates of amenities Public transportation: Hamilton/Burlington
Ottawa	Food: Ottawa Clothing: Ottawa spatial index applied to A.L.L. estimate Shelter: Ottawa rents with provincial rates of amenities Public transportation: Ottawa
100,000 – 499,999 (London, Kitchener, St. Catharines-Niagara, Windsor, Oshawa, Sudbury, Kingston, Thunder Bay, Barrie, Guelph, Brantford, Peterborough)	Food: Ontario 100,000 – 499,999 (average of London, Windsor, Sudbury, Thunder Bay) Clothing: Ottawa spatial index applied to A.L.L. estimate Shelter: Ontario 100,000 – 499,999 rents with provincial rates of amenities Public transportation: Ontario 100,000 – 499,999 (average of London, Kitchener, St. Catharines-Niagara, Windsor, Oshawa, Sudbury, Kingston, Thunder Bay)
30,000 - 99,999 (Belleville, Sarnia, Sault Ste. Marie, Chatham, North Bay, Cornwall, Timmins, Brockville, Leamington, Orillia, Midland, Woodstock, Owen Sound)	Food: Ontario 30,000 – 99,999 (Sarnia) Clothing: Ottawa spatial index applied to A.L.L. estimate Shelter: Ontario 30,000 – 99,999 rents with provincial rates of amenities Public transportation: Ontario 30,000 – 99,999 (Sarnia)
small urban <30,000	Food: Ontario 30,000 – 99,999 (Sarnia) Clothing: Ottawa spatial index applied to A.L.L. estimate Shelter: Ontario <30,000 rents with provincial rates of amenities Private transportation: Ontario
rural	Food: Ontario 30,000 – 99,999 (Sarnia) Clothing: Ottawa spatial index applied to A.L.L. estimate Shelter: Ontario rural rents with provincial rates of amenities Private transportation: Ontario

Appendix 7: Source of each component in the MBM thresholds (Concluded)

Manitoba	
Winnipeg	Food: Winnipeg Clothing: A.L.L. estimate for Winnipeg Shelter: Winnipeg rents with provincial rates of amenities Public transportation: Winnipeg
30,000 – 99,999 (Brandon)	Food: Manitoba 30,000 – 99,999 (Brandon) Clothing: A.L.L. estimate for Winnipeg Shelter: Manitoba 30,000-99,999 rents with provincial rates of amenities Public transportation: Brandon
small urban <30,000	Food: Manitoba 30,000 – 99,999 (Brandon) Clothing: A.L.L. estimate for Winnipeg Shelter: Manitoba <30,000 rents with provincial rates of amenities Private transportation: Manitoba
rural	Food: Manitoba 30,000 – 99,999 (Brandon) Clothing: A.L.L. estimate for Winnipeg Shelter: Manitoba rural rents with provincial rates of amenities Private transportation: Manitoba
Saskatchewan	
Regina	Food: Regina Clothing: Regina spatial index applied to A.L.L. estimate Shelter: Regina rents with provincial rates of amenities Public transportation: Regina
Saskatoon	Food: Saskatoon Clothing: Regina spatial index applied to A.L.L. estimate Shelter: Saskatoon rents with provincial rates of amenities Public transportation: Saskatoon
30,000 – 99,999 (Prince Albert, Moose Jaw)	Food: Saskatchewan 30,000 – 99,999 (Prince Albert, Moose Jaw) Clothing: Regina spatial index applied to A.L.L. estimate Shelter: Saskatchewan 30,000 – 99,999 rents with provincial rates of amenities Public transportation: Saskatchewan 30,000 – 99,999 (average of Prince Albert and Moose Jaw)
small urban <30,000	Food: Saskatchewan 30,000 – 99,999 (Prince Albert, Moose Jaw) Clothing: Regina spatial index applied to A.L.L. estimate Shelter: Saskatchewan <30,000 rents with provincial rates of amenities Private transportation: Saskatchewan
rural	Food: Saskatchewan 30,000 – 99,999 (Prince Albert, Moose Jaw) Clothing: Regina spatial index applied to A.L.L. estimate Shelter: Saskatchewan rural rents with provincial rates of amenities Private transportation: Saskatchewan

Appendix 7: Source of each component in the MBM thresholds (Concluded)

Alberta	
Calgary	Food: Calgary Clothing: Edmonton spatial index applied to A.L.L. estimate Shelter: Calgary rents with provincial rates of amenities Public transportation: Calgary
Edmonton	Food: Edmonton Clothing: Edmonton spatial index applied to A.L.L. estimate Shelter: Edmonton rents with provincial rates of amenities Public transportation: Edmonton
30,000 – 99,999 (Lethbridge, Red Deer, Medicine Hat, Wood Buffalo, Grande Prairie)	Food: Alberta 30,000 – 99,999 (Lethbridge) Clothing: Edmonton spatial index applied to A.L.L. estimate Shelter: Alberta 30,000 – 99,999 rents with provincial rates of amenities Public transportation: Alberta 30,000 – 99,999 (average of Lethbridge, Red Deer, Medicine Hat, Wood Buffalo (Fort McMurray))
small urban <30,000	Food: Alberta 30,000 – 99,999 (Lethbridge) Clothing: Edmonton spatial index applied to A.L.L. estimate Shelter: Alberta <30,000 rents with provincial rates of amenities Private transportation: Alberta
rural	Food: Alberta 30,000 – 99,999 (Lethbridge) Clothing: Edmonton spatial index applied to A.L.L. estimate Shelter: Alberta rural rents with provincial rates of amenities Private transportation: Alberta
British Columbia	
Vancouver	Food: Vancouver Clothing: Vancouver spatial index applied to A.L.L. estimate Shelter: Vancouver rents with provincial rates of amenities Public transportation: Vancouver
100,000 – 499,999 (Victoria, Kelowna, Abbotsford)	Food: British Columbia 100,000 – 499,999 (Victoria, Kelowna, Abbotsford) Clothing: Vancouver spatial index applied to A.L.L. estimate Shelter: BC 100,000 – 499,999 rents with provincial rates of amenities Public transportation: British Columbia 100,000 – 499,999 (Victoria, Kelowna, Abbotsford)
30,000 – 99,999 (Nanaimo, Kamloops, Prince George, Chilliwack, Vernon, Courtenay, Penticton, Duncan, Campbell River)	Food: British Columbia 30,000 – 99,999 (Prince George) Clothing: Vancouver spatial index applied to A.L.L. estimate Shelter: British Columbia 30,000 – 99,999 rents with provincial rates of amenities Public transportation: British Columbia 30,000 – 99,999 (average of Nanaimo, Kamloops, Prince George)
small urban <30,000	Food: British Columbia 30,000 – 99,999 (Prince George) Clothing: Vancouver spatial index applied to A.L.L. estimate Shelter: BC <30,000 rents with provincial rates of amenities Private transportation: British Columbia
rural	Food: British Columbia 30,000 – 99,999 (Prince George) Clothing: Vancouver spatial index applied to A.L.L. estimate Shelter: British Columbia rural rents with provincial rates of amenities Private transportation: British Columbia

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Poverty Measurement Methods— An Overview

BY JULIO BOLTVINIK

In this paper two aspects of poverty measurement are reviewed. First, some conceptual issues regarding the definition of poverty and its different dimensions are explored. Second, based on this discussion, a three-way classification of poverty measurement methodologies is introduced: income poverty line (a unidimensional, indirect approach); unsatisfied basic needs (a multidimensional, direct approach), and combinations of the two approaches. Within each of these groups, different variants are presented and assessed.

Introduction—Some Conceptual Issues Behind Poverty Measurement

Contents

This article provides a broad panorama of poverty measurement methodologies. The basis for the classification is explored in the first part, while the methods are described in the second part.

The first distinction between methodologies is whether they rely entirely on one variable (usually money) as the yardstick or not. This divides the field into unidimensional and multidimensional methodologies. This issue is discussed in the section “The Lack of a Unique Measurement Yardstick” below. The second distinction is whether dissatisfaction of needs is assessed directly or indirectly. These can also be combined (see last part of the next section). Both distinctions constitute the organizing principles for the tables in the text and the annexes. It should be noted that not all of these methodologies described are used for identifying (counting) the number of poor households or individuals; some are used to rank geographical areas. As such, they do not constitute poverty measurement methodologies in the strict sense of the term. However, given their close association with the latter, they have been included.

Poverty is regarded throughout this essay as a special case of the measurement of well being. The purpose of the introduction is to clarify some of the conceptual issues behind the measurement of poverty and well being. The next section broaches the definition of poverty and refers to concepts

of human needs. The spectrum of human needs has to be restricted, it is argued, in order for poverty to be a meaningful analytical concept.

The section titled “The Lack of a Unique Measurement Yardstick” links the problems of conceptualizing and measuring poverty with some general issues of development indicators and policies based on them. This section highlights the distinction between unidimensional and multidimensional measurement of poverty.

The following section “On the Nature of the Poverty Threshold Definition” deals with a central topic for the measurement of poverty. This can be expressed as the polemic on whether the poverty threshold is (or should be) arbitrarily defined by the interested party (researcher, government, etc.), or whether it has a social objective existence and the duty of scientific research is to observe and describe it. The first part of this paper concludes with a brief account of the controversy between the advocates of the absolute and of the relative concepts of poverty.

The central part of this article describes the panorama of poverty measurement methodologies. It does not aim at being exhaustive. Only those approaches of methodological interest have been included. Poverty studies are conceived as a special case of welfare studies. This explains the inclusion of some methods that are designed for the measurement of welfare or deprivation, rather than strictly poverty.

Some Conceptual Issues on Poverty

According to *The Concise Oxford Dictionary*, the adjective poor means “lacking adequate money or means to live comfortably.” The noun poverty is defined as the state of being poor and as “want of the necessities of life.” As in Spanish (*pobreza*) and Arabic (*faqr*), the word gives the sense of lacking those things that are necessary. Therefore, we should look at the meaning of necessity, necessary and need. The first is a noun defined as an indispensable thing, as an imperative need, and as “a state of things or circumstances enforcing a certain course.” The same applies in Spanish and Arabic. This same meaning is contained in one definition of the adjective necessary: “determined, existing, or happening by natural laws... not by free will.” Poverty can be construed as a state of necessity in which freedom is absent. The coincidences and differences between meanings, when comparing languages, might be very instructive.

From the above it is clear that: 1) poverty and the poor are associated with a state of want, with deprivation; 2) such deprivation is related to the necessities of life. Thus, the term poverty, in its daily use, implies a comparison between the conditions of a person, family or human group, and the perception of the one who speaks or writes, about what is necessary to sustain life. That is to say, poverty always implies a comparison between an observed and a normative (standard) condition. While these norms are implicit in daily life, they must be explicit in scientific language. While in daily life it is the conception of the one who speaks or writes about the

necessaries of life that might be validly used, in social research, as we will argue strongly later, it is the socially prevailing conception which has to be brought forth. The normative content of the concept makes it different from many other concepts used in the social sciences, which are entirely positive. This has to be kept in mind to understand some frequent difficulties faced by those who work in this field. We will come back to this issue later, when discussing the nature of these norms, standards or thresholds. Despite this fact, not all measurement methods are normative. There are, as we shall see, some non-normative or empirical methods.

Necessity or need can be contrasted with desire and preference. Desire is defined in the dictionary as an “unsatisfied longing or craving,” and preference is defined as the “favouring of one person before others,” the verb to prefer is explained as “choose rather or like better.” Clearly, there is a gradation of significance from necessity or need to preference, with desire occupying an intermediate position. This gradation goes from the irresistible drive of need, which has an involuntary character, to the voluntary strong elements of desire, to preferences, which lack the force of desire but which are also voluntary. The preceding has to be considered when applying economic analysis, almost entirely based on preferences, to the poverty issue.

As stated, the conception of poverty depends on the concept of human needs that is adopted. However, human needs are not just biological needs. Biological needs are only a point of departure. As human beings are capable of transforming a wide variety of natural phenomena into the object of their needs and activities, the development of productive skills determines the emergence of new needs and the modification of existing ones. Thus, human needs (as well as capacities) are socially and historically determined. Moreover, production and the income derived from it cannot be viewed as instruments to satisfy needs which are independent of them.

Consequently, human needs can be understood as biological needs such as food and shelter, and non-biological needs including intellectual, recreational, aesthetic and religious needs.

This discussion has so far addressed the relationship between needs and poverty. However, not all needs should be included in a definition of poverty. Needs can be classified into those whose satisfaction depends primarily on economic conditions (availability and access to scarce resources), and those that depend primarily on noneconomic ones. These categories are sometimes called material or structurally determined and nonmaterial or agent-determined.

If the concept of poverty, in its definitional dimensions, is to be useful at all, it has to be restricted to those human needs whose satisfaction depends on economic conditions, i.e., that are structurally determined. Otherwise, poverty gets confused with other dimensions of human suffering or human disadvantage. If the definition of poverty were to include concepts whose satisfaction does not depend on access to resources (like affection, participation, creation, identity and freedom) some paradoxical results could be

obtained. For instance, a very rich man who is very lonely would be classified as poor. Then the differentiating capacity of the concept (its ability to distinguish the poor from the nonpoor) would be lost. Then it would become useless as a tool for policy. This does not mean, however, that in the determinants of poverty some of these needs might not play a role, sometimes an important one. This could be the case, for instance, of the need to participate in social and political activities. When people participate in the solution of their problems, success is easier to attain. So, it is valid to include some of these dimensions in the poverty discussion at the explanatory and at the policy level, but not at the definition level.

Human needs change throughout life. For instance, when children are small and numerous, household needs are large but income earning capacity is low, so many households fall below the poverty thresholds during this period. Also, life has many risks, which might affect the economic situation of an individual or a household. A person can become sick or disabled and lose his/her ability to work. The breadwinner might die. There might be a crop failure due to the weather or to a plague. Someone might become unemployed. These risks give rise to an additional human need: *security*, i.e., that conditions for the satisfaction of human needs be present throughout life. Traditional insurance mechanisms among families and social security are both designed to cope with this need. Some people fall into poverty transitorily because one of these risks is realized. Some live permanently in poverty. Both the changing relation between resources and needs through the life cycle and the risk factor may cause households to fall, temporarily or permanently, into poverty. Although these elements are important in understanding the dynamics of poverty, conceptually it is useful to distinguish poverty from poverty risk.

Once the conceptual and definition issues are cleared, poverty has to be measured. Unsatisfied human needs can be observed directly. For instance, one can find out if somebody is able to read and write, or, one can calculate the caloric intake of a person to define if he/she is meeting this measure of nutritional requirements. One is thus verifying the *factual satisfaction* of needs. The observed condition is compared, need by need, or satisfier by satisfier, with its normative threshold. This is the *direct or basic-needs approach to poverty measurement*. A nontrivial issue regarding this method is what elements to include as basic needs. In what follows this approach is called the Unsatisfied Basic Needs Method.

Alternatively, one can measure the resources (not only income but, in a more general sense, entitlement or rights) that a household commands, and compare the magnitude and composition of these resources with the resource requirement to meet the set of basic needs.¹ This is the *indirect approach to the measurement of poverty*. When the resources identified are reduced to private current income (or private consumption expenditures) the methodology is referred to as *poverty line*. This consists of comparing a specified level of income (or consumption) called “the poverty line” with

actual household income (or consumption/expenditure). Both terms of the comparison are expressed as a quantity of money per unit of time. This is the only method, within the indirect approach, which has been applied empirically. In the indirect approach, what one identifies is the *potential satisfaction of human needs*. In effect, the household with a high level of income might not satisfy any need if it saves most of its income, or even when it spends huge amounts on things like alcohol and drugs. Nevertheless, the method classifies them as nonpoor when they have the resources to meet needs but choose not to do so.² Clearly, both approaches have a different concept of poverty. Each has its own merits and demerits. The use of both approaches gives way to the combined (or mixed) methodologies of poverty measurement.

The Lack of a Unique Measurement Yardstick

Any integral approach to the measurement of living standards, poverty and development (or alternative bases to GDP), confronts the problem of the lack of a unique measurement yardstick. This problem is avoided in national accounting, where money plays the role of unique and universal yardstick. This is achieved by national accounting systems at the cost of measuring only those objects which the economic process measures in terms of value: commodities or bought-use values (i.e., use values acquired through the market).³

Can money be adopted as the sole measuring rod in the study of poverty and of the standard of living? Those who use the indirect approach and identify the poor using the poverty line methodology but very strong, give a positive answer, implicit. In many countries, this is the official method for measuring poverty and the one most frequently used.⁴ It is the method promoted by the World Bank.⁵ It is also utilized by the Economic Commission for Latin America and the Caribbean (CEPAL by its name in Spanish).⁶

In practice, then, poverty is most commonly measured in money-metric terms, while social indicators are used side-by-side, unintegrated. A sort of social schizophrenia prevails. Development is assessed by growth in GDP, the aggregate of goods and services measurable with money. Poverty, under the same logic, is measured with income, again a sum of money. In parallel, a nonstructured and variable list of social indicators is handled, which are not directly or immediately incorporated in the measurement of poverty or development. Even though poverty is measured only in money-metric terms, strategies to alleviate it focus on human capital (interpreted as investing in education, nutrition and health). This generalized social schizophrenia is an expression of the disassociation of the economic and social realms, of production and consumption, of use values and exchange values, of what is measured by money and what is not.

Although the three elements (GDP, poverty and social indicators) form part of the analytic universe of governments and international organizations, at the end of the day appraisals and decision making are based on GDP behaviour and poverty is measured in money-metric terms. Given the

overwhelmingly institutionalized acceptance of the poverty-line method, one might wonder about the role which could be played by social indicators, like literacy rates or drinking water availability, most of which are obviously linked with the standard of living and deprivation but expressed in terms very different from money.

Some alternative approaches to the measurement of poverty, the standard of living and development, have been constructed starting from the explicit rejection of the possibility of finding a unique and universal measuring rod, and thus inevitably become multidimensional approaches. It should be noted that UNDP has adopted exactly this position as can be seen in its Human Development Reports (1990–1997).⁷ Although there are many variants of this approach, they usually start with the “natural” units of measurement of each indicator, as does the Human Development Index.

Summarizing the conclusions of this and the previous section, we could classify poverty measurement instruments as uni- or multidimensional. Also, they could be classified as direct or indirect measurements.

As mentioned above, the poverty line (PL) is the only existing application of the indirect method and it is the quintessential unidimensional method. In contrast, nonmoney-metric indicators are by their very nature multidimensional. For example, the variants of Unsatisfied Basic Needs (UBN) methodology utilize several indicators in order to cover a representative set of basic needs. Although it is conceivable to construct direct-unidimensional and indirect-multidimensional indicators, they have not been applied in practice. In the second part of this paper, different applications of the PL and UBN, as well as methods which combine them, are further explored. Before embarking on this, however, the issues relating to how to set poverty thresholds must be addressed.

On the Nature of the Poverty Threshold Definition

Is it true, as Mollie Orshansky (1969, p. 37) stated, that “poverty, like beauty, lies in the eyes of the beholder”? This is also the position adopted by many development organizations. For instance, in a recent book by the World Bank on poverty and income distribution in Latin America it is stated: “any poverty cut-off will reflect some degree of arbitrariness due to the subjectivity of how poverty is defined” (World Bank, 1993, p. 51). According to this perspective, the concept of poverty is a value judgment by the researcher.

On the other hand, Karl Marx states in *Capital* that, in contradiction to other commodities, “there enters into the determination of the value of labour-power a historical and *moral* element. Nevertheless, in a given country, at a given period, the average quantity of the means of subsistence necessary for the labourer is *practically known*” (*Capital*, Chapter VI, my emphasis). Note two things: first, the historical and moral element and, second, the explicit social character of knowledge about what the subsistence means are, i.e., these needs not only have a social existence, but their specificities are socially known.

Amartya Sen (1981, chapter 2), arguing against the subjective view of poverty, considers that researchers describe existing social prescriptions (norms or standards), thus implying that these prescriptions or norms *have a social objective existence and can be observed and described by the social scientist*. In fact, if what Marx says above is true, the social scientist would be required to know no more than ordinary people.

The well-known British historian, E. P. Thompson (1971 and 1993), coined the term *Moral Economy* and applied it to the analysis of “bread” riots in 18th century Britain. Subsequently, James Scott (1976) has applied this term and other authors, to tribal and peasant societies. According to Scott, both the peasantry in the Third World and in pre-capitalist Europe were organized, before the capitalist transformation, to provide social insurance to individual households, minimizing their risk of falling below a *minimum income*. “Traditional forms of patron-client relationships, reciprocity, and redistributive mechanisms may be seen from this perspective.” This minimum income should not only provide for subsistence but also for “a certain level of resources to discharge necessary ceremonial and social obligations” (p. 9). Subsistence needs or minimum income had behind them not only a moral element but were also a driving force for the organization of the economy and for uprisings when the acceptable rules were violated. Thus, Scott states that two themes prevailed in peasant protest: “first, claims on peasant incomes by landlords, moneylenders, or the State were never legitimate when they infringed on what was judged to be the *minimal culturally defined subsistence level*; and second, the *product* of the land should be distributed in such a way that all were guaranteed a subsistence niche” (p. 10). As E. P. Thompson expressed it, “a consistent traditional view of social norms and obligations, of the proper economic functions of several parties within the community, which, taken together, *can be said to constitute the moral economy of the poor*. An outrage to these moral assumptions, quite as much as actual deprivation, was the usual occasion for direct action” (1993, p. 188).

Two conclusions with regards to our subject can be derived from Scott’s and Thompson’s analyses. First, in both of them it is implicit that the minimum culturally defined subsistence level is quite well known by the people (otherwise they would not know when protest is due). Second, it reminds us that political economy is also, inevitably, moral economy. That moral social responsibility for the life and well being of people is something present in all societies. After all, the main purpose of poverty studies should be a moral one: overcoming poverty.

Peter Townsend (1979) tried to achieve an *objective* definition of the poverty line when he was looking for a point in the income curve below which the indices of deprivation increased quickly. (For a review of the very intense discussion that this attempt brought about, see M. Desai and Anup Shah, 1988, reproduced in M. Desai, 1995, as well as Desai, 1986.) Later on, Townsend and Gordon, 1993, and in Townsend, 1993, pursuing the

same goal, carried out a discriminate analysis, “a technique that does not require a predefined ‘poverty threshold.’ We have assumed that two groups exist: a generally smaller ‘multiply deprived’ group (poor) and a larger group who suffer from less deprivation (nonpoor). Since there is a direct relationship between income and deprivation, the income level (or narrow band of income levels) at which these two groups can best be separated ‘objectively,’ can be considered to be the poverty line.” (p. 57).

In deep contrast, and as part of the controversy that followed Townsend’s 1979 monumental work, Piachaud (1981, reproduced in Townsend, 1993) states that Townsend’s search for an objective measure is “not only destined to eternal frustration but also profoundly wrong. Social scientists can describe the inequality of resources within and between countries as objectively as possible. *But inequality is not the same as poverty....* The definition by an individual, or by society collectively, of what level represents ‘poverty,’ will always be a value judgment.” (p. 119)

This is a crucial controversy. For if these norms do not have an objective social existence, then the concept of poverty cannot be regarded as amenable for scientific research and the measurement of poverty would be a subjective exercise only. As Sen has put it: it would be the display of the researcher’s personal morals on the statistics of deprivation (1981, p. 17).

The position taken in this article is that social prescriptions defining thresholds in human needs are social norms that motivate and drive people towards their achievement. These prescriptions come increasingly, but not only, from specialists. For instance, dentists prescribe the use of a dental brush; advertisement reinforces this prescription; after many years, it becomes a social norm and an essential satisfier. Some norms have an international character and have been agreed by international organizations. They are sometimes incorporated within legislation and/or become the goals of grass-roots organizations. Peer groups socialize many norms. As Adam Smith, the father of political economy, pointed out in a widely quoted paragraph from the *Wealth of Nations*, people feel ashamed when they are unable to meet the minimum social prescriptions. Nowadays, any Mexican would be ashamed to come to a public gathering without shoes. This was not the case 50 years ago.

These prescriptions have universal and locally determined elements. Some universal elements are determined by international conventions and consensus-forming. In open societies universal elements become more important than in closed ones. To distinguish between the two, it is important to understand how is it that specific satisfiers become indispensable. A good example is the private car in Lebanon. As public transportation is almost nonexistent, the private car tends to become an essential satisfier.⁸ So a car is much more a necessity in Beirut than in London, which has a fairly good public transportation system. In more general terms, it is the conditions of production and consumption that define what satisfiers will become essential to meet a certain need. For instance, in a service-oriented

economy like the Lebanese, a labour force with high levels of education is essential. This becomes a structural determinant of the importance given to education in the country. To give some other examples, working times, long time journeys from work to home, and participation of women in the labour force, have produced a social need to consume prepared food outside the home in large Latin American cities. Day-care centres for pre-school children of working mothers has also become a social need as the participation of women in the labour force has increased in Latin America. In identifying what satisfiers become indispensable in a given society, this type of analysis becomes necessary. It has to be complemented with some sociological-anthropological analysis of how prescriptions reach people, how they are socialized and how they motivate behaviour. Lastly, analysis of prescriptions by specialists, like medical doctors or nutritionists, and by international and national organizations, has to be carried out. The eating culture of a country determines, to a large extent, mediated by the influence of prices, what foodstuffs are preferred and thus become indispensable.

The Controversy between Absolute and the Relative Conceptions of Poverty

This controversy, initiated in the United Kingdom, revolves around the answer to the following question, according to A. Sen (although he restricts the pertinence of the controversy unnecessarily to rich countries): “Should poverty be estimated with a cut-off line that reflects a level below which people are, in some sense, ‘absolutely impoverished,’ or a level that reflects (minimum) standards of living ‘common to that country’ in particular?” (1984, p. 325).

One of the most outstanding advocates of the relative concept has been Townsend, who has stated, for example, that “any rigorous conceptualization of the social determination of need dissolves the idea of “absolute” need. And a thorough-going relativity applies to time as well as place. The necessities of life are not fixed. They are continuously being adapted and augmented as changes take place in a society and in its products.” (1979a, quoted by Sen, 1984, p. 328).

After publishing *Poverty and Famines* (1981), A. Sen was viewed as the main advocate of the absolute concept of poverty. In that work he stated, “there is an irreducible core of *absolute* deprivation in our idea of poverty, which translates reports of starvation, malnutrition and visible hardship into a diagnosis of poverty without having to ascertain first the relative picture. Thus the approach of relative deprivation supplements rather than supplants the analysis of poverty in terms of absolute dispossession” (1981, p. 17).⁹

One does not need to conceive of absolute poverty as reduced to starvation, in order to agree with Sen. Thus, O. Altimir (1979, p. 11) has gone beyond this starvation idea of absolute poverty and has argued that it is based in our conception of human dignity and human rights:

“Our perception of this irreducible core of absolute poverty, independently of the context of the country or community in question, has as a reference some basic welfare elements, of the living style prevailing in industrialized societies, elements to which we believe all human beings are entitled to. The absolute norm which allows us to define this irreducible core, whatever the national situation, springs from our current notion of human dignity and from the universality attributed to basic human rights, whose fulfilment should not depend on local scarcity of resources, nor on cultural resignation, internalized through centuries of misery and oppression. It is beyond this irreducible core of absolute poverty where conditions of relative deprivation can be found, only definable with regard to the predominant lifestyle in each community.”

Thus, for Altimir, the absolute irreducible core of poverty is much more than rice and encompasses all human rights. Both authors can be interpreted as saying that the poverty standard (threshold or line) has two components: the absolute core (universal) and the relative one (specific to each society).

In later writings, Sen somewhat modified this idea. In his “Poor, Relatively Speaking” (1983, reproduced in 1984), he argues that “poverty is an absolute concept in the space of capabilities but very often it will take a relative form in the space of commodities or characteristics” (1984, p. 335). Thus, Sen criticizes Townsend for not distinguishing the space of needs from the space of goods and services. His assertion that needs are not fixed is out of focus, according to Sen, for the “cases that are typically discussed in this context involve a different bundle of commodities and a higher real value of resources fulfilling the *same* general needs”. (Ibid., p. 336).

Townsend replied to this critique by bringing out some of the political implications of Sen’s emphasis on absolute poverty. “Professor’s Sen’s argument carries the dangerous implication that meagre benefits for the poor in industrial societies are more than enough to meet their (absolute) needs and, depending on economic vicissitudes, might be cut,” he wrote. “Professor’s Sen minimalism is worrying, therefore, not only because he appears to ignore or underestimate the importance of certain forms of social need, but because that indifference or underestimation carries an implicit recommendation for policy. It opens the door to a tough state interpretation of subsistence rations” (1985, extracted in 1993, p. 132). On the other hand, Townsend questions Sen’s capability approach, by asking how the capabilities are selected and in what sense they are absolute. He puts forth the idea that notions of shelter, disease, etc., are social notions, whereas “Sen’s conceptualization does not allow sufficiently for the social nature of people’s lives and needs.” He ends his reply by saying, “His is a sophisticated adaptation of the individualism that is rooted in neo-classical economics. That theoretical approach will never provide a coherent explanation of the social construction of need” (Ibid., p. 136).

Although this debate has not come to a close yet, it is important to keep in mind the difficulties in determining the threshold below which people are considered poor. Especially, as most of the poverty measures described in the rest of the chapter rely on being able to specify such a threshold.

Panorama of Available Poverty Methods

This paper describes several poverty measurement methods. The following section describes the non-normative methods. The second section describes the semi-normative and normative ones. For the purposes of this classification, normative methods are those which define a threshold (or thresholds) *on the basis of some notion of a minimum living standard* (however vague or imprecise) and then compare it with the household or individual observed. Non-normative methods either define a threshold based on a notion disconnected from a minimum living standard or do not define an *ex-ante* threshold.

Non-normative (Relative) Measurement Methodologies

Among the non-normative methods one finds the purely relative ones, which define the poverty line as a fraction of average income (or median or mode) or those which define the poor as the population in certain specified deciles.

One would also include here procedures like the Wolf Point or equilibrium point method, which identifies the poverty line as that level of income where household savings are zero. The argument for this methodology is that consumers make reasonable choices in allocating their budget. According to Lidia Barreiros (1992) and others, “This method seems very rudimentary for the analysis of poverty.”

H. F. Oshima and D. Nanto (quoted by Barreiros, 1992) have identified the income level where the Engel coefficient (proportion of income/ expenditure) allocated to food reaches a maximum,¹⁰ which would indicate that the household has reached a point where most “urgent food needs have been met.” Barreiros concludes that this point in Ecuador can only be identified in the rural areas and that the resulting poverty line is at less than 50 per cent of the cost of the minimum diet, thus rejecting the method as useless.

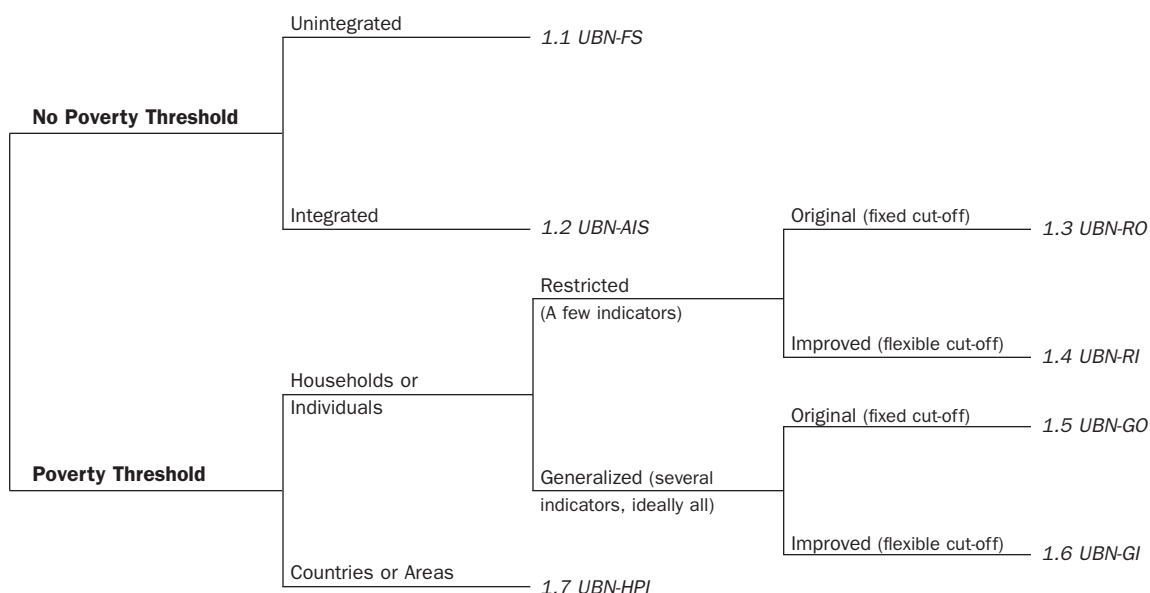
All these procedures attempt to identify a pattern of household behaviour that might indicate that food or all basic needs have been met. Thus, they could be termed the “poverty line revealed” procedures.

A Map of Semi-normative and Normative Methods

In this section, a very general panorama of semi-normative and normative methods is given.¹¹ The methods presented have been classified into three groups: multidimensional-direct, unidimensional-indirect and multidimensional-combined methods. As previously discussed, these are the only methodologies which have actually been applied.

VARIANTS OF THE UNSATISFIED BASIC NEEDS (UBN) OR DIRECT MULTIDIMENSIONAL METHOD

Not all multidimensional methods apply to individuals (or households) or provide a threshold with which to define poverty. A division between those methods, which do and do not offer such a criterion is shown in Graph 1.

Graph 1**Unsatisfied Basic Needs (UBN)**

1.1 UBN-FS—UBN-Fragmented Sectorial

1.2 UBN-AIS—UBN-Area Integrated Sectorial

1.3 UBN-RO—UBN-Restricted Original

1.4 UBN-RI—UBN-Restricted Improved

1.5 UBN-GO—UBN-Generalized Original

1.6 UBN-GI—UBN-Generalized Improved

1.7 UBN-HPI—UBN-Human Poverty Index

Those methods, which do provide a criterion to define the poor, are further divided into those, which apply to individuals (or households), and those, which apply to countries.¹²

There are two variants of the UBN methods that do not identify poor individuals or households but rather rank geographical areas. In both, a minimum threshold is defined in each dimension (need) analyzed (i.e., literacy, piped water, caloric and protein requirements) and the proportion of population below that threshold is calculated for each geographical area. This is a traditional method in social analysis and many of the so-called social indicators have this format. After this is done there are two options. In the first one each dimension is analyzed separately and one ends up with a list of partial gaps for each geographical level. This may be called the Fragmented Sectorial (UBN-FS) variant (branch 1.1). Examples of the UBN Fragmented Sectorial variant are the COPLAMAR sectorial volumes (COPLAMAR, 1983 a, b, c and d) and UNDP's gap analysis for Latin America as a whole.¹³ At the international level, UNDP's Human Development Reports and some World Bank reports are good examples.¹⁴ This approach is useful for sectorial analysis and planning, as well as for social

planning as a whole. Nevertheless, from the standpoint of poverty, it does not allow to calculate a unified target population, but handles fragmented target populations. As a matter of fact, the word poverty is not used in this approach.

The other option, which constitutes the next variant, is to synthesize all the indicators for each geographical area into one composite index. It can be labeled the UBN Area-Integrated Sectorial (UBN-AIS) variant (branch 1.2). This is similar to the previous approach, but goes a step further and obtains a composite index, by a statistical procedure (usually the principal components technique) which produces the weights for each indicator.¹⁵ The result, the poverty or marginality index (as it has been called in Mexico) is in the form of a pure number without specific content, which is then used to rank (ordinal) geographical areas from the more deprived (marginalized) to the less so. The studies by the National Council for Population (CONAPO, 1993) in Mexico are a good example of the approach.

The other methodologies are derived from the previous two, but the different dimensions are seen at the household level, allowing for the identification of poor households and individuals. Some of them can also be used, as in the previous two methods, to rank geographic regions (typically countries). Those, which apply strictly to households and individuals, can be further divided into restricted and general methods (see Graph 1).

The difference between the restricted and general methods is basically the number of indicators. Restricted methods comprise a few indicators (usually chosen by experts) while general indicators attempt to capture all dimensions of poverty. Thus, in one variant of the restricted indicators the procedure of identification is as follows. A few basic needs are chosen as indicators, and households (or individuals) are examined to see whether each need is satisfied. This transforms each need (dimension of poverty) into a yes–no indicator.¹⁶ All households, which have one or more indicators below the threshold, are considered poor.

However, this method does not allow one to estimate the poverty gap or poverty intensity, neither at the household nor at the aggregated level (and, as a consequence, none of the other poverty measures). Besides, given the poverty criterion, which identifies those households as poor with one or more items below the threshold, poverty incidence is not independent of the number of indicators included. In fact it cannot decrease, but usually increases as more indicators are included. This is a very negative feature for a measurement method. This can be termed the UBN Restricted Original (or UBN-RO, branch 1.3) variant because it is built with few indicators covering only some basic needs (typically: housing, water, sewerage and attendance at grammar school by school-age children. See Table 1 in the annex for the Colombian example). The UBN-RO has been extensively applied in Latin America for building “poverty maps.”¹⁷

When this method is modified by allowing each indicator (dimension of poverty) to take more values than just yes or no, several of these negative properties are overcome. For example, it allows the poverty gap, and other poverty measures, to be calculated. Also, poverty incidence may be separated from the number of indicators (needs) included, allowing for an enlarged number of poverty dimensions. Besides, the threshold is no longer whether a particular need is satisfied or not but depends on the degree to which it is satisfied. Thus, a procedure to include people's views about the appropriate level of unsatisfaction to decide who is poor and who is not, can also be introduced. This implies a relative concept of poverty as thresholds within a given item (for instance overcrowding), which vary according to the levels attained in the specific society. This procedure shares with the UBN-AIS the weighting of individual indicators to obtain an overall index, but instead of doing it at geographical units, goes down to the household level. This variant may be called the UBN Restricted Improved (UBN-RI) method (branch 1.4).

Attempts have been made to go beyond a few indicators and verify directly, in principle, the satisfaction of all human needs. The emphasis is on indicators, which represent the style of living. In order to avoid the criticism that many lifestyle indicators reflect tastes or preferences and not necessarily deprivation (criticism raised on Townsend's work, especially by Piachaud), Mack and Lansley (1985) introduced the concept of "enforced lack," by which deprivation in a certain item is counted only when people answered they could not afford the item although they consider it a necessity. This version includes more indicators of need than the restricted versions, which, when not satisfied, can be called "enforced lack items" (ELI). The prototype of this approach is Mack and Lansley (1985)¹⁸ who adopted the rule that three or more ELI (from a list of 26 necessities) implies being poor. Like the restricted original method, this procedure does not calculate the distance of each household to the threshold. Thus, poverty gaps cannot be calculated. Also, the number classified as poor cannot decline, but tends to increase, when the number of indicators increases. In contrast, this approach shares with the restricted improved method the relative nature of the poverty threshold. In contrast to all previous variants, which rely on expert judgment, the definition of thresholds is based here on people's opinion on what is necessary and what is not. I call this the Generalized Original (UBN-GO) approach (branch 1.5).

Working towards generalizing this approach, Desai and Shah (1988, reprinted in Desai, 1995) proposed to start from a measure which is continuous, can be estimated for each household and is suitable for constructing poverty indices, thus overcoming the limitations of UBN-GO. In order to combine specific deprivation indicators into an overall household deprivation index, the weights are based on proportions of the population satisfying the

item, thus reflecting subjective feelings of deprivation, which are worse when one belongs to a small deprived minority. Although empirically they were limited in applying it by the fact that Townsend's indicators (with which they worked), are dichotomical, their variant could be termed the UBN Generalized Improved (UBN-GI) method, which has not been applied (branch 1.6).

Finally, some indices are made up by counting the percentage of people who satisfy, or do not satisfy, certain needs. The weighted average of these percentages can be used both to rank countries, as the fragmented and integrated sectorial approaches, and as a measure of poverty, i.e., percentage of households or people who do not satisfy certain needs, which is similar to a poverty headcount. One such method is the capability-functioning approach, developed by Amartya Sen. Although it is presented here as a variant of the direct method, it would require a different place in the classification. Nevertheless, Professor Sen's proposal has remained mostly a conceptual one, and very little progress has been made in the operationalizing it. In this paper it is limited to two attempts at operationalization. In the *Human Development Report 1996*, the Capability Poverty Measure was used at the country level. The measure is an arithmetic mean of three "capability" indicators.¹⁹ These indicators are not easily distinguishable from classic basic needs indicators, reflecting the difficulties of implementing Sen's approach.²⁰

A new index was presented in the *Human Development Report 1997*, the Human Poverty Index. Although it was not conceived as the operationalization of the capability approach, but rather as the deprivation perspective of human development, it is not very different from the previous method. It can be called UBN-HPI (branch 1.7). The main difference lies in the indicators included in the weighted average. It also includes illiteracy but refers to the whole adult population and not only to women. It includes a quantity of life indicator in the form of the percentage of the population, which will die before 40 years of age which, as was indicated, can be interpreted as a capability indicator. Lastly, it attempts to indicate the level of "economic provisioning," not through income, but through a combination of three basic needs indicators related with water, health and nourishment of children. As in the previous case, the units of analysis are countries, and the compound index (a weighted average of the three indicators with weights varying positively with deprivation levels) is interpreted as a proxy of the headcount index. This index cannot be used to calculate poverty gaps. The four simple indicators (excluding the proportion of people who will not live beyond 40 years) can be construed as UBN indicators, to which a deprivation indicator is added in the quantity of life dimension.

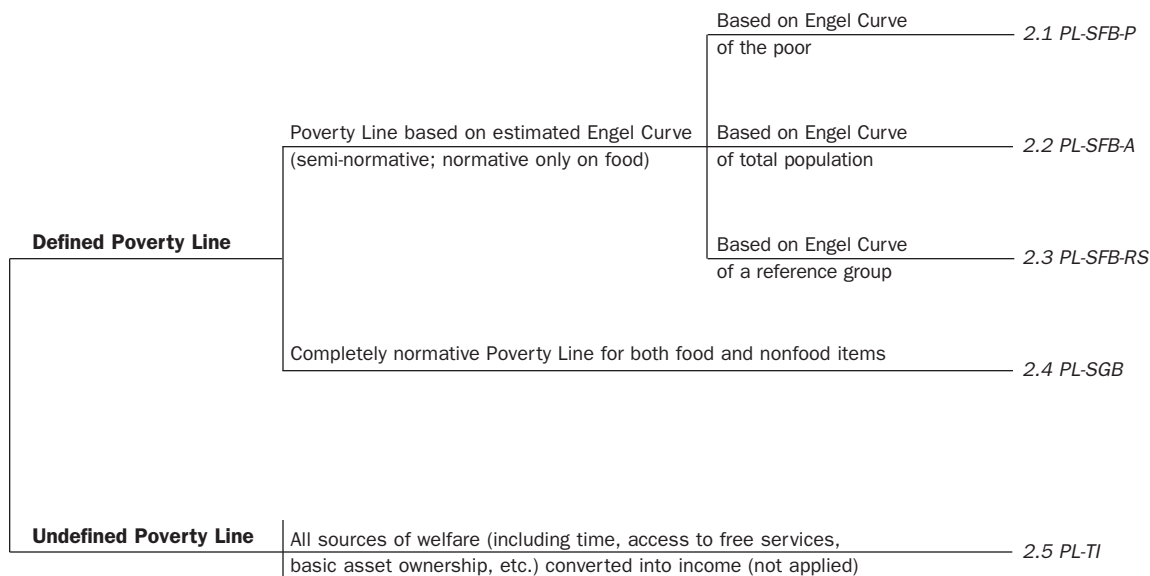
VARIANTS OF THE POVERTY LINE OR INDIRECT UNIDIMENSIONAL METHODOLOGY

There are essentially two approaches to the poverty line (PL). In the first one, the PL is fully defined, calculating the cost of a basket of goods considered as the minimum required consumption. The second approach goes beyond this to include such factors as time, access to free services, basic asset ownership (see Graph 2).

When the cost of a minimum basket of goods is used, two alternatives are present. One is a completely normative method, while the other is based on an estimate of the Engel curve. The latter can be considered a semi-normative or empirical approach, which I have called the *Food Standard Basket or Food Poverty Method*, as it combines a normative stand on food and a non-normative (empirical) stand on the rest of the needs. It works as follows: first, a food basket is defined and its cost is calculated. This is the normative part as the food basket is supposed to cover a properly specified minimum nutritional floor. As the poor have to cover other costs, which are harder to enumerate than a minimum diet, an estimate of the Engel Coefficient (proportion of income/expenditure spend on food) is used to

Graph 2

Poverty Lines (PL)



2.1 PL-SFB-P—PL-Standard Food Basket (poor's behavior)

2.2 PL-SFB-A—PL-Standard Food Basket (average behavior)

2.3 PL-SFB-RS—PL-Standard Food Basket (reference stratum behavior)

2.4 PL-SGB—PL-Standard Generalized Basket

2.5 PL-TI—PL-Total Income

obtain the poverty line. This is the non-normative or empirical part. For instance, if the Engel Coefficient is 0.5, it means that half of the expenditures are devoted to food. Consequently, in order to be considered nonpoor, a household should be able to buy the minimum diet, which would represent half of their purchases, and they should be able to buy the rest of the commodities they need with the other half of their budget.²¹ In some applications, the cost of the food basket alone is regarded as the extreme poverty line.

There are three main variants in the way in which the Engel Coefficient is selected. In branch 2.1, the PL-SFB-P uses the Engel Coefficient observed among the poor (i.e., the World Bank, 1990 and Shari, 1979). The PL-SFB-A, in branch 2.2, selects the average coefficient of the population as a whole (this was adopted by Mollie Orshansky, 1965, who can be considered as the creator of the variant, and was followed by CEPAL in Latin America). Lastly, in branch 2.3, the Engel coefficient of a reference stratum (PL-SFB-RS), which satisfies its nutritional requirements, is used. This was suggested by Townsend (1954), and adopted by Altimir (1979) and by CEPAL-UNDP, 1992).²²

The oldest methodology, although rarely used nowadays, is the PL-SGB. It is a completely normative method (branch 2.4). A complete basket of goods and services (satisfiers) required to meet all basic needs is defined. Its cost constitutes the poverty line. Adopted by Rowntree (1902, 1937, 1941 and 1951), it has been utilized extensively in Mexico under the name Standard Basket of Essential Satisfiers (SBES).²³ Apparently, this variant was predominant in the world up to World War II, both in Rowntree's works and in many countries, for the definition of the baskets on which the calculation of minimum wages was based.²⁴

Nevertheless, it has somehow been abandoned. For example, take expenditures on shoes. In some countries it might be considered shameful to walk around barefoot. So expenditure on shoes would be included in the basket. Arguing that it is very difficult, or arbitrary as Atkinson says, to define the quality and quantity of shoes, these critics end up eliminating implicitly all shoes from the basket.²⁵ Thus, one ends up imputing a zero expenditure requirement for shoes, which almost always implies a higher degree of error than any amount of expenditure estimated as necessary.²⁶

The pros and cons of some of these methods, as well as their policy implications, are discussed in the first article in Part Two of this volume.

The last variant (PL-TI), in branch 2.5, transforms all sources of welfare (time, access to free services, basic assets ownership) into monetary flows, sums them into monetary income, and arrives at total income. Although this method ends with one indicator—total income—it has to work with many dimensions, which cannot be included under the previous PL methods (like time and access to free services). This is done by transforming all these

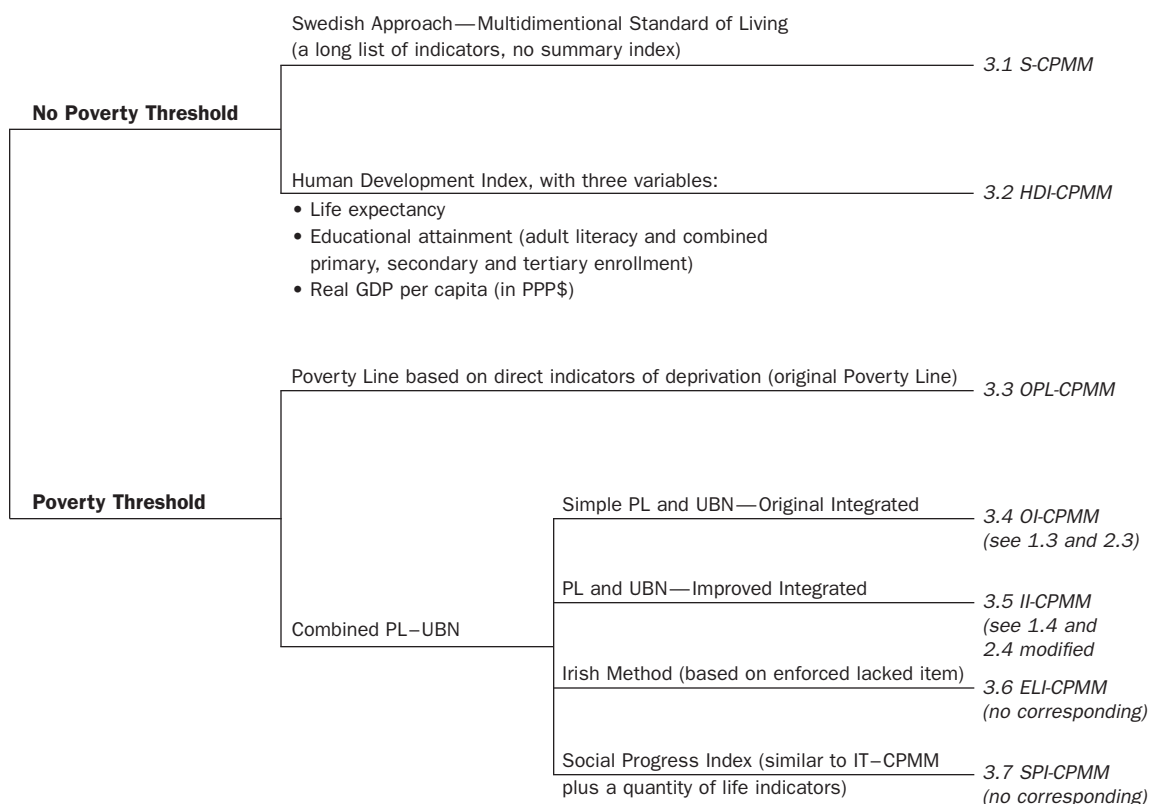
additional dimensions to an income equivalent (see the last section for a discussion of the legitimacy of doing this). The resulting total is then compared to a poverty line defined in the same terms. Grootaert (1982) suggests this method, but does not develop it in full.²⁷ Apparently it has not been applied.

Combined Poverty Measurement Methods (CPMM)

Seven ways to combine direct and indirect measures of poverty (unsatisfied basic needs and poverty line approaches) and to integrate different dimensions of poverty, are presented. Two of them are used to rank geographic areas or socioeconomic groups, while the others measure the number of poor individuals or households. In the latter cases the poor are identified using a poverty threshold (see Graph 3).

Graph 3

Combined Poverty Measurement Methods



3.1 S-CPMM—Swedish Combined Poverty Measurement Methods
 3.2 HDI-CPMM—Human Development Index-CPMM
 3.3 OPL-CPMM—Original Poverty Line-CPMM
 3.4 OI-CPMM—Original Integrated-CPMM

3.5 II-CPMM—Improved Integrated-CPMM
 3.6 ELI-CPMM—Enforced Lacked Item-CPMM (Irish Method)
 3.7 SPI-CPMM—Social Progress Index-CPMM

Within the first group, two very different approaches are found. The Swedish approach to welfare (branch 3.1), rather than a poverty measurement method, is a level-of-living method. It does not try to identify the poor, but the socioeconomic groups, which might suffer certain kinds and degrees of deprivation or problems. The concept of level-of-living adopted is the command over resources through which individuals can control and consciously direct their living conditions. Thus, the level-of-living depends both on people's resources and their living conditions (i.e., social conditions as well as assets, security, recreation and culture). This brings out in a different light the direct–indirect dilemma (as seen in the section “Some Conceptual Issues on Poverty”). It also illustrates very well the radical multi-dimensional position according to which no synthetic index is possible or desirable. Although Erikson's (1993) unit of analysis is socioeconomic groups, information was gathered at the household and individual level.

The second approach, the Human Development Index (branch 3.2), is a triple combination. It is a weighted average of a direct or basic needs indicator (educational level); a quantity of life indicator (life expectancy at birth), which is not a UBN indicator strictly speaking; and the indirect indicator of access to resources (GDP per capita using PPP). Designed for the ranking of countries, it has been very influential in counteracting the overwhelming influence of GDP as the only indicator of development.

Of the methodologies that identify poor individuals or households, there are several for determining the poverty threshold. Direct indicators of need satisfaction (lifestyle) are used to reveal the “objective” poverty line in Townsend's attempt to obtain an “Objective” Poverty Line (branch 3.3—called the “original poverty line” OPL-CPMM). This is a combined procedure in a very special sense. The procedure resembles the completely normative poverty line, which uses the cost of all required satisfiers to convert them into an equivalent income amount in order to obtain the poverty line. Townsend (1979) does not follow this route of the specific costs of each satisfier. He tries instead to find the level of income that would satisfy all the requirements by correlating the level of income of different households with their observed overall deprivation score. Nevertheless, poverty is measured only by income. It could then be said to constitute a potential concept of poverty. The approach was criticized for its failure (according to critics like Piachaud, 1981) to distinguish “tastes” from deprivation. In Townsend and Gordon (1993) a different statistical technique is used in order to circumvent this problem.

The first truly integrated method was born from an experiment conducted by Beccaria and Minujin (1987) with data for Buenos Aires in which they were trying to determine whether UBN and PL identify the same households as poor. (The answer was a strong negative one). It became the simultaneous application of two methods (the restricted original UBN and the CEPAL poverty line). Thus, it can be called Original Integrated Poverty

Measurement Method or OI-CPMM (branch 3.4). This method uses a contingency table in which the population was classified into four categories: poor by both methods, nonpoor by both, poor only by UBN and poor only by PL. This method has various attractive features. One of them is that it allows the distinction between the recently impoverished population (in recession-stricken countries it is strongly associated with those whose income falls below the PL, but whose basic needs are satisfied) from the more structural type of poverty (poor by both methods) and from the “publicly-provided-goods” poverty and other categories of poverty (i.e., only UBN poor). Nevertheless, it also has various weaknesses, among them its incapacity to produce any poverty index beyond the headcount, and those weaknesses derived from the UBN and PL variants utilized.²⁸

The Improved Integrated Combined Poverty Measurement Method (II-CPMM) was designed to overcome the limitations of the original version. (branch 3.5).²⁹ This methodology combines UBN-RI with a modified completely normative PL. The latter incorporates an indicator of excess working time, in an integrated poverty index per household which enables all poverty measures (among others: headcount, poverty gap, the Sen poverty index and the family of measures defined by Foster, et. al.). The index can be disaggregated into its components, the contribution of each deprivation dimension (indicator) to the overall index can be calculated, and contingent tables as in the original integrated method can be produced. The method has been applied only to Mexican data.

Nolan and Whelan (1996) start from Townsend’s poverty definition and from the advances achieved by Mack and Lansley in distinguishing tastes from deprivation associated with lack of resources. They adopted the concept of enforced lack of necessities to derive a measure of poverty and exclusion which could be labeled the “Irish” or Enforced Lacked Item (ELI-CPMM, branch 3.6). They show that the association between enforced deprivation and income below the poverty line is not as strong as one would expect. They operationalize “exclusion because of lack of resources” as at least one ELI (enforced lack item) *and* being below a completely relative poverty line. (Enforced deprivation is reduced to the items given in annex table 3, which correspond to what they call basic life-style deprivation, thus excluding the secondary and the housing deprivation indicators they constructed). Thus, they consider poor only those in the first row first column cell of the contingency table below:

Nolan & Whelan Poverty Matrix	With One or More Enforced Lack Indicators	With No Enforced Lack Indicators
Below the relative poverty line	Poor	PL poor only (not counted as poor)
Above the relative poverty line	Deprivation poor only (not counted as poor)	Nonpoor and nondeprived

Finally, the approach suggested by Desai (1991 and 1992), that could be called the Social Progress Index or Lifetime Deprivation (SPI-CPMM, branch 3.7), is a solution very similar to the II-CPMM.³⁰ However, there are some major differences: 1) Incorporation of a third “space”: quantity of life with the two used in II-CPMM, thus arriving at lifetime deprivation; 2) UBN-specific indicators are weighted by proportions of non-deprived population instead of relative costs used in II-CPMM; 3) the UBN and the income indicators are combined by a multiplicative format instead of the weighted average adopted in II-CPMM; 4) the explicit use of a welfare function to transform the satisfaction index into welfare, whereas in II-CPMM these procedures are implicit in the re-scaling of indicators. The quantity-of-life indicator is called the proportion of life potential, realized in normal conditions. The index has not been applied. The quantity-of-life indicator is in principle not computable for individuals (only for groups) and thus requires a previous classification of people with regard to quality of life.

The above description fulfils the purpose of this essay: to provide a broad and general panorama of measuring methods. The choice of the measuring method determines the level of poverty and the policies required to address it. A discussion of the virtues and limitations of many of the methodologies described here is taken up in the essay, “Poverty in Latin America: A Critical Analysis of Three Studies,” in this volume.³¹

Conclusion

Based on the range and limits of different concepts of poverty, the difficulties establishing thresholds and the debates concerning the absolute and relative aspects of poverty which have been explored in this paper, two criteria for classifying poverty measurement methodologies have been utilized. This allows for a two-by-two classification and includes some combinations that have not been applied.

As is clear in the first part of the chapter, the various methodologies and thresholds are based on concepts of poverty. Not surprisingly, then, they yield different (often very different) results in terms of the incidence of poverty. By exploring their foundations, it is possible not only to distinguish the most useful methodologies, but also to show that there might not be a “best” one. Rather, different approaches may be suitable for different purposes. Hopefully, this paper will help the practitioner make better, more informed choices in this regard.

Annex

The variants described in part two are classified in tabular form in three tables in this annex. The tables present eight variants of the direct or Unsatisfied Basic Needs (UBN) method, all of them multidimensional, five variants of the Poverty Line (PL) or indirect method, and seven variants of what can be called generically mixed methods. The variants are listed in the rows of the tables, whereas the columns show the following features (with some small variations in Table 2):

Column 2 The *concept of poverty*. Each variant is located within the following dichotomies: normative–semi-normative; direct or factic–indirect or potential; absolute–relative. In the absolute–relative dichotomy, the classification is based on the specific authors and applications quoted as examples, for most methods, are compatible, in principle, with a relative or an absolute stand.

Column 3 The *variable(s) or indicators* used to compare the household/ individual stand *vis à vis* the threshold and the *integration procedure, if any, utilized*.

Column 4 The bases for *threshold definition*.

Column 5 The *poverty identification criterion or criteria*, i.e., the decision rule which, after the comparison of observed situation and threshold has been made, is applied to classify a household or individual as poor or nonpoor.

Column 6 The unit of analysis (countries, geographical areas, households or individuals)

Column 7 The resulting *poverty groups or strata*.

Column 8 Some *author(s)* whose work exemplifies the method.

Table 1

Variants of the Multidimensional-Unsatisfied Basic Needs (UBN) Method for Poverty Measurement

UBN Variants	Poverty/Deprivation Concepts	Variables / Indicators and Integration
1.1 Fragmented sectorial (UBN-FS)	Normative Factic Absolute	Basic needs indicators of achievement or deprivation. <i>Frequently but not always dichotomic indicators</i> (i.e., proportion of population without: piped water, sewerage, adequate housing, basic education, access to health care, adequate nutrition). Variables are not integrated into a composite index.
1.2 Area integrated sectorial (UBN-AIS)	Normative Factic Absolute	As in UBN-FS but restricted to <i>dichotomic</i> indicators available at desired area level. CONAPO's example of <i>dichotomic</i> indicators are the following proportions of (the appropriate) population: illiterate, without basic education, living in dwellings with no toilet nor sewerage, without electricity, without piped water, with mud floor, living in localities of less than 5,000 inhabitants, proportion of crowded dwellings, and proportion of occupied population earning less than twice the minimum wage. An area integrated marginality index (AIMI) is obtained by a weighted average, where weights are derived statistically (principal components technique).
1.3 Restricted-Original (UBN-RO)	Normative Factic Absolute	Few BN <i>dichotomic</i> indicators. An overall index is not obtained for each household. DANE example: • overcrowding (more than 3 persons per room); • precarious dwelling (mud floor in urban areas; precarious materials on walls <i>and</i> mud floor in rural areas); • no sewerage <i>or</i> no piped water in urban areas; no toilet <i>and</i> no piped water in rural areas; • one or more children aged 7 to 11 not in school; • 4 or more dependants per breadwinner <i>and</i> household head has less than 3 years of schooling.
1.4 Restricted-Improved (UBN-RI)	Normative Factic Relative	Sized number of BN <i>non-dichotomic</i> indicators. Inadequacy of: • Dwelling quality (materials) • Dwelling quantity (space) • Water supply • Sanitary system • Energy • Education (attendance and levels acquired) • Health services (access to) • Basic household durables (possession) • Excess working hours. An overall deprivation index, I(UBN), is obtained for each household, varying from -1 to +1. Weights are based on relative costs.
1.5 Generalized Original (UBN-GO)	Normative Factic Relative	Large number of <i>Living Style dichotomic</i> indicators: <i>Housing</i> : • indoor-not-shared toilet and bath • heating • damp-free home • self-contained accommodation • a bedroom for everyone above 10 of different sex • a garden. <i>Appliances and furniture</i> : • beds for everyone • carpets • refrigerator • washing machine • television. <i>Clothing and shoes</i> : warm water-proof coat • new, not second hand, clothes • two pairs of shoes. <i>Food</i> : • a special dish once a week • three meals a day (children) • two hot meals for adults • meat or fish every other day. <i>Leisure</i> : • a holiday once a year • leisure equipment and toys (children) • celebrations on special occasions • a hobby. <i>Other items</i> : • presents for friends or relatives once a year • public transport. To reflect deprivation an item must be lacking due to resource constraints, i.e., it has to be an "enforced lack". An overall index is not obtained except as the mere count of "enforced lack items."
1.6 Generalized Improved (UBN-GI)	Normative Factic Relative	Undefined <i>non-dichotomic</i> indicators. An overall index of deprivation (DI) is obtained for each household as a weighted average of specific indicators. Weights are based on proportion of population having the item. They reflect subjective feelings of deprivation.
1.7 Human Poverty Index (UBN-HPI)	Normative Factic Absolute	3 indicators of deprivation: per cent who will die before 40, per cent of illiterate adults and economic provisioning, which is a simple arithmetic mean of: per cent without safe drinking water; per cent without health services and per cent of children under five underweight. HPI is obtained from the 3 indicators through a formula which assumes non-perfect substitution between them, giving more weight to the highest percentage.

Bases for Threshold Definition	Poverty / Deprivation Identification Criterion	Unit of Analysis	Poverty Groups	Sources
Expert based deprivation thresholds	Poor not identified. Deprived: below each threshold.	Geographic areas	Ranks areas in each dimension.	<i>Coplamar</i> 1982 UNDP-LA 1992
Expert based deprivation thresholds	Poor not identified. Area ranking by AIMI	Geographic areas	Ranked areas are grouped into deprivation strata.	<i>Coplamar</i> 1982e <i>Conapo</i> 1993
Expert based deprivation thresholds	Poor: those with one or more UBN, i.e., indicators below the threshold	Households and individuals	Extreme poor: 2 or more UBN. Non-extreme poor: 1 UBN.	INDEC 1984 <i>DANE</i> 1991 ³² UNDP-LA
Expert and expectation based on deprivation thresholds	Poor are those with positive I(UBN)	Households and individuals	According to I(UBN): indigent, very poor, moderately poor	<i>Boltvinik</i> 1994 Bolivia's Poverty Map (UDAPSO, 1994)
Based on people's views on what is necessary	Poor are those with three or more "enforced lack items" (ELI)	Households and individuals	Based on # of ELI: in poverty: (3 or more); "sinking deeper": (5 or more) intense poverty: (7 or more)	<i>Mack & Lansley</i> (1985)
Not defined	Poor: those with positive DI	Households and individuals	Not defined	<i>Desai & Shah</i> (1988)
Expert based	Countries are ranked by HPI. HPI is taken as % of poor	Countries	Non-applicable	<i>UNDP-HDR</i> (1997)

Table 2**Unidimensional Poverty Lines (PL) Variants for Poverty Measurement**

Variants	Poverty Concepts	Measurement Variable³³	Threshold Definition
2.1 Standard Food Basket poor's behaviour (PL-SFB-P)	Normative-empirical Potential Absolute	Household income per capita. PL in same terms	Cost of SFB based on poor's diets divided by poor's Engel Coefficient ³⁵
2.2 Standard Food Basket average behaviour (PL-SFB-A)	Normative-empirical Potential Absolute ³⁶	Household income. PL for each type-size of household.	Cost of SFB (average diet) ³⁷ divided by average Engel Coefficient
2.3 Standard Food Basket reference stratum behaviour (PL-SFB-RS)	Normative-empirical Potential Relative	Household income per capita. PL in same terms	Cost of SFB (diet of reference stratum) divided by reference stratum Engel Coefficient ³⁸
2.4 Standard Generalized Basket (PL-SGB)	Normative Potential Relative	Total household income or expenditure. PL for average household size	Cost of a basket which includes all satisfies to meet basic needs
2.5 Total income (PL-TI)	Undefined Potential Undefined	Total income. Operationally unspecified	PL in total income terms. Procedure unspecified

Poverty Criterion	Unit of Analysis	Poverty Groups	Sources ³⁴
Poor: household per capita income below PL in per capita terms	Households	Extremely poor: income below 50% of PL Moderately poor: income below PL, but greater than 50%	Shari (1973) <i>World Bank (1990, 1993)</i>
Poor: household income below PL for specific household type and size	Households	Only one group: Poor	<i>Orshansky (1965)</i> Altimir (1979)
Household per capita income below PL in per capita terms	Households	Extremely poor Moderately poor	Townsend (1954) <i>CEPAL-UNDP (1992)</i>
Income below PL	Households	Indigent Very poor Moderately poor	Rowntree <i>Boltvinik (1992, 1995)</i> Hernández-Laos (1994)
Total Income below PL (in total income terms)	Households	Unspecified	<i>Grootaert (1982)</i>

Table 3**Multidimensional Combined Poverty Measurement Methods (CPMM)**

Combined Methods	Poverty/Welfare Concepts	Variables/Indicators and Integration
3.1 Swedish Approach to Welfare (S-CPMM)	Normative Potential Relative-Absolute ⁴⁰	Indicators in the following areas: health and health access; employment and working conditions; economic resources; education and skills; family and social integration; housing; of life and property; diet and nutrition; ⁴¹ recreation and culture; security and political resources. A summary index is considered impossible/undesirable.
3.2 Human Development Index (HDI-CPMM)	Normative Fact.-pot. Absolute	• Life expectancy at birth. • Educational level (weighted average of): Adult literacy (weight 2/3); Combined enrolment rate (weight 1/3). • GDP per capita using PPP. The arithmetic mean of the 3 indicators are standardized/indexed, ⁴² and their arithmetic mean is the HDI.
3.3 Townsend 1979-Original PL (OPL-CPMM)	Normative-revealed Potential Relative	Deprivation indicators; these are lack of or non-participation in: holidays; receiving guests; being guests; a friend visit to play (children) ; birthday party (children); evening out; fresh meat 4 days a week; regular cooked meals; cooked breakfast; refrigerator; sole use of flush toilet, sink, bath or shower, gas or electric cooker. A deprivation score is obtained as the sum of unmet items.
3.4 Original IPMM (OI-CPMM)⁴⁴	Norm.-emp. Fact.-pot. Relative-Absolute	Both UBN indicators and a poverty line are used. UBN indicators as in the UBNRO variant. Poverty line follows the PL-SFB-RS variant. UBN and PL are not combined into a single index.
3.5 Improved IPMM (II-CPMM)	Normative Amplified-potential ⁴⁷ Relative	Household Income per equivalent adult ⁴⁸ and UBN indicators as in UBNIMP. Combining PL and "excess working hours" an indicator of income and time (PLT) results, whose weighted average with UBN overall index (calculated over the rest of UBN indicators as in UBNIMP) gives the intensity index or gap: I (IPMM).
3.6 "Irish" Enforced Lack Item (ELI-CPMM)	Norm.-emp. Fact.-pot. Relative	Household disposable income per equivalent adult ⁵⁰ plus "basic life-style deprivation"(enforced lack item: ELI): go without heat, do not have a substantial meal, has experienced debt problems/ arrears to meet ordinary living expenses, lack of: new, not second-hand clothes; meat, chicken or fish every second day, of warm waterproof overcoat, of two pairs of strong shoes, of roast weekly. The two dimensions are not integrated in a single index.
3.7 Social Progress Index: Lifetime Deprivation (SPI-CPMM)	Normative Fact.-pot. Relative	Household level: private consumption per capita (C); scores for each UBN item (d) , whose average (weighted by % of non-deprived) is the overall deprivation index D. The product of 1-D (achievement indicator) and C is the global satisfaction indicator by comparison with the standards, which is then transformed into individual welfare (quality of life: deprivation when negative) by a step function (Atkinson type). Life indicator (proportion of life potential realized in capable conditions) is integrated with quality of life in a multiplicative format to obtain quality and quantity of life (lifetime well being) at individual level and then aggregated.

Bases for Threshold Definition	Poverty / Deprivation Identification Criterion	Unit of Analysis	Poverty Groups	Authors³⁹
Expert-based thresholds are defined to distinguish problematic from non-problematic conditions.	Not applicable, but a number of problematic areas would come close.	Socioeconomic groups (combination of sex, age, class and region)	Socioeconomic groups by number of problematic areas.	<i>Erikson (1993)</i>
Literacy: expert-based threshold. No other threshold is defined.	The method does not attempt to identify the poor.	Countries	Non-applicable. Countries ranked by HDI.	<i>UNDP-HDR (90–97)</i>
“Objective” (deprivation-based) definition: the deprivation score is used to identify the income poverty threshold.	Poor are those below the income threshold.	Individuals, households and income units ⁴³	In poverty. On the margins of poverty.	<i>Townsend (1979)</i> Townsend and Gordon (1993)
SFB cost (based on ref. strat. diet and nutritional requirements) is divided by ref. strat. Engel coefficient. BN thresholds: expert-based.	Poor are those whose income/exp. are below PL <i>and/or</i> have one or more UBN.	Households and individuals	Total poor (by PL and UBN). PL poor only. UBN poor only.	Beccaria & Minujin Kaztman ⁴⁵ UNDP-LA DANE ⁴⁶
PL is the cost of those items in SBES (as in PL-SGB) not verified by UBN. UBN: expert and expectation-based as in UBNIMP.	Poor: those having a positive I (IPMM).	Households and individuals	According to I (IPMM): indigent; very poor; moderately poor. According to UBN and PL: Total and partial poor ⁴⁹	<i>Boltvinik (1992, 1995)</i>
PL: 50–70% of mean income (non-normative). B: enforced lack of necessities (ELI) defined as such by more than 50% of those interviewed.	Below PL <i>and</i> one or more ELI (from the basic life-style deprivation indicators only).	Households and individuals	One: consistently poor Analyzed but not considered poor: Deprivation (UBN “poor” only); income (PL) “poor” only.	Whelan & Nolan (1996)
Not defined for poverty line. Expert-based for UBN indicator. And perhaps expectation-based for life indicator.	Poor: all those having negative lifetime well being.	Households and individuals, but final expression at individual level.	Not defined.	M. Desai (1992)

Footnotes

¹ Again, as in the direct approach, which elements are to be considered basic is a contentious issue. See “Poverty in Latin America: a Critical Analysis of Three Studies” in this series.

² A possible view is that alcoholics, drug addicts and similar people have different needs, so that the appropriate poverty line would be higher. If one observes unsatisfied needs in these cases the household would be regarded as being poor, regardless of its level of income. In the case of stingy persons this argument cannot be sustained.

³ National accounts include not only the specific units of goods and services actually transacted in the market, but also those units consumed by the producer itself, as long as there is a market price for them.

⁴ “Currently, income is most often used in measuring poverty in developed countries, with expenditures sometimes used as an alternative, while very few studies have sought to identify the poor directly in terms of possessions and activities.” Brian Nolan and Christopher T. Whelan, (1996, p. 13).

⁵ The World Bank (1990) points out: “Household incomes and expenditures per capita are adequate yardsticks for the standard of living as long as they include own production, which is very important for most of the world’s poor” (p. 26). Naturally, this statement is immediately qualified by stating that this measure does not capture well being dimensions like health, life expectancy and access to public goods or common property resources.

⁶ The classic study is Oscar Altimir (1979), which uses the procedure devised by Orshansky.

⁷ These reports have adopted the Human Development Index as an alternative measure of development. The index is, to express it in a simplified way, an arithmetic mean of one quantity-of-life indicator (life expectancy at birth), one of knowledge (combination of literacy and level of instruction) and one of overall availability of bought-use-values (per capita GDP). By taking the first two indicators in their own measurement units, the index authors recognize implicitly that not everything can be expressed in money-metric terms. The same can be said about the Human Poverty Index. Both will be dealt with in the text explicitly.

⁸ “... in a society in which most families own cars, public transport services might be poor, so that a carless family in such a society might be *absolutely poor* in a way it might not have been in a poorer society. To take another example, widespread ownership of refrigerators and freezers in a community might affect the structure of food retailing, thereby making it more difficult in such a society to make do without having these facilities oneself.” (Amartya Sen, 1984, p.337)

⁹ This text by Amartya Sen has circulated since 1978, with the title, “Three notes on the concept of poverty,” ILO, Geneva, 1978.

¹⁰They and others (see Barreiro, 1992) have observed that at very low levels of income, the Engel Coefficient rises with income and thereafter, starts decreasing, which is the better-known pattern.

¹¹These methods are also summarized in the annex tables.

¹²Further subdivisions are described below. The numbers in each branch correspond to the lines in the annex tables.

¹³See COPLAMAR, *Serie Necesidades Esenciales en México*, five volumes: Alimentación ("Food"), Educación ("Education"), Vivienda ("Housing"), Salud ("Health"), and Geografía de la Marginación (Geography of Marginality), 1982. The first four volumes exemplify the sectorial approach, while the fifth one exemplifies the synthetic approach. As can be seen from the title, the deprivation found was construed as marginality and "marginality maps" were produced. Afterwards, Conapo (The National Council for Population) produced similar maps for the 1980 and 1990 censuses (the first one is unpublished and Conapo 1993). For Latin America this fragmentary approach is to be found in Luis Becarria, Julio Boltvinik, Oscar Fresneda, and Amartya Sen, *América Latina: el Reto de la Pobreza* ("Latin America : the Challenge of Poverty"), Regional Project to Overcome Poverty, UNDP, Bogota, 1992, chapters 14 to 16.

¹⁴As an example, take almost any of the tables at the back of the Human Development Reports, called Human Development Indicators. There is a table, each one with several indicators, for child survival and development, a health profile, food security, education imbalances, etc. These indicators are grouped thematically or sectorially, but there is no attempt to synthesize them in a single sectorial index, nor is any attempt made to bring the different sectors together in a composite index. This is done in parallel to the Human Development Index and other synthetic indices. The same can be said of the text and the tables included in most chapters in the reports which deal with specific, sectorial dimensions of human development. Even when dealing with poverty (i.e., the *World Development Report 1990*) the WB resorts to these sectorial fragmented analyses (see chapter 5 in that report). The WB has recently published Social Development Indicators, which is a good example of this approach.

¹⁵The weights are automatically determined in the principal components method, the statistical procedure that has been used in Mexico, as it selects the vector (called the principal component) which maximizes the per cent of the total variance explained.

¹⁶Thus, each dimension of poverty becomes a dichotomic variable with only two options (above the threshold, which can be given a score of 0; and below the threshold, with a score = 1. Townsend gave scores to his dichotomic indicators, and Desai and Shah (1988) have formalized the implicit procedure used by Townsend, but the idea of scores is alien to the UBN-RO tradition.

¹⁷The first application I have identified is in Chile. See Oficina de Planificación Nacional (ODEPLAN, 1975) and Instituto de Economía of the Universidad de Chile, *Mapa de la extrema pobreza* ("Extreme poverty map"), Santiago de Chile, 1975. Later in the 1980s a poverty map boom took place in Latin America. The original work which served as a methodological guide for most of the following ones, was INDEC (National Census and Statistical Institute), *La pobreza en Argentina* ("Poverty in Argentina"), Buenos Aires, 1984. Most of the UBNRO applications in the 1980s in Latin America, are brought together in Luis Beccaria, Julio Boltvinik, Oscar Fresneda and Amartya Sen (1992). Some of the works quoted there were published by UNDP's Latin American poverty project as part of the collection *La pobreza en América Latina y el Caribe* ("Poverty in Latin America and the Caribbean"), which includes volumes on Peru, Venezuela, Colombia and Argentina. Under UBN Empirical research Studies in the references, I have listed the applications in Latin America brought together in this book. In Mexico, the UBN method was applied by COPLAMAR with a different name. See COPLAMAR (1982). The procedure adopted was called simultaneous satisfaction of basic needs. The results are not comparable to those obtained elsewhere in Latin America as the thresholds were higher in Mexico. On the other hand, COPLAMAR followed a random procedure for the estimation of housing deterioration, which overestimates poverty incidence. This random procedure, correct for the original purpose for which it was devised, namely the estimation of the requirements of housing renewal, resulted in the identification of nonpoor families as housing deprived. The procedure used for the calculation of deteriorated dwellings can be seen in COPLAMAR (1982c, pp. 181–198). A description of the first applications of the UBN methodology can also be found in Luis Beccaria (1994).

¹⁸Townsend's 1979 approach was classified in the mixed methods, as he uses his deprivation scores (what he calls the deprivation standard) as a way to estimate the poverty line in income terms, which is then regarded as the threshold distinguishing the poor from the nonpoor. Later, Townsend and Gordon (1993) come back to the same idea: deriving the poverty line from the association of deprivation and income. This time this is attempted through discriminant analysis.

¹⁹The Capability Poverty Measure (CPM) is comprised of the proportion of children under five who are underweight, the proportion of births unattended by trained health personnel and female illiteracy.

²⁰UNDP has developed a human capability poverty household survey prototype that will be field tested in 1998.

²¹These measures can be derived from either income or consumption.

²²Townsend (1954, p.135) suggests selecting, from all those households which satisfy nutritional requirements, the 25 per cent of households which do so at the lowest level of income, and to interpret total average expenditure per household in this group (less some fixed costs), as the poverty line.

²³See Julio Boltvinik (1986) for a general description of the SBES. The detailed contents of the SBES can be found in COPLAMAR, 1983, Annex II. The poverty line derived from the SBES has been used, besides Boltvinik, by Enrique Hernández Laos, (1992), Santiago Levy (1991) and Nora Lustig (1990).

²⁴This is described in N. N. Franklin (1967).

²⁵Atkinson (1983, p. 226), analysing absolute poverty, states: "Where precisely the line is drawn depends, therefore, on the judgement of the investigator, and the idea of a purely physiological basis for the poverty criterion is lost." Later on he adds: "In the case of nonfood items, there is an even greater degree of arbitrariness."

²⁶In the Mexican Standard Basket of Essential Satisfiers (Coplamar, 1983), the approach adopted in shoes and clothing was a military (or prison) type approach, which estimates the lowest level of the requirement: the wearing of simple clothes and shoes. This might underestimate the real requirements, but it is obviously a smaller error than zero expenditure on shoes and clothes.

²⁷Christian Grootaert (1992) presents the conceptual basis for the huge research enterprise by the World Bank known as the Living Standards Measurement Study (LSMS). It is not specifically geared towards poverty, which explains many undefined characteristics of the procedure, as shown in Table 2.

²⁸For a detailed criticism see J. Boltvinik, "Poverty in Latin America: A Critical Analysis of Three Studies," in this series.

²⁹The conceptual foundation is to be found in Boltvinik (1992); an empirical, fully detailed application can be found in Boltvinik (1994a and 1995a). A comparison of this method (written before any empirical application was carried out) with Desai's Lifetime Deprivation is to be found in Boltvinik (1993 and 1994).

³⁰For a comparison of both methods, see Boltvinik 1993 and 1994.

³¹The choice of methods should not be made on the basis of costs considerations. All methods reported require households surveys or census to be carried out, as one needs originally household level (and individual) data for all methods. Even in the case of those methods working with geographical areas as units of observation, a household survey or census was required to perform the calculations that lead to the area level indicators. This represents the highest cost. Including some questions instead of others in the questionnaires, means no additional costs. Additional questions can represent a higher cost by lengthening the time of the interview, but, in general, the difference in length of questionnaire is not that big from one method to the other. Surveys like the Chilean CASE or the World Bank's Living Standards surveys can be used, perhaps with two or three modifications, to calculate any of the methods described here. Of course the best thing to do is to design a questionnaire for the specific method one is going to use. What is more expensive, and has other problems, is making a long questionnaire for censuses, but then one can do a short census questionnaire complemented by a survey sample with a larger questionnaire. The calculations that have to be performed are very similar for any method that works with household/individuals as the unit of analysis. All that is needed is a desk-top computer (with fairly large storing and processing capabilities, but which are now very common and very cheap) and the appropriate software. The methods that work with geographical areas as units of observation require even less and can, in fact, be processed without a computer once the area indicators have been published.

³²DANE is the Departamento Administrativo Nacional de Estadística (National Administrative Department of Statistics) of the Government of Colombia.

³³All variants can be applied, in principle, using both income or consumption expenditure as the observed variable. Although some of the authors included do argue for the use of consumption expenditure, for data availability reasons they end up mostly using income data.

³⁴The authors written in italics are the ones whose work has been the basic example for the rest of the columns.

³⁵This is the logical procedure, and the one followed by Shari. Nevertheless, it has not been followed by the quoted World Bank study, where a different, more arbitrary procedure is followed. For a criticism of this study see Julio Boltvinik, "Poverty in Latin America: A Critical Analysis of Three Studies" in this series.

³⁶Quite aside from Orshansky's original intentions, which, being built on average behaviour, would have tended to change over time, the constancy of the poverty line as applied officially in the USA, makes it an absolute approach.

³⁷Although this is the logical consistent position, Orshansky uses to determine the cost of SFB the Department of Agriculture's economy plan, "costing only 75–80 per cent as much as the basic low cost plan," which in turn is adapted to the food patterns of families in the lowest third of the income range" (Orshansky, 1965, p.6). Thus, the economy plan can be interpreted as reflecting the diets of the poorest population.

³⁸The reference stratum was selected as the lowest big group (usually comprising 25 per cent of the urban population) which, at the same time, shows a food "intake" slightly above nutritional requirements (CEPAL-UNDP, 1992, p. 343).

³⁹The authors in italics are those for which the contents of all the columns apply fully.

⁴⁰Although, as can be seen in the table, the author relies on many basic needs indicators, I have classified the approach as having a potentiality approach to welfare as emphasis is laid on man's capacity to control his living conditions through the access to resources in a broad sense.

⁴¹In the first Swedish survey in 1968, diet and nutrition indicators were included, whereas in the second and third (1974 and 1981) they were substituted by security of life and property indicators. Erikson, 1993, p. 68.

⁴²In the case of GDP per capita, an Atkinson-type step function (similar to the one used in 3.7 Lifetime Deprivation) is used to transform GDP per capita into well being.

⁴³An income unit "is defined as any person aged 15 or over, or, if in full-time education, 19 or over, together with husband or wife and any children aged under 15 (or under 19 if in full education)" (p. 179).

⁴⁴Integrated Poverty Measurement Method

⁴⁵Neither Beccaria-Minujin nor Kaztman realized that what they were doing constituted a new method for the measurement of poverty. I was the first to realize this and called it the Integrated Method (Boltvinik, 1990).

⁴⁶DANE stands for Departamento de Asuntos Nacionales de Estadística (Department of National Statistical Affairs) which is the Colombian Government Statistical Office. See DANE 1991.

⁴⁷Amplified potential is used to qualify an approach defined as “a household is poor if, despite an efficient allocation of all the sources of well being, cannot satisfy all his basic needs” (Boltvinik, 1992, p. 364).

⁴⁸The equivalence scales used are based on nutritional requirements only and result in adult men (1.0), adult women (0.76), infants, 1 to 3 years old (0.46 males, 0.43 females), children, 4 to 13 years (0.77 males, 0.69 females). There is no attempt at taking into account other needs or economies of scale.

⁴⁹The same groups as in OIPMM are also formed.

⁵⁰Three alternative equivalence scales are used: 1) Initial adult in the household: 1.0; 0.7 per additional adult, and 0.5 per additional child. 2) 1.0, 0.6 and 0.4 respectively; 3) 1.0, 0.66 and 0.33.

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Líneas de pobreza ajustadas por necesidades de salud: El caso peruano

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Introducción

La pobreza es un fenómeno multidimensional (Herrera, 2001 y 2002). La literatura académica reciente sobre la pobreza y los gobiernos nacionales y organismos multilaterales que trabajan en su reducción resaltan una visión multidimensional de la pobreza que comprende varios aspectos interrelacionados del bienestar: un nivel insuficiente de ingreso y activos para cubrir las necesidades básicas, incapacidad para evitar y afrontar choques adversos que impacten negativamente los ingresos o activos, bajo desarrollo humano, alta incidencia de males sociales y barreras para participar económica, política y socialmente en igualdad de condiciones (Yamada, 2002). Sin embargo, cuando se trata de operacionalizar el concepto de pobreza con los datos aparentemente se pierde esta multidimensionalidad y se regresa a la acostumbrada medida sintética de pobreza por ingresos o gastos (llamada también pobreza monetaria, objetiva y de medios, en contraste con mediciones de pobreza no monetaria, pobreza subjetiva o pobreza de resultados)².

En principio, el indicador de pobreza monetaria sí incluye las dimensiones de gastos necesarios para obtener niveles adecuados de salud, educación, vivienda y hasta recreación pero, ante la ausencia de mayores desarrollos metodológicos contemporáneos, todos estos aspectos quedan colapsados usualmente en la “caja negra” de la inversa del Coeficiente de Engel, herramienta con la cual se pretende dar cuenta de todos los gastos no alimentarios necesarios para que el hogar supere la pobreza integralmente y satisfaga todas sus necesidades básicas.

Ante el protagonismo de la pobreza monetaria en las discusiones nacionales e internacionales sobre la reducción de la pobreza, otras corrientes y disciplinas le reclaman a los economistas un enriquecimiento de este indicador para incorporar de manera más específica las necesidades de salud, educación y vivienda, entre otras necesidades básicas³.

El presente trabajo se inscribe dentro de esta corriente germinal que trata de sensibilizar la metodología de la pobreza monetaria a las necesidades de salud, a partir de la experiencia internacional sobre el tema, y realiza una aplicación al caso específico del Perú utilizando principalmente los datos de la Encuesta Nacional de Hogares del 2002 (la que contiene información particularmente rica en su módulo de preguntas de salud) así como también las Encuestas de Niveles de Vida de 1994, 1997 y 2000. En particular, el trabajo aplica en una primera etapa el método indirecto de ajuste de las líneas de pobreza por necesidades de salud al sustraer los gastos de salud efectuados por las familias tanto de la línea de pobreza tradicional como de los gastos totales reportados. En una segunda etapa, el trabajo explora un método directo de ajuste de los indicadores de pobreza a las necesidades de salud incorporando a la línea de pobreza alimentaria tradicional una estimación del total de gastos necesarios en salud construida a partir de la propia percepción de los hogares sobre los gastos necesarios para obtener un nivel de salud adecuado. En una tercera etapa, el trabajo explora la sensibilidad de los indicadores de la pobreza a la disponibilidad de seguros de salud y la ocurrencia de eventos catastróficos de salud.

² Los Índices de Desarrollo Humano y de Pobreza Humana postulados por el PNUD han sido aporte importantes en la línea de la multidimensionalidad del desarrollo y la pobreza pero su uso en la investigación, diseño y evaluación de políticas no ha logrado generalizarse.

³ Otra ruta de progreso hacia una mirada más multidimensional de la pobreza ha sido el planteamiento de los Objetivos de Desarrollo del Milenio como un conjunto sistémico de metas que incluye a la reducción de la pobreza monetaria extrema a la mitad hasta el 2015 pero también a indicadores de desarrollo en salud (reducción de la mortalidad infantil y materna, por ejemplo), educación (asistencia universal a la educación primaria, por ejemplo), medio ambiente, etc. (PNUD, 2003)

La sección I de este artículo describe y discute la literatura internacional relevante para el tema. La sección II compara esta literatura con el estado actual de la medición de pobreza monetaria en el Perú. La sección III describe los datos a utilizarse. Las secciones IV y V describen las dos metodologías de ajuste aplicadas y presentan los principales resultados obtenidos. Finalmente, las secciones VI describen y presentan los resultados del análisis de sensibilidad de los indicadores de la pobreza a la disponibilidad de seguros de salud y la ocurrencia de eventos catastróficos de salud.

I. Revisión y discusión de la literatura relevante

La literatura reciente, sobretudo estadounidense, acerca de metodologías alternativas de ajuste de las líneas de pobreza por necesidades de salud tiene su origen en las crecientes críticas a la forma histórica, y todavía vigente, de medición oficial de la pobreza en los Estados Unidos.

La Administración de Seguro Social publicó en la década de los 1960s, las estadísticas de pobreza que devinieron en oficiales basándose en las medidas desarrolladas por Orshansky (1965) las cuales se estimaron con los datos recolectados por la Encuesta Familiar de Consumo de Alimentos del Departamento de Agricultura de 1955. Esta medida de referencia multiplicaba por tres los costos de una dieta alimenticia adecuada mínima para permitir el resto de gastos de consumo. Este multiplicador fue obtenido de la misma encuesta que mostraba que, en promedio, las familias estadounidenses gastaban un tercio de sus ingresos en alimentos. Cabe resaltar, por tanto, que implícitamente este multiplicador habría dado cuenta de un porcentaje promedio de gastos realizados en salud por las familias americanas de aquel entonces. En tal sentido, Bavier (año?) hace referencia a que las necesidades médicas sí son parte de este umbral histórico. Sin embargo Fisher (1997) ha provisto evidencia que lleva a la conclusión contraria⁴.

En general, excepto por pequeños cambios en los umbrales de pobreza y la actualización nominal de sus valores sobre la base de la inflación registrada por el Índice de Precios al Consumidor, las líneas oficiales de pobreza en los Estados Unidos no han sido alteradas hasta ahora. Esto a pesar de indudables cambios en la estructura de consumo de las familias americanas de todos los estratos luego de casi cuatro décadas de significativas variaciones en precios relativos, estilos y estándares de vida, y avances tecnológicos en todos los campos, incluyendo específicamente a la salud.

Es a partir de las múltiples críticas existentes -véase por ejemplo Ruglles (1990) para conceptos alternativos de pobreza y métodos para medición de pobreza, que el Congreso de los Estados Unidos solicita a su Academia Nacional de Ciencias (ANC) la formación de un "Panel sobre Pobreza y Asistencia Familiar" para que proponga mejoras en la medición de la pobreza en dicho país. En 1995 este panel de estudiosos publicaron sus hallazgos y recomendaciones con el título "Measuring Poverty: A New Approach" (un nuevo enfoque para la medición de la pobreza), (Ciro y Michael, 1995).

El panel de la ANC recomendó que la línea de pobreza represente un presupuesto para alimentos, ropa, y vivienda y una pequeña cantidad para otras necesidades menores (como artículos para el hogar y transporte no relacionado al trabajo) que no incluyan a los gastos en salud. El umbral deberá ser actualizado anualmente de modo que refleje los cambios en los gastos en alimentos, ropa y vivienda en los tres años previos. Asimismo, el umbral de la familia de referencia deberá ser ajustado de modo que refleje las necesidades de los diferentes tipos de familia y las diferentes áreas geográficas. Los recursos familiares deben ser definidos como la suma de los ingresos monetarios junto con el valor de beneficios casi monetarios tales como los cupones alimentarios, a los cuales se debe excluir los gastos por impuesto a la renta, gastos en

⁴ Las evidencias son: 1) Una invitación de Comité de Gobierno para una reunión el 26 de Abril de 1967, para ajustar en el IPC sólo el rubro de Vestido y Vivienda ya que los cuidados médicos no estaban contenidos en el umbral. 2) Una conversación personal entre Fisher y Orshanki confirmando que los cuidados médicos no estaban incluidos en el umbral debido a que eran asumidos por programas de caridad o los novedosos programas de entonces Medicare y Medicaid. 3) Una carta de Wilber Cohen, editor de "The Economist", quien indicaba que los cuidados médicos no estaban incluidos en el umbral de pobreza.

cuidado de niños y, por consistencia, los gastos en servicios médicos incluyendo las primas de seguros de salud. A este método le llamaremos el método “indirecto” de ajuste de la pobreza a las necesidades de salud ya que toma la ruta de descontar, tanto de la línea como de los ingresos totales, los gastos de salud asociados.

Esta opción metodológica no está exenta de críticas que empiezan desde el nivel filosófico más amplio. Por ejemplo, John Cogan⁵ afirma que “...la opción (de rubros de gasto incluídos en el umbral) puede parecer ser absolutamente razonable, y el panel puede estar correcto cuando discute estas necesidades básicas de vida contra la cual nadie está en contra, pero, ¿qué base científica existe para concluir que los alimentos, ropa, y la vivienda son necesidades básicas y el cuidado médico o el cuidado personal no lo es?”

Es cierto que el panel de la ANC evaluó detalladamente la posibilidad de incluir los cuidados en salud en su línea de pobreza recomendada pero decidió lo contrario por las siguientes razones: a) los cuidados médicos difieren de los alimentos o la vivienda en el hecho de que no todas las familias requieren cuidados médicos en el mismo año, pero cuando los requieren, los costos asociados pueden ser muy altos, b) de modo similar, los cuidados médicos tienen gran variación entre individuos y familias en mayor grado que otras necesidades, y, c) es muy difícil predecir la variación actual de las necesidades médicas por lo que su inclusión podría llevar a clasificaciones de pobreza erradas.

Por otro lado, el panel de la ANC señala que a pesar de que su medida de pobreza recomendada excluye los gastos médicos tanto de la línea de la pobreza como de los ingresos, sí reflejará cambios en las políticas de salud que afecten los ingresos disponibles. Por ejemplo, si determinados cambios en la política de financiamiento de la salud reducen los gastos médicos monetarios, y por consiguiente liberan recursos para la satisfacción de otras necesidades, la medida propuesta mostrará una menor incidencia de la pobreza mientras que la medida histórica se verá inalterada (Ciro y Michael, 1995).

Sin embargo, un grupo de autores tales como Jessica Banthin⁶, Thesia Garner⁷ y Kathleen Short⁸ que provienen de diversas agencias del gobierno federal estadounidense argumentan que hay muchas razones desde conceptuales hasta prácticas para incorporar directamente los gastos médicos en las medidas de pobreza. Esta corriente de opinión da origen a lo que nosotros llamamos el método “directo” de ajuste de las líneas de pobreza por necesidades de salud, ya que propone incorporar directamente el gasto necesario en salud como parte de la línea de pobreza y compararlo con los ingresos totales de las familias o individuos para efectos de la identificación de las familias e individuos en condición de pobreza⁹.

Muchas personas consideran que los cuidados médicos son una necesidad básica al igual que el alimento, la vivienda y la vestimenta. Esta visión de los cuidados médicos como una necesidad básica se apoya en el hecho de que el gobierno federal y los

⁵ Miembro de la Comisión Bipartita sobre Cuidado de la Salud de los Estados Unidos y del Panel de la ANC sobre Pobreza y Asistencia Familiar.

⁶ Center for Cost and Financing Studies, Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services.

⁷ Division of Price and Index Number Research, Bureau of Labor Statistics, U.S. Department of Labor.

⁸ Housing and Household Economic Statistics Division, Bureau of the Census, U.S. Department of Commerce.

⁹ La “Carta Abierta para la Revisión de la Medida Oficial de Pobreza” suscrita por un grupo de 40 prominentes expertos en el tema (Burtless, et.al., 2000) tuvo una posición intermedia, sugiriendo como válidos tanto el método indirecto como directo.

estados invierten ingentes cantidades de recursos públicos para brindar cobertura de seguros subsidiadas en la forma de Medicaid y Medicare y otros programas para aquellos individuos que no tienen acceso a un seguro privado. Por otro lado, ignorar los gastos médicos necesarios dentro del umbral de la pobreza puede resultar en una categorización incorrecta de qué familias son las más necesitadas. Esto es particularmente cierto para aquellos quienes no tienen seguro o quienes pierden el acceso al seguro de salud en los Estados Unidos. Si estas personas no pueden gastar lo suficiente en salud debido a sus restricciones presupuestarias corren el riesgo de no ser capturadas como parte de la población en pobreza, de acuerdo al método indirecto propuesto por el panel de la ANC. En cambio una medida directa que explícitamente tome en cuenta un nivel suficiente de gastos médicos necesarios tiene más posibilidad de identificarlos como pobres.

A un nivel conceptual general se puede afirmar que los métodos directo e indirecto son equivalentes matemáticamente. Esto es, si la clasificación de pobreza se hace comparando los ingresos totales a una línea de pobreza determinada, resulta lo mismo quitar un monto de dinero dado del lado de los ingresos que añadirlos al lado de las necesidades o línea de pobreza. Sin embargo, en la práctica no son los mismos montos los que se sustraen o añaden y ésta es la razón central de las diferencias de estos métodos. En el método indirecto se sustrae el monto efectivamente gastado en salud, mientras que en el método directo se pretende añadir a la línea de pobreza de alimentación, vestido y vivienda una canasta normativa necesaria para cubrir las necesidades básicas de salud. Por supuesto que no es fácil llegar a un consenso sobre cuál sería el mejor estimado de dicha canasta normativa necesaria mínima.

Banthin et.al (2000) argumentan que el método “directo” que proponen se basa en una visión ex ante de la medición de la pobreza (que busca definir un nivel mínimo de recursos que se espera sea suficiente para cubrir necesidades básicas inciertas como la salud), lo cual tiene sustento en la teoría económica de utilidad esperada. Para incorporar las necesidades de salud en sus líneas de pobreza modificadas, dichos autores utilizan tanto la media como la mediana de los gastos de salud efectivamente realizados por las familias estadounidenses. Aunque la teoría de utilidad esperada sugeriría el uso preferente de la media aritmética como valor esperado de los gastos de salud, también se utiliza la mediana como medida alternativa debido a la asimetría de la distribución de gastos de salud. Por el mismo argumento de asimetría, se hace necesario ajustar los valores esperados de gastos de salud con las características familiares predictoras de necesidades de salud como son la edad, el tamaño de la familia, la tenencia de seguro y el estado de salud mismo. Un último ajuste realizado antes de proceder a estimar las medias y medianas correspondientes fue aumentar los gastos de salud de las familias no aseguradas, los que, ante la ausencia de alternativas viables para dichas familias, subestiman los montos necesarios de gasto para mantenerse en buen estado de salud.

Los resultados centrales de esta metodología directa y su comparación con los resultados del método indirecto y el método histórico vigente en los Estados Unidos para el año 1999 aparecen en el Cuadro 1 que reproduce el Cuadro 6 de Banthín et.al. (2000) con estimaciones comparables de incidencia de pobreza promedio y por grupos poblacionales usando los datos de ingresos de la Encuesta de Población Contemporánea (CPS: Current Population Survey) y dos otras encuestas para estimar la línea de pobreza ajustada por necesidades de salud: la Encuesta de Gastos de Consumo (CE: Consumption Expenditure Survey) de 1997 al 2000 y la Encuesta Panel de Gastos Médicos (MEPS: Medical Expenditure Panel Survey) de 1996.

Cuadro 1
Incidencia de pobreza en los Estados Unidos incorporando necesidades de salud (%)

	Medida Oficial	Medida MOOP ANC	CE Mediana Sin ajuste	CE Promedio Sin ajuste	MEPS Mediana Sin ajuste	MEPS Promedio Sin ajuste	MEPS Mediana Ajustada	MEPS Promedio Ajustada
Población Total	11.8	14.7	13.5	13.5	14.1	14.7	14.9	15.5
Grupos de edad								
Niños	16.9	19.3	18.2	18.3	18.7	19.2	19.6	20.1
Adultos	10.0	12.0	11.2	11.2	11.5	11.8	12.3	12.8
Adultos mayores	9.7	18.6	15.0	14.9	17.7	19.4	17.6	19.5
Estatus de Salud Familiar								
Excelente/bueno	9.7	11.9	10.8	10.8	11.2	11.5	12.0	12.4
Bueno/pobre	20.0	25.6	23.9	23.9	25.3	26.6	25.8	27.4
Estatus de Seguro Familiar								
Privado	4.9	7.3	6.3	7.0	7.4	6.9	7.4	7.4
Publico	41.2	47.5	45.2	45.5	45.8	47.3	45.7	47.4
No asegurado	31.0	33.1	31.7	32.1	31.9	32.3	41.1	41.7
Discapacidad								
No discapacitado	9.2	10.8	10.0	10.0	10.2	10.4	11.2	11.5
Discapacitado	16.2	19.9	19.1	19.1	19.8	20.8	20.2	21.3

Fuente: Banthin, et.al. (2000)

La primera columna muestra los resultados oficiales de incidencia de la pobreza sobre la base del método histórico ya descrito con un promedio total de 11.8% para 1999. La segunda columna muestra las incidencias de pobreza calculadas con el método indirecto de la ANC que substrahe los gastos monetarios en salud (MOOP: medical out of pocket expenses) a los ingresos disponibles y que arroja un promedio total de 14.7%. Las seis columnas restantes muestran los resultados de estimaciones alternativas del método directo que incluye la media o mediana de los gastos monetarios de salud a la línea de la pobreza. Las variaciones que dan origen a las distintas columnas son las dos fuentes alternativas de datos (CES o MEPS), el ajuste hacia arriba de los gastos necesarios para la población no asegurada y las dos medidas de tendencia central. Nótese que los promedios totales de estas seis columnas fluctúan entre 13.5 y 15.5% de incidencia de pobreza (arrojando un promedio simple de 14.4%).

Por tanto, el salto más importante de la incidencia de la pobreza ocurre cuando se da cuenta explícitamente de los gastos de salud ya sea de manera indirecta o directa¹⁰. Asimismo, si observamos los cambios por grupos poblacionales, comparando por ejemplo la primera columna (método histórico) con la segunda (método indirecto) vemos que la incidencia de la pobreza prácticamente se duplica en el caso de las personas de tercera edad y aumenta también desproporcionadamente en el caso de los niños. La pobreza en familias con niveles de salud pobre o regular se incrementa también en más de 25%. Otros aumentos desproporcionados ocurren en las familias con seguro de salud público e individuos discapacitados.

Las diferencias de resultados a nivel total entre los métodos directo e indirecto de ajuste son más bien de menor magnitud y dependen mayormente de diferencias en las bases de datos utilizadas y ajustes adicionales efectuados como en el caso de la población no asegurada. Recordemos que hay una razón aritmética para esperar

¹⁰ Nótese también que otro factor que explica la corrección hacia arriba de la incidencia de la pobreza es que en todos estos métodos modificados se considera como umbrales de gastos para los rubros de alimentos, vestido y vivienda promedios entre 78% y 83% de las medianas de gastos en estos rubros. En este sentido, la pobreza en todos estos métodos modificados se mide de manera relativa.

pocas variaciones a nivel total (sobretudo si se trata de bases de datos similares) pues el nivel normativo de gastos de salud que utiliza el método directo se construye a partir de los promedios de gastos en salud efectivamente realizados. Al nivel desagregado se observan algunas diferencias de resultados entre los métodos alternativos pero en ningún caso cambia la posición relativa de incidencia de pobreza de los diferentes grupos. Sólo destaca nítidamente el caso de la población no asegurada que aumenta casi diez puntos su incidencia de pobreza al realizarse la corrección hacia arriba del gasto normativo de salud, poniéndolo casi a la par en incidencia de pobreza con los grupos que tienen seguro público.

A diferencia del caso de Estados Unidos, Canadá no tiene hasta el momento una línea de pobreza oficial. Sin embargo, la línea de corte de bajos ingresos (Low Income Cut-offs, LICO) publicada por Estadísticas Canadá es considerada como una línea de pobreza semi-oficial desde la década de 1960s (Canadian Council of Social Development, 2001). La línea LICO se calcula añadiendo 20 puntos porcentuales al porcentaje del ingreso que gasta un hogar promedio de Canadá en alimentos, vestido y vivienda. Esta línea se recalcula periódicamente para considerar los cambios en los patrones de consumos de los hogares canadienses. Hacia el 2001, el hogar promedio gastaba 35% de sus ingresos antes de impuestos en estas tres necesidades básicas, por lo que un hogar de bajos ingresos se definía como aquél que gastaba más de 55% de sus ingresos en estos conceptos. En la práctica esta base conceptual mixta de la línea LICO (es en parte una medida de necesidades básicas y en parte una medida relativa de ingresos) la hace difícil de explicar y entender¹¹. Las necesidades de salud no están explícitas en esta medida LICO aunque se entendería que si un hogar está en la pobreza porque gasta un porcentaje desproporcionadamente alto de sus ingresos en alimentación, vestido y vivienda, a su vez, está destinando menos de lo socialmente necesario para cubrir otras necesidades básicas tales como los gastos de salud. Existe un proyecto en Estadísticas Canadá para estimar una medida de pobreza basada en una canasta de mercado (Market Basket Measure, MBM) que sea un punto intermedio entre una canasta mínima de subsistencia y una canasta más generosa de inclusión social plena. La canasta incluiría gastos en alimentación, alquiler de vivienda, vestido, transporte, y una ración para otros pequeños gastos, pero tal como el caso de la propuesta de la ANC de Estados Unidos, no incluiría los gastos en salud, los cuales serían más bien descontados del ingreso disponible.

¹¹ Canadá también utiliza una línea más clara de pobreza relativa llamada Medida de Ingresos Bajos (Low Income Measure, LIM) que se calcula como la mitad de la mediana de ingresos de los hogares.

II. Comparación con el caso peruano

En el Perú existe una tradición de medición de la pobreza monetaria a nivel nacional cada cierto número de años desde la aparición de las Encuestas Nacionales de Niveles de Vida (ENNIV) en 1985 con el auspicio del Banco Mundial¹². Estas mediciones se han institucionalizado y se realizan en el INEI con periodicidad anual desde 1997 a partir de los datos de las Encuestas Nacionales de Hogares (ENAHOG), gracias en parte al apoyo metodológico y financiero del Programa de Mejoramiento de Encuestas de Condiciones de Vida (MECOVI), proyecto realizado conjuntamente por el BID, Banco Mundial y CEPAL en varios países de América Latina y el Caribe.

Todas las mediciones nacionales de pobreza monetaria se han realizado utilizando como indicador de bienestar a los gastos totales (y no los ingresos, como en el caso de los Estados Unidos) por tres razones principales (Herrera, 2001, Hentschel y Lanjouw, 1996): 1) Los gastos, al incluir los recursos provenientes del ahorro y crédito, dan una imagen más completa del conjunto de bienes y servicios a los cuales tiene acceso el hogar, mientras que el ingreso sólo refleja las fuentes corrientes de recursos del hogar. Los gastos reflejan de manera más adecuada los estándares de niveles de vida corrientes y de largo plazo que los ingresos, razón por la cual muchas veces se le considera como un indicador del ingreso permanente, 2) El sector informal en el Perú, al igual que en muchos otros países en desarrollo, da cuenta de una proporción muy importante del empleo. En este caso, la medición precisa de los ingresos netos percibidos es muy compleja ante la ausencia de registros contables y una división precisa del consumo productivo del negocio informal y el consumo privado del hogar, y, 3) si el objetivo de lucha contra la pobreza es reducir la pobreza permanente, entonces un indicador de bienestar que se acerque más al ingreso permanente, tal como el gasto total, sería el más adecuado. Cabe señalar, por último, que si bien se trata de medir el indicador conocido comúnmente como pobreza monetaria, para ello el INEI considera todas las fuentes de gasto, tanto el gasto monetario propiamente dicho como las diversas formas de adquisición de bienes y servicios que no implican un pago monetario de parte de los hogares tales como el autoconsumo, los pagos en especie, y las transferencias y donaciones públicas y privadas.

Otra característica importante de la medición de la pobreza monetaria en el Perú, que la diferencia del caso estadounidense histórico, es la actualización relativamente frecuente de la canasta básica de consumo cuya valorización origina la línea de pobreza. Así por ejemplo, las mediciones actuales de la pobreza monetaria utilizan las canastas básicas de consumo calculadas en el año 1997, período que representa el máximo nivel de actividad económica en los últimos años. La metodología es lo suficientemente flexible y transparente como para poder realizar actualizaciones de las líneas de pobreza cuando las autoridades, en consulta con la comunidad académica y la sociedad civil, así lo consideren conveniente. Cada vez que se realiza actualizaciones de canastas, se pueden estimar simultáneamente (y publicar) los indicadores de pobreza con las antiguas y nuevas líneas de pobreza para señalar su impacto.

Las líneas de pobreza en el Perú (que se diferencian por regiones geográficas y realidades urbanas y rurales, tal como recomienda la ANC para una nueva medida de pobreza en los Estados Unidos) se calculan a partir de la valorización de canastas alimenticias representativas (extraídas de la propia información de las encuestas) que satisfagan los requerimientos calóricos recomendados internacionalmente para una

¹² Se realizaron ENNIVs para los años 1985, 1990 (que abarcó sólo a Lima Metropolitana), 1991 (que no incluyó los dominios de Costa Rural ni Selva Rural), 1994 y 1997. Un balance de lo aprendido con estas encuestas aparece en Glewwe y Grosh (2000)

población de referencia nacional. Los valores de estas canastas básicas alimenticias (CBA) se constituyen en las líneas relevantes para los cálculos de la pobreza extrema en el Perú. Por su parte, para el cálculo de la pobreza total, los valores de las CBA se multiplican por la inversa del coeficiente de Engel (porcentaje del gasto total dedicado a alimentos) de la población de referencia para arribar a las líneas de pobreza total¹³.

Nótese que considerando el uso de esta herramienta, y el hecho que en el Perú se incluyen los gastos monetarios efectuados en salud en el total de gastos, se puede afirmar que en nuestro caso sí se toman en cuenta los gastos en salud para el cálculo de las líneas de pobreza total (tema que, como se recordará, es sujeto de debate en la medición histórica de la pobreza en los Estados Unidos). A nuestro juicio, el método actual de medición de la pobreza monetaria en el Perú está más cerca de los métodos de ajuste por necesidades de salud (indirecto y directo) discutidos líneas arriba que del método histórico estadounidense, tanto porque utiliza una canasta de consumo relativamente actualizada como porque considera entre sus gastos no alimentarios a los gastos de salud efectivamente realizados. No deberíamos esperar, por tanto, diferencias muy importantes en los estimados globales de pobreza del Perú al aplicar más específicamente los métodos de ajuste aludidos. Sin embargo, mayores diferencias podrían ocurrir al nivel de sub-grupos poblacionales que realizan gastos de salud significativamente por encima del promedio de la población.

También queda claro de lo expuesto que las líneas de pobreza en el Perú miden niveles de pobreza absoluta lo cuál coincide con el espíritu original de la medición histórica oficial de la pobreza en los Estados Unidos pero difiere de las recomendaciones actuales que proponen líneas de pobreza relativa (porcentajes de la mediana de gastos actuales en los rubros básicos de consumo), criterio absolutamente razonable para un país con el nivel de desarrollo de los Estados Unidos.

¹³ Los indicadores de pobreza que se presentan anualmente en el Perú incluyen no sólo la incidencia o tasa de pobreza (proporción de la población en situación de pobreza o headcount ratio) sino también indicadores de brecha y severidad de la pobreza. Estos estimados corresponden a los Indicadores FGT (0), FGT (1) y FGT (2), respectivamente, de la clase de indicadores de pobreza Foster-Greer-Thorbecke.

III. Datos

El objetivo de este estudio de caso es la simulación del impacto de la inclusión de diferentes dimensiones de la salud en los indicadores de pobreza comúnmente utilizados en el Perú. Dado el breve plazo con el que se ha preparado esta versión preliminar del trabajo, las estimaciones presentadas en las secciones IV a VII deben ser consideradas como primeras aproximaciones empíricas a esta naciente e importante literatura que conecta dos aspectos cruciales del bienestar de los hogares: salud y pobreza. La fuente de datos principal para el estudio es la ENAHO 2002 que, como señalamos, se especializa en la medición de las condiciones de vida de la población y la pobreza.

La ENAHO 2002 tiene un módulo sobre salud de 20 preguntas, que incluye el auto reporte de enfermedades, utilización de servicios públicos y privados de salud, gastos desagregados en salud preventiva y curativa (incluyendo una auto estimación del valor de los mismos en el caso de servicios gratuitos) y cobertura de seguros, que son la principal fuente para estimar los gastos de salud por familia. Cabe señalar que la versión 2002 de la ENAHO permitió una captura mucho más completa de los gastos de salud realizados por el hogar debido a una batería mucho más amplia de preguntas y a que el módulo lo respondieron todos los miembros del hogar (la madre, en el caso de los niños), a diferencia de versiones anteriores en las que sólo contestaba el módulo una persona adulta (que se suponía la más informada acerca de los gastos de salud del hogar). Por ello, los gastos en salud aumentan su importancia relativa en el gasto total del hogar de un promedio menor al 4% en el año 2001 a 7.3% en el año 2002.

El Cuadro 2 presenta la importancia relativa de los gastos en salud (como porcentaje de los gastos totales del hogar) para el 2002 según deciles de gasto, tanto el estimado puntual como sus intervalos de confianza. Se aprecia cierta correlación positiva entre el nivel de gasto total y el porcentaje del mismo dedicado a la salud, denotando que la salud es un bien normal superior (con elasticidad ingreso mayor a uno) para el caso peruano. Sin embargo, en términos de estimado puntual del porcentaje de gastos dedicado a la salud, éste llega a su máximo en el decil VIII (9.1%) para luego descender hasta 8.9% en los deciles IX y X.

Cuadro 2

Perú: Importancia relativa en gastos en salud según deciles del gasto Nivel Nacional, ENAHO 2002

Deciles	% de gasto en salud	Intervalo de confianza 95%	
I	5.4%	4.9%	5.8%
II	5.7%	5.3%	6.2%
III	6.5%	6.0%	7.1%
IV	6.1%	5.7%	6.6%
V	7.1%	6.6%	7.7%
VI	7.2%	6.7%	7.7%
VII	8.1%	7.5%	8.7%
VIII	9.1%	8.2%	9.9%
IX	8.9%	8.3%	9.5%
X	8.9%	8.3%	9.5%
total	7.3%	7.1%	7.5%

Fuente: Nuestras estimaciones en base a la ENAHO 2002-IV trimestre

El Cuadro 3 indica la composición del gasto de salud según modo de adquisición y por deciles de gasto. En promedio, 52.2% de los gastos de salud se efectuaron en el 2002 con erogaciones de dinero, 35.7% con autosuministro o pago en especie y 11.4% a través de donaciones públicas. En el caso de la importancia relativa de los gastos monetarios, salvo el decil I que muestra un peso claramente menor (36.7%), en el resto de deciles su peso fluctúa entre 46.8% y 57%. El componente de autosuministro y pago en especie pierde importancia relativa conforme se asciende a deciles más altos de gasto (de 57.6% en el decil I a 26.1% en el decil X). Por último, la importancia de las donaciones públicas en el financiamiento de los gastos de salud tiene, sorprendentemente, una fuerte correlación positiva con el nivel de gasto total (aumentando de 5% en el decil I hasta 20.1% en el decil X), mostrando de manera contundente que las donaciones públicas de servicios de salud se distribuyen regresivamente en el Perú.

Cuadro 3

Perú: Composición del gasto de salud según modo de adquisición Nivel Nacional, ENAHO 2002

	Gasto monetario	Autosuministro, Pago en especie	Donación pública	Donación privada	Otros	Total
Total	52.2%	35.7%	11.4%	0.2%	0.4%	100.0%
Deciles						
I	36.7%	57.6%	5.0%	0.4%	0.4%	100.0%
II	48.7%	46.4%	4.4%	0.1%	0.3%	100.0%
III	52.2%	41.5%	5.9%	0.0%	0.2%	100.0%
IV	53.5%	39.8%	6.3%	0.0%	0.4%	100.0%
V	50.8%	40.5%	7.8%	0.0%	0.9%	100.0%
VI	57.0%	34.8%	7.4%	0.2%	0.5%	100.0%
VII	53.1%	38.7%	7.0%	0.7%	0.5%	100.0%
VIII	46.8%	41.4%	11.0%	0.4%	0.4%	100.0%
IX	55.0%	37.1%	7.5%	0.0%	0.4%	100.0%
X	53.1%	26.1%	20.1%	0.2%	0.4%	100.0%

Fuente: Nuestras estimaciones en base a la ENAHO 2002-IV trimestre

Las Encuestas de Niveles de Vida de 1994, 1997 y 2000 tienen módulos de salud menos detallados que la ENAHO y tamaños muestrales más pequeños. Sin embargo, serán de utilidad para obtener en varios casos una perspectiva de robustez y tendencia de los resultados.

IV. El ajuste indirecto de ajuste de las líneas de pobreza por necesidades de salud

Como hemos discutido en las secciones anteriores, la exclusión de los gastos en salud de la cuenta de gastos totales es una forma indirecta de sensibilizar aún más los indicadores de pobreza a los gastos en salud para el caso peruano, sin necesidad de realizar un cálculo directo de una canasta normativa mínima de salud. Luego de excluir los gastos de salud de la cuenta de gastos totales, se procede a reestimar el coeficiente de Engel (proporción de gastos en alimentos sobre el total de gastos excluyendo los gastos en salud). La inversa del mismo nos permite calcular la línea de pobreza ajustada por este método indirecto y determinar nuevas estimaciones de la pobreza absoluta. Dado que los gastos de salud ya estaban implícitamente considerados en la línea de pobreza original, no esperamos mayores variaciones en los indicadores de pobreza globales con este método de ajuste.

Efectivamente, el Cuadro 4 muestra los resultados del método indirecto aplicado para el año 2002 que no produce variaciones significativas en las incidencias globales de la pobreza, dado que la medida peruana actual ya incluye los gastos de salud. Las dos primeras columnas del cuadro comparan las líneas de pobreza actuales (que incluyen implícitamente los gastos de salud a través de la inversa del coeficiente de Engel) con las líneas de pobreza reestimadas sin gastos de salud (utilizando la inversa del coeficiente de Engel corregido). Ambas líneas difieren a nivel global en un 8%. La cuarta y quinta columna del cuadro muestran las incidencias de la pobreza estimadas con el método actual y con el método indirecto de ajuste propuesto. A nivel global la variación de la pobreza es nula ya que en ambos casos la incidencia de la pobreza nacional es de 55.1%. A nivel de dominios geográficos se presentan algunas variaciones porcentuales que resultan pequeñas en relación a los niveles de la pobreza en el Perú y que probablemente no pasan ninguna prueba de diferencia estadística significativa.

Cuadro 4

Perú: Líneas de pobreza e incidencia de pobreza incluyendo y sin incluir gastos en salud

Áreas geográficas	Líneas de pobreza			Incidencia de pobreza		
	Con gastos en salud	Sin gastos en salud	Diferencia %	Con gastos en salud	Sin gastos en salud	Diferencia %
Nacional	211.9	194.8	-8%	55.1%	55.1%	0%
Áreas						
Rural	171.6	154.6	-10%	80.1%	78.6%	-2%
Urbano	233.6	216.3	-7%	41.7%	42.4%	2%
Regiones naturales						
Costa	233.2	215.7	-8%	40.4%	41.2%	2%
Sierra	183.4	167.3	-9%	70.1%	69.2%	-1%
Selva	205.3	186.5	-9%	72.0%	71.3%	-1%
Dominios						
Costa urbana*	216.8	197.0	-9%	48.4%	48.7%	1%
Costa rural	177.0	159.7	-10%	67.6%	67.5%	0%
Sierra urbana	209.9	193.0	-8%	47.3%	48.0%	1%
Sierra rural	168.6	153.0	-9%	82.9%	81.0%	-2%
Selva urbana	238.8	222.2	-7%	62.3%	61.9%	-1%
Selva rural	177.0	156.4	-12%	80.2%	79.1%	-1%
Lima Metrop.	253.2	237.1	-6%	30.8%	32.0%	4%

Fuente: ENAHO 2002

V. El ajuste directo de las líneas de pobreza por necesidades de salud

En este caso se trata de una estimación de la canasta mínima de bienes y servicios relacionados a la salud que se consideran esenciales para una vida productiva, en el espíritu de Benthin et.al. (2000). Ellas utilizan los promedio aritméticos y medianas de los gastos de salud efectivamente realizados por los hogares como indicadores de la canasta normativa. Nuestro trabajo, en cambio, aprovecha la novedosa información recogida por la ENAHO sobre la propia percepción de los hogares acerca de la satisfacción de sus necesidades mínimas en salud y la cruza con la información de gastos en salud efectivamente realizados, características sociodemográficas e incidencia de enfermedades crónicas para establecer patrones de niveles de gastos mínimos necesarios en salud, de acuerdo a las características principales de los hogares e individuos. A continuación detallamos los pormenores de esta metodología novedosa y sus primeros resultados.

5.1 La estimación de los gastos “necesarios” de salud

La estimación del gasto necesario en salud en función de los gastos observados se enfrenta a la dificultad que plantea la existencia de una correlación positiva entre reporte de enfermedad, gastos en salud y niveles de ingreso. En el primer cuadro del Anexo podemos apreciar que el reporte de enfermedad aguda o crónica en los dos quintiles más pobres es menor que en los dos quintiles más ricos. El 36% de los individuos pertenecientes al quintil de los hogares más pobres reporta una enfermedad mientras que el 49.7% reporta en el caso del quintil más rico. Por cierto, existe un comportamiento diferenciado en cuanto al reporte de enfermedades agudas y crónicas (las primeras reportadas con mayor frecuencia por parte de los individuos más pobres mientras que las segundas reportadas en mayor proporción por los más ricos). Del mismo modo, los gastos en salud también varían positivamente con los niveles de ingreso en una proporción que va de 1 a 6.5 entre el quintil más pobre y el más rico (ver Cuadro 5 y gráfico 1). En proporción del gasto total las brechas son menos marcadas pues el coeficiente de presupuesto en salud de los más ricos es superior al de los más pobres en 57% (ver cuadro en Anexo).

Cuadro 5
Medianas del gasto mensual en salud para el universo de individuos con gasto positivo en salud, 2002

	Hombre	Mujer	Quintiles de ingresos				
			quintil 1	quintil 2	quintil 3	quintil 4	quintil 5
% de individuos con gasto positivo	43.1%	53.1%	37.8%	44.3%	48.0%	52.0%	58.3%
Gastos en salud	14.0	14.0	5.7	9.3	13.0	19.7	37.3
Con enfermedad aguda	32.3	37.3	10.0	18.0	28.0	40.0	75.7
Con enfermedad crónica	16.7	18.0	7.7	11.3	16.7	24.7	46.0
Sin enfermedades	6.7	6.0	2.7	3.3	5.0	7.0	20.0
Con seguro	18.0	20.0	6.7	10.7	16.7	25.0	50.0
Con seguro público	35.0	40.3	10.0	17.0	21.7	31.0	50.3
Con seguro privado	60.0	73.3	10.0	38.0	56.7	35.0	68.0
Con seguro integral	10.0	10.0	6.7	10.0	15.0	15.0	22.0
Sin seguro	10.0	10.0	5.0	8.0	10.0	15.0	20.0

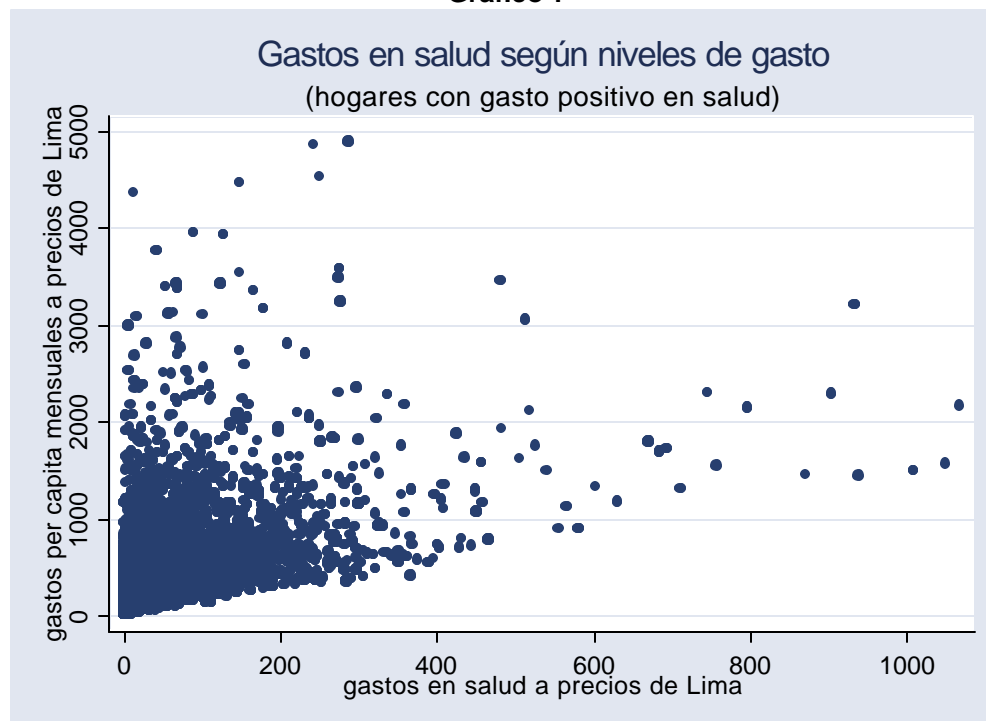
Fuente: elaboración nuestra en base a ENAHO 2002-IV trimestre

Nota: quintil I es el más pobre, quintil V el más rico.

Por otra parte, los gastos en salud no son gastos habituales sino más bien esporádicos y son efectuados principalmente por aquellos individuos que padecen una enfermedad crónica, aguda o han sufrido un accidente. Ello implica que no debemos considerar al conjunto de la población en la estimación del gasto necesario pero únicamente aquella que ha realizado algún gasto en salud, excluyendo (o controlando) la población que ha sufrido un accidente. Una estimación en base a los datos monetarios recogidos sobre gastos deberá también considerar que los hogares más pobres tienden a reportar menores incidencias de enfermedades y por ende a gastar menos en salud. Esta es una dificultad importante pues no son observados los gastos de salud de aquellos que, habiendo padecido una enfermedad, no reportan ninguna enfermedad. La metodología que proponemos a continuación salva esos diferentes obstáculos al combinar la información sobre los gastos en salud y la información recogida en el módulo de percepción subjetiva respecto a la satisfacción de necesidades de salud.

Tres especificidades deberán ser consideradas en el caso del caso peruano (y que sin duda son compartidas por muchos países en desarrollo): 1) la oferta de bienes públicos de salud no es uniforme a lo largo del territorio nacional. Existen regiones (principalmente rurales de la Sierra y Selva) con muy poca infraestructura de salud, poca presencia de especialistas de salud y reducida oferta de productos farmacéuticos. 2) Por razones culturales pero también vinculadas a la menor presencia de bienes de salud modernos, el recurso a la medicina tradicional (con o sin consulta a curandero) es mayor en las regiones rurales menos provistas que en las ciudades en donde se cuenta con una mayor oferta de bienes públicos de salud. Por estos dos motivos, se observan menores gastos de salud en la Sierra y Selva rural respecto a los otros dominios geográficos considerados (ver Cuadro 6). 3) los individuos que cuentan con un seguro (alrededor de 40% de la población) efectúan mayores gastos en salud que aquellos que no cuentan con ningún tipo de seguro que cubra al menos parcialmente los gastos de salud. Fuera del seguro integral reservado a individuos menores de 17 años, el acceso al seguro social o a un seguro privado está condicionado a la existencia de un vínculo laboral con una empresa formal o a disponer de un ingreso suficiente, respectivamente.

Gráfico 1



Fuente: ENAHO 2002-IV trimestre

Cuadro 6

Medianas del gasto mensual en salud para el universo de individuos con gasto positivo en salud

	Costa urbana	Costa rural	Sierra urbana	Sierra rural	Selva urbana	Selva rural	Lima Metrop.	Total
Total de individuos	17.7	12.0	15.7	6.7	12.3	8.3	23.3	14.0
Con enfermedad aguda	47.0	25.0	40.0	12.0	22.7	16.3	50.0	35.0
Con enfermedad crónica	21.3	15.0	20.0	8.7	16.0	12.7	28.0	17.7
Sin enfermedades	6.7	5.0	6.7	3.0	5.0	3.3	11.7	6.7
Con seguro	26.7	13.7	23.3	7.3	15.0	10.0	35.0	19.0
Con seguro público	43.0	25.0	35.0	16.0	29.7	23.0	42.3	39.3
Con seguro privado	83.3	20.0	72.7	53.3	22.7	51.0	65.3	65.3
Con seguro integral	15.0	12.0	10.7	7.0	10.7	8.7	19.0	10.0
Sin seguro	12.0	10.0	10.0	6.0	10.0	7.0	16.7	10.0
Gastos en salud para individuos que no sufrieron accidente	17.0	11.7	15.0	6.7	12.0	8.0	23.0	13.3
Gastos en salud para individuos que si sufrieron accidente	23.0	23.3	25.0	10.0	18.0	17.0	34.0	22.0

Fuente: elaboración nuestra en base a ENAHO 2002-IV trimestre.

5.2. Metodología propuesta

Los gastos “necesarios” de salud corresponden a aquellos efectuados por la población que pertenece a hogares que declaran satisfacer sus necesidades de salud y que las consideran como parte de sus necesidades básicas. La afiliación a un seguro de salud (público o privado) está, en el Perú, asociada a un mayor gasto en salud respecto a aquellos que no están afiliados. Por dicha razón, la estimación del gasto necesario estará restringida a aquellos individuos que pertenecen a hogares afiliados y que tienen un gasto positivo en salud. Consideraremos además exclusivamente los gastos en bienes y servicios formales (remedios, consultas y tratamientos), excluyendo los gastos en medicina tradicional. En la medida que la subpoblación seleccionada tiene características distintas respecto a aquellos sin gasto de salud y no afiliados, nuestra estimación deberá considerar una corrección por el sesgo de selección. Para ello, siguiendo el método de Heckman, estimaremos un modelo logit de determinantes de la probabilidad de pertenecer a la población seleccionada y utilizaremos los resultados de esta regresión para corregir el sesgo de selección. En la medida que disponemos de información sobre gastos de salud para cada individuo, nuestras estimaciones permiten obtener la contribución de cada miembro del hogar al gasto total en salud. Obtendremos de esta manera una estimación directa de las escalas de equivalencia para individuos pertenecientes a diferentes grupos étnicos, que luego utilizaremos con el fin de añadir los gastos necesarios en salud a la canasta básica alimenticia de la población de referencia.

La ENAHO 2002 introdujo un módulo de percepción subjetiva. Para efectos de nuestras estimaciones utilizaremos la información recogida respecto a las necesidades que los hogares consideran como importantes para su bienestar y la información en cuanto el grado de satisfacción de dichas necesidades. En el cuadro siguiente se constata que, a nivel nacional, más del 95% de los hogares considera los gastos en salud como bastante o más o menos necesarios y el 5% restan los considera como poco o nada necesarios. Estamos pues frente a un gasto reconocido como de necesidad casi-universal. Es interesante notar ciertas disparidades regionales, en particular las regiones de Sierra y Selva y dentro de éstas las áreas rurales, en donde se tiene una menor percepción de la importancia de dichas necesidades. Se trataría de un fenómeno de auto-limitación de necesidades condicionada probablemente por una baja dotación en bienes públicos de salud y por el recurso a tratamientos tradicionales de fabricación doméstica que no implican gasto o compra de medicina alguna. En promedio, a nivel nacional, uno de cada cuatro individuos pertenece a hogares que declaran no satisfacer sus necesidades de salud. Dichas proporciones alcanzan cuatro de cada diez en la Sierra rural y alrededor de 1 de cada diez en la capital (ver Cuadro 7).

Cuadro 7

Percepción de las necesidades de salud y grado de satisfacción de dichas necesidades según dominios geográficos, 2002

	Consideran necesario gastos en salud			Satisfacción de necesidad mínima de gasto en salud para aquellos que lo consideran necesario		
	Bastante, más o menos	Poco, nada, no sabe	Total	Bastante, más o menos	Poco, nada, no sabe	Total
Costa urbana	98.3	1.7	100	79.1	20.9	100
Costa rural	97.4	2.6	100	74.6	25.4	100
Sierra urbana	96.2	3.9	100	70.9	29.1	100
Sierra rural	93.6	6.5	100	57.7	42.3	100
Selva urbana	96.2	3.8	100	80.9	19.1	100
Selva rural	95.1	4.9	100	67.3	32.7	100
Lima Metrop.	98.7	1.4	100	86.9	13.1	100
Total	96.7	3.4	100	74.6	25.4	100

Fuente: Nuestras estimaciones en base a ENAHO 2002

5.3. Estrategia de estimación econométrica

Se realiza la estimación conjunta (máxima verosimilitud) de dos modelos (ver resultados en el anexo al final del documento):

- 1) Probabilidad de tener gasto de salud positivo y estar afiliado a un sistema de seguro de salud
- 2) Determinantes del coeficiente de gasto individual en salud (respecto al gasto total del hogar)

La variable dependiente es el logaritmo del gasto individual de salud (en bienes “modernos”) para aquellos individuos con gasto de salud positivo, con seguro de salud, que consideran necesario dicho gasto y que declaran satisfechas sus necesidades de salud. Por su parte, las variables explicativas son:

- 1) Del modelo explicando la probabilidad de pertenecer a la población objetivo: Niveles de ingreso, dominios geográficos, características demográficas, niveles de educación, inserción laboral
- 2) De los determinantes del gasto: Niveles de ingreso, dominios geográficos, características demográficas, tipo de enfermedad padecida, sufrió o no accidente, características socio-demográficas del hogar, activos del hogar.

5.4. Línea de pobreza extrema y línea de pobreza total

El procedimiento estándar para obtener la línea de pobreza total consiste en multiplicar la línea de pobreza extrema por el inverso del coeficiente de Engel promedio de la población de referencia. Existen dos variantes en la definición de la población de referencia. Según el enfoque más utilizado, se trata de la población que reside en hogares cuyos gastos totales se encuentran alrededor de la línea de pobreza. Ravallion¹⁴ ha propuesto definir la población de referencia como aquella cuyos gastos totales son iguales al costo de la canasta básica de alimentos (línea de pobreza “austera”). La lógica detrás de esta propuesta es que aquellos hogares que sacrifican parte de sus gastos en alimentos para dedicarlos a no alimentos debido a que

¹⁴ Ravallion, M. (1999): Poverty Lines y Theory and in Practice. LSMS Working Paper. World Bank.

consideran estos no alimentos como componentes esenciales de su canasta básica. En nuestras estimaciones de líneas de pobreza adoptaremos el método tradicional. Con el fin de definir a la población de referencia seguiremos el método iterativo propuesto por Ravallion. Este consiste en definir como primera aproximación un población de referencia (cercana a las estimaciones de pobreza más recientes) y luego proceder al conjunto de cálculos en la estimación de la línea de pobreza (estructura de la canasta de alimentos, ajustes calóricos, precios por caloría, coeficiente de Engel), estimar la incidencia de la pobreza y confrontar esta estimación con la aproximación inicial. Si ambas coinciden entonces se dan por concluidas las estimaciones. En caso contrario el procedimiento se repite redefiniendo la población de referencia de suerte a que ésta quede centrada alrededor de las incidencias de pobreza que se van obteniendo en cada una de las ruedas sucesivas de cálculo de la población de referencia.

En nuestro caso, el componente de la canasta básica de alimentos será aumentado con el componente de gasto necesario en salud estimado econometricamente. Esta nueva línea de pobreza extrema será enseguida multiplicada por el inverso del coeficiente de Engel (excluyendo los gastos de salud del gasto total) de suerte que obtenemos así la línea de pobreza total. Finalmente calcularemos los indicadores FGT con y sin el ajuste de gastos necesarios en salud.

5.5. Resultados

Utilizando los coeficientes estimados por nuestro modelo econométrico (ver Anexo), podemos estimar a nivel individual los gastos necesarios en salud. Estos niveles requeridos de gastos son sensibles a factores clásicos de influencia como la edad y otras características socio-demográficas, los dominios geográficos de residencia, los niveles de educación, etc. El Cuadro 8, construido con nuestros valores predichos, muestra por ejemplo que los gastos necesarios en salud aumentan con la edad. Para el conjunto de la población, el grupo etéreo de 65 a más años necesita gastar 2.3 veces el gasto requerido para el grupo etéreo de 0 a 17 años. Esta brecha se incrementa aun más (3.4 veces) si consideramos sólo al subgrupo de la población con cobertura de seguro de salud (que, como mencionamos, gasta más en salud en términos absolutos en todos los grupos etéreos).

Cuadro 8
Gastos necesarios en salud según grupos etéreos.

Grupos etéreos	Total población	Con cobertura seguro de salud, gasto monetario
0-17 años	21.96	23.74
18-45 años	29.70	46.31
46-64 años	41.45	64.64
65_y_+	49.69	80.06

Elaboración nuestra en base a la ENAHO 2002-IV trimestre.

Nuestros nuevos estimados de pobreza extrema aumentada, que incluye los gastos necesarios en salud, se comparan con los estimados actuales en el Perú en el Cuadro 9.

Cuadro 9

Estimaciones alternativas de la pobreza considerando gastos necesarios de salud, 2002

	Gastos necesarios en salud			Método tradicional línea de pobreza		
Pobreza extrema	FGT0	FGT1	FGT2	FGT0	FGT1	FGT2
Costa urbana	23.3%	5.8%	2.1%	9.2%	1.8%	0.6%
Costa rural	49.6%	15.5%	6.6%	25.3%	6.4%	2.4%
Sierra urbana	30.9%	9.2%	3.9%	16.3%	4.3%	1.6%
Sierra rural	76.4%	33.2%	17.8%	57.9%	20.6%	9.8%
Selva urbana	45.4%	14.5%	6.3%	30.5%	8.2%	3.2%
Selva rural	66.2%	25.2%	12.3%	44.0%	13.5%	5.6%
Lima Metropolitana.	8.3%	1.7%	0.6%	2.8%	0.6%	0.2%
Nacional	37.7%	13.7%	6.7%	23.9%	7.5%	3.3%

Fuente: Nuestras estimaciones sobre la base del modelo del Anexo y la ENAHO 2002

Cabe señalar que estos indicadores consideran los gastos de salud estimados a partir de la población que tiene acceso a seguros de salud. Estos gastos necesarios en salud aumentan la línea de pobreza extrema tradicional en un promedio de 42 soles mensuales. Por ello, la incidencia de la pobreza extrema “aumentada por salud”¹⁵ (indicador FGT0) resulta de 37.7%, en lugar del 23.9% de pobreza extrema alimentaria, es decir un nivel superior en más de 13 puntos porcentuales¹⁶. Los indicadores FGT que le dan mayor preponderancia a la severidad y brecha de la pobreza se incrementan relativamente más. Por ejemplo el indicador FGT1 aumenta en 83% (de 7.5 a 13.7) y el indicador FGT2 se duplica (de 3.3 a 6.7).

¹⁵ Aquella que experimentan los individuos cuyo gasto per capita total resulta inferior a la canasta básica aumentada (alimentaria más salud),

¹⁶ Cuando estimamos los gastos necesarios en salud para el conjunto de la población (con y sin seguro médico), la incidencia de la pobreza extrema aumentada es de 34.7%, en lugar de 23.9%, es decir una subestimación de más de 10 puntos porcentuales.

VI Impacto del Aseguramiento y de los Eventos Catastróficos en Salud en la pobreza.

6.1 Introducción

En la literatura, el interés por investigar los eventos catastróficos en salud se asocia al desarrollo de los seguros privados, y de manera mas reciente con programas de seguros financiados por los Estados.

Un evento catastrófico puede ser definido desde diferentes aproximaciones y las comúnmente encontradas en literatura se puede resumir en tres: a) Listas de diagnósticos correspondientes a enfermedades crónicas o agudas denominadas catastróficas (cáncer, accidentes, HIV entre otros) ; b) cuando el costo de un evento o la suma de varios eventos en un periodo de tiempo es mayor que el umbral de gasto previamente determinado; y c) cuando el costo del evento o suma de eventos representa una proporción significativa del ingreso de los hogares.

En cada una de estas definiciones, la denominación de catastrófica directa o indirectamente se vincula con el impacto económico que tienen en el ingreso de los hogares.

La primera aproximación, es resultado de la experiencia acumulada en el diseño de planes de aseguramiento, para lo cual utilizan listas de diagnósticos basados en la codificación de la Clasificación Internacional de Enfermedades (CIE -9/CIE-10) que son clasificados como enfermedades que tienen una baja probabilidad de ocurrir, pero son de muy alto costo y de difícil predicción; siendo esta una de las razones para no ser cubiertos por los planes estándares de aseguramiento y mas bien son patologías a ser financiadas mediante diversos esquemas de reaseguramiento. Esta aproximación basado en listas de diagnósticos, tiene la desventaja que es insuficiente para identificar la magnitud del evento catastrófico en términos económicos.

Debe anotarse que desde la perspectiva medica, el carácter de catastrófico de una enfermedad esta dado no solo por el diagnóstico sino también por la severidad del daño y por la complejidad del tratamiento. Los accidentes es un ejemplo que ilustra esta característica, mientras un accidente no conlleve hospitalización posiblemente se trata de un evento de baja severidad, pero si demanda hospitalización, probablemente requiere la concurrencia de múltiples especialidades e intervenciones quirúrgicas (traumatología, cirugía, rehabilitación, cuidados intensivos, cirugía plástica), en ese sentido en la practica médica se han desarrollado nuevas listas que no solo clasifican los episodios de enfermedad en función del diagnóstico sino también en función de la severidad, la edad, el sexo y la presencia de otras condiciones medicas (presencia de embarazo, presencia de alergias, etc).

La construcción de nuevas listas agrupación de las enfermedades obedece a la necesidad de las compañías de seguros y de los programas financiados con recursos públicos (MEDICAID, MEDICARE) de mejorar la predicción del gasto en salud. Estas listas son elementos fundamentales para el desarrollo de los mecanismos de pago, para el grupo patologías que requieren hospitalización se ha desarrollado los DRG y para el ambulatorio se ha desarrollado los ACG.

La segunda definición, es un método muy utilizado por las compañías de aseguramiento y que denominan monto máximo del plan de salud; es decir, antes de dar una cobertura para un diagnóstico, fijan un valor absoluto monetario máximo para

ser cubierto por el plan de salud. Para la mayoría de patologías del tipo oncológicas se ofrece este tipo de planes de aseguramiento. El problema de esta aproximación, es la sobreprescripción de medicamentos y procedimientos, lo que finalmente se refleja en un costo de atención muy por encima del valor real y con una amplia variabilidad de proveedor a proveedor y de paciente a paciente.

La tercera definición, a diferencia de las anteriores, examina el impacto del gasto en salud desde la lógica de bienestar y para ello introduce en el análisis la variable ingreso del hogar. Esta aproximación, independiente de la característica clínica del episodio de enfermedad, evalúa en que medida el gasto en salud impacta el presupuesto del hogar; es decir, arbitrariamente se establece umbrales de fracción del gasto en salud a partir del cual se pueden considerar como catastróficos, al respecto unos consideran 15% y otros 20% del gasto total. Bajo este enfoque, dejamos de en hogares pobres, patologías de alta complejidad (accidentes) podrían significar un alto porcentaje del presupuesto familiar, mientras en hogares de altos ingresos similar patología podría representar un bajo porcentaje.

La conceptualización y definición de evento catastrófico, es un concepto que esta en desarrollo y sujeto a cambios con los aportes de nuevas investigaciones, el presente trabajo explora el impacto del episodio catastrófico en la pobreza desde la perspectiva de la primera y tercera definición, sin embargo, consideramos pertinente explorar otras relaciones que pudieran contribuir en la definición de ¿Qué es catastrófico?.

Las tres definiciones antes comentadas tienen elementos comunes, se sustentan en umbrales establecidos de manera arbitraria y que directa o indirectamente refleja la magnitud del impacto económico, pero también existen diferencias relevantes que son de interés analizarlas. Mientras la primera definición rescata la naturaleza intrínseca del evento (diagnostico, severidad y condiciones médicas asociadas, incidencia), la tercera definición enfatiza el efecto del gasto sobre la función de preferencias del hogar. En ese sentido, queremos explorar en que medida la relación creciente observado entre el gasto de bolsillo en salud y el ingreso del hogar (gasto total), documentado en diferentes estudios incluyendo el presente (Ver anexo 7), se altera conforme se modifica la naturaleza intrínseca del episodio de enfermedad. Consideramos que la conducta racional de los individuos de maximizar el beneficio dado un presupuesto y ante la enfermedad, es diferente en función de las características específicas de la enfermedad, y que en el caso de un episodio catastrófico tal conducta racional se trastoca. Se combina la emergencia (súbito, de alta severidad y discapacitante), con el shock que experimenta la microeconomía del hogar (de un momento a otro debe asumir gastos impostergables y no presupuestados).

6.2 Metodología para la Medición de los Gastos Catastróficos en Salud y el efecto del aseguramiento en la pobreza extrema:

Las fuentes de datos que se utilizaron para la medición de los gastos catastróficos en salud y el efecto del aseguramiento en la pobreza extrema fueron las Encuestas Nacionales de Niveles de Vida (ENNIV) de los años 1994, 1997 y 2000, estas son encuestas con representatividad nacional realizado por el Instituto Cuanto con la asistencia técnica del Banco Mundial y que utiliza procedimientos estandarizados para la recolección de datos. Las líneas de pobreza extrema de las ENNIV se describen en el Anexo 5.

Las encuestas ENNIV correspondientes a los años de 1997 y 2000 tienen un módulo de 21 preguntas sobre salud que se aplica individualmente a cada miembro del hogar. Incluye preguntas sobre la presencia de enfermedad crónica, eventos agudos de

enfermedad y accidentes en las ultimas cuatro semanas, utilización de servicios públicos y privados de salud, cobertura de seguros, contabiliza los gastos individuales realizados en las ultimas cuatro semanas en medicinas, consultas, exámenes y hospitalización, y por separado registra también los gastos a nivel del hogar los últimos tres meses. En base a estos dos datos se determina el gasto de salud anualizado, luego de hacer las correspondientes deflacciones por tiempo y geografía y llevar a similar escala de tiempo.

6.2.1 Relación entre Gasto de Bolsillo en Salud y el Ingreso Total:

Como se señaló previamente, queremos explorar en que medida la relación creciente observada entre el gasto de bolsillo en salud y el ingreso del hogar (gasto total), documentado en diferentes estudios incluyendo el presente, se altera conforme se modifica la naturaleza intrínseca del episodio de enfermedad, y que en el caso de eventos catastróficos el gasto de bolsillo en salud es indiferente respecto del ingreso total del hogar (gasto total), a diferencia de lo que ocurre con otros episodios de enfermedad donde se aprecia una importante elasticidad entre gasto de bolsillo en salud y el nivel de ingreso del hogar (Ver anexo 7: gasto individual en salud según nivel de ingreso).

Para este análisis se utiliza la base de datos de la ENNIV 1997 y se contabiliza a nivel individual los gastos en salud en las últimas cuatro semanas (medicinas, consultas, exámenes, hospitalización). El logaritmo natural de esta variable se utiliza como variable dependiente en los modelos que luego se describen.

Para capturar la información sobre la naturaleza intrínseca del episodio, con los datos disponibles en la encuesta diferenciamos tres grupos: a) Personas que experimentaron un evento calificado como malestar; b) los que calificaron como enfermedad; y c) los que reportaron accidente. Este último grupo desde la perspectiva médica es marcadamente diferente a los dos primeros grupos, pues es menos evidente la brecha entre necesidad real y percepción, es de aparición súbita y discapacitante, mientras en los dos primeros grupos el episodio de enfermedad se presenta de manera más insidiosa. Agregado a estas diferencias, las relaciones funcionales con respecto a la edad y sexo presenta importantes diferencias (Ver anexo 6).

Por separado, para cada uno de los grupos se ha construido un modelo explicativo utilizando una regresión lineal múltiple, donde la variable dependiente es el logaritmo natural del gasto individual de bolsillo. Previamente se exploró mediante análisis bivariado posibles variables explicativas del gasto individual. (Ver anexo 8).

Las variables explicativas fueron agrupadas en: i) Las variables que capturan la severidad del daño (días de enfermedad, días en cama); ii) La variable ingreso total (decil de gasto percapita), siendo de interés observar como cambia su correspondiente coeficiente conforme cambia la naturaleza intrínseca del daño; iii) Dependiendo de las tarifas establecidas por el prestador, el gasto de bolsillo para similar episodio de enfermedad presentará variaciones, esta información se captura mediante la variable tipo de prestador (hospital publico, establecimientos de primer nivel publico, establecimientos de EsSalud, Privados, establecimientos farmacia); iv) La magnitud del gasto de bolsillo, sobretudo en pacientes no asegurados, esta mediado por que profesional es el prescriptor de la receta y de los exámenes auxiliares, finalmente 70% del gasto es en medicinas y menos del 10% es en consultas, estos datos se capturan mediante la variable que identifica quien fue el profesional que atendió la consulta; v) Es de esperar que la condición de aseguramiento tenga impacto en el gasto de bolsillo en la medida que la razón de ser es justo de proteger ante la eventualidad de un gasto no planificado por motivos de salud, se incluye la variable seguro (si/no); vi) Una manera de controlar la oferta disponible es mediante la introducción de la variable

ámbito de residencia (Urbano, Rural, Lima Metropolitana); y vii) Se incluyeron otras variables demográficas como edad, sexo y se diferencio el hecho de ser mujer en edad reproductiva, como una manera de capturar que por razones de salud materna las mujeres consumen mas servicios de salud entre los 15 y 49 años.

6.2.2 Medición de la incidencia y severidad de gasto catastrófico en salud:

Bajo este análisis se pretende operacionalizar lo comentado como tercera definición de catastrófico.

Se ha realizado un ejercicio similar al realizado por Wagstaff en su artículo "Catastrophe and Impoverishment in Paying for Health Care: With Applications to Vietnam 1993-98"; para determinar la incidencia y severidad de los gastos catastróficos en salud de acuerdo a la fracción del gasto per cápita en salud y para ello se colocaron umbrales determinados en 2.5%, 5%, 10%, 15%, 20% y 25%, es decir se consideró como gasto catastrófico en salud, si el gasto en salud excedió los umbrales propuestos. De la misma manera, se determinaron la incidencia y severidad de los gastos catastróficos en salud en relación a la capacidad de pago; denominamos capacidad de pago al dinero que quedaría después de restarle al gasto per cápita los gastos en alimentos y para esto se propusieron los siguientes umbrales: 10%, 20%, 30% y 40%.

Seguidamente se calcularon la incidencia y la severidad de los gastos catastróficos en salud, los índices de concentración para cada uno de los umbrales propuestos y la proporción de nuevos pobres.

Incidencia del Gasto Catastrófico en Salud

Para medir la incidencia del gasto catastrófico en salud; se calculó la proporción de individuos que excedieron su gasto en salud por encima de los umbrales propuestos (2.5%, 5%, 10%, 15%, 20% y 25%).

La formula de la incidencia:

$$P_x = \frac{1}{N} \sum_{i=1}^N S_i$$

$GS_i = 100 \cdot (g5pc_i / gasper_i)$; $GS_i = 100 \cdot (g5pc_i / (gasper_i - alimpc_i))$ para el caso de la capacidad de pago

$E_i = GS_i - x$

Si $E_i > 0$, $S_i = 1$, Si $E_i \leq 0$, $S_i = 0$,

Donde:

P_i = Incidencia del gasto catastrófico en salud (proporción de individuos que exceden el umbral x).

GS_i = Porcentaje del gasto en salud per cápita como parte del gasto per cápita anual

S_i = Individuos con gasto en salud per cápita como parte del gasto per cápita anual mayor al umbral x

E_i = Exceso del porcentaje del gasto en salud sobre el umbral x .

x = Umbral de proporción del gasto en salud como parte del gasto total

$g5pc_i$ = Gastos en salud per cápita anual.

$gasper_i$ = Gasto per cápita anual.

N = Tamaño de la muestra.

$alimpc_i$ = Gasto per cápita en alimentos.

Severidad del Gasto Catastrófico en Salud

La severidad del gasto catastrófico en salud se calculó midiendo la brecha o exceso de los gastos en salud por encima del umbral entre el tamaño de la muestra.

La fórmula es:

$$B_x = \frac{1}{N} \sum_{i=1}^N E_i$$

Donde:

B_x = Severidad o Brecha del gasto catastrófico en salud (exceso promedio del gasto en salud por encima del umbral entre el tamaño de muestra).

E_i = Exceso del porcentaje del gasto en salud sobre el umbral x .

N = Tamaño de la muestra.

Además se calculó la Media de la Brecha Positiva (MBP): esta medida es la media de la brecha o exceso de los gastos en salud por encima del umbral x , en aquellos individuos que excedieron el umbral x .

La fórmula es:

$$MBP_x = \frac{\sum_{i=1}^N E_i}{\sum_{i=1}^N S_i}$$

Donde:

S_i = Individuos con gasto en salud per cápita como parte del gasto per cápita anual mayor al umbral x

E_i = Exceso del porcentaje del gasto en salud sobre el umbral x .

N = Tamaño de la muestra.

Para calcular la incidencia y severidad de la segunda forma de medir el gasto catastrófico en salud; es decir para aquellos individuos en los cuales su fracción de gasto per cápita (sin considerar los alimentos) en salud, excedió los puntos de corte: 10%, 20%, 30% y 40%; se emplearon las mismas fórmulas descritas.

6.2.3 Impacto de Eventos de Salud Catastróficos y el Aseguramiento en la incidencia y severidad de la pobreza extrema:

Como una primera aproximación a la primera definición de catastrófico se optó por comparar la incidencia de pobreza extrema antes y después de hacer el ajuste por gasto de salud. Denominamos incidencia de pobreza ajustado por gastos de salud, cuando al gasto total per cápita se resta el gasto por salud, y contra este valor se compara la línea de pobreza extrema (canasta de alimentos) obteniéndose un nuevo estimado de pobreza extrema. De las publicaciones de Las Encuestas Nacionales de Niveles de Vida (ENNIV) de los años 1994, 1997 y 2000 (Anexo 5) se tomaron las líneas de pobreza extrema.

Las comparaciones pre y post ajuste se realizaron descomponiendo por los diferentes eventos de enfermedad. Estos fueron agrupados en tipo: a) Los eventos sintomáticos (malestar, molestias); b) los eventos correspondientes a episodios agudos de enfermedad; c) La presencia de enfermedad crónica; d) Se diferencia la categoría de accidentes bajo el supuesto que desde la perspectiva médica es un evento catastrófico, y tratando de sensibilizar se considero como otra categoría el accidentado hospitalizado.

El análisis también se desagrega por la condición de aseguramiento del miembro del hogar (si está asegurado o no).

Luego se calcularon las medidas de pobreza preajuste del gasto per cápita y postajuste y se encontró la diferencia entre estas medidas, de acuerdo a categorías antes descritas estudio.

Cálculo de la Incidencia de la Pobreza Preajuste del Gasto per cápita:

La incidencia de la pobreza preajuste del gasto per cápita, se calculó de la siguiente manera:

$$H_{pre} = 100 * \frac{1}{N} \sum_{i=1}^N P_i$$

Si $gasper_{pre} < LPE_{ext}$, $P_i = 1$; Si $gasper_{pre} \geq LPE_{ext}$, $P_i = 0$

Donde:

H_{pre} = Proporción de pobres extremos preajuste del gasto per cápita ($gasper_{pre}$).

LPE_{ext} = Línea de Pobreza Extrema por dominios para los años 1994, 1997, 2000, según Encuesta Nacional de Niveles de Vida 1994, 1997, 2000.

P_i = Pobre extremo preajuste del gasto per cápita.

N = Tamaño de muestra.

Cálculo de la Incidencia de la Pobreza Postajuste del Gasto per cápita:

La incidencia de la pobreza postajuste del gasto per cápita, se calculó de la siguiente manera:

$$H_{pos} = 100 * \frac{1}{N} \sum_{i=1}^N P_i$$

$gasper_{pos} = (gasper_{pre} - g5pc)$.

Si $gasper_{pos} < LPE_{ext}$, $P_i = 1$; Si $gasper_{pos} \geq LPE_{ext}$, $P_i = 0$

Donde:

H_{pos} = Proporción de pobres extremos postajuste del gasto per cápita ($gasper_{pos}$).

LPE_{ext} = Línea de Pobreza Extrema por dominios para los años 1994, 1997, 2000, según Encuesta Nacional de Niveles de Vida 1994, 1997, 2000.

P_i = pobre extremo postajuste del gasto per cápita.

N = Tamaño de muestra.

$gasper_{pre}$ = Gasto per cápita preajuste

$g5pc$ = Gastos en salud per cápita

La diferencia entre la proporción de pobres extremos preajuste y postajuste se calculó de la siguiente manera:

$$\text{Diferencia}_H = H_{pos} - H_{pre}$$

Cálculo de la Brecha de Pobreza preajuste del Gasto per cápita:

Para la brecha de pobreza preajuste del gasto per cápita:

$$B_{pre} = \frac{1}{N} \sum_{i=1}^N E_i$$

Donde:

B_{pre} = Brecha de pobreza preajuste del gasto per cápita.

E_i = $gasper_{pre} - LPE_{ext}$, si $gasper_{pre} < LPE_{ext}$; de lo contrario $E_i = 0$

Cálculo de la Brecha de Pobreza postajuste del Gasto per cápita:

Brecha de pobreza postajuste del gasto per cápita:

$$B_{pos} = \frac{1}{N} \sum_{i=1}^N E_i$$

Donde:

B_{pos} = Brecha de pobreza postajuste del gasto per cápita.

E_i = $gasper_{pos} - LPE_{ext}$, si $gasper_{pos} < LPE_{ext}$; de lo contrario $E_i = 0$

$gasper_{pos} = gasper_{pre} - g5pc$.

$g5pc$ = Gastos en salud per cápita

La diferencia entre la brecha de pobreza preajuste y postajuste se calculó de la siguiente manera:

$$\text{Diferencia}_B = B_{pos} - B_{pre}$$

6.2.4 Variables predictoras de una mayor probabilidad de ser nuevo pobre extremo.

Como una segunda aproximación a la primera definición de catastrófico se simuló hacer un diseño contrafactual.

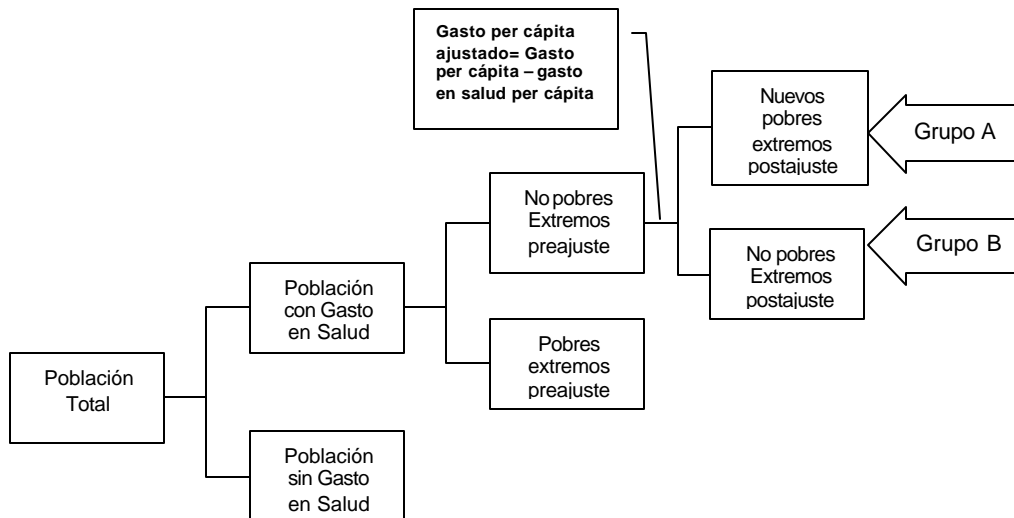
Mediante este diseño se trató de valorar, en qué medida un miembro del hogar que es expuesto a un accidente y que además requiere hospitalización, es un factor de riesgo para que un hogar de estar clasificado como no pobre extremo con gasto en salud positivo, cruce la línea de pobreza extrema y se convierta en un nuevo pobre extremo después de afrontar los gastos en salud. Bajo el mismo diseño, se evalúa si la cobertura de aseguramiento que el hogar dispone, tiene el efecto esperado de reducir el riesgo que el hogar después del ajuste sea clasificado como pobre extremo.

El modelamiento de la probabilidad de cruzar la línea de pobreza extrema se realizó controlando las variables como decil de ingreso, edad (mayor de 65 años, menor de 5 años), presencia de enfermedad crónica, presentar malestar, enfermedad.

Con el propósito de evaluar la consistencia del modelo el análisis se realizó con las dos últimas encuestas ENNIV (1997 y 2000).

En el gráfico 2 se ilustra el diseño. A partir de todos aquellos hogares que tuvieron un gasto en salud positivo y no clasificados como pobres extremos, se diferenciaron dos grupos (A y B), el primero constituido por todos los hogares que luego del ajuste (restarle al gasto total el gasto en salud), son clasificados como pobres extremos (nuevos pobres extremos), y el segundo son los hogares que no cruzan la línea de pobreza extrema.

Gráfico 2
Diseño del estudio contrafactual.



Luego se compararon a estos dos grupos (A y B) y se determinó el impacto de las variables hogar con algún miembro hospitalizado por accidente y el porcentaje de miembros asegurados por hogar, mediante una regresión logística controlando la variable decil de ingresos, donde la variable dependiente fue el ser un nuevo pobre extremo postajuste del gasto per cápita.

El modelo:

$$\text{Log} \left(\frac{p_{pos}}{1 - p_{pos}} \right) = b_0 + b_1 x_1 + b_2 x_2 + \dots + b_9 x_9$$

Donde:

P_{pos} = Probabilidad de ser nuevo pobre extremo postajuste del gasto per cápita.

$b_0, b_1, b_2, \dots, b_9$ = Coeficientes de regresión

$x_1=1$, si hay algún miembro del hogar enfermo; $x_1=0$, caso contrario.

$x_2=1$, si hay algún miembro del hogar con molestias; $x_2=0$, caso contrario.

$x_3=1$, si hay algún miembro del hogar con accidente; $x_3=0$, caso contrario.

$x_4=1$, si hay algún miembro del hogar hospitalizado por accidente; $x_4=0$, caso contrario.

$x_5=1$, si hay algún miembro del hogar con enfermedad crónica; $x_5=0$, caso contrario.

$x_6=1$, si hay algún miembro del hogar menor de 5 años; $x_6=0$, caso contrario.

$x_7=1$, si hay algún miembro del hogar mayor de 65 años; $x_7=0$, caso contrario.

x_8 = (número de miembros del hogar que cuentan con cualquier seguro)/(total de miembros del hogar).

x_9 = decil de ingreso por dominios.

6.3 Resultados y Discusión:

6.3.1 Relación entre Gasto de Bolsillo en Salud y el Ingreso Total:

En el cuadro 10 se presenta los tres modelos por separado correspondientes al gasto de bolsillo (ln) para episodios de malestar, enfermedad aguda y accidentes. Todos los modelos tiene un R cuadrado alto, el de menor valor fue de 0.48.

Al comparar los tres modelos, se puede ver como en el caso del gasto de bolsillo en caso de los accidentes, no depende del nivel de ingreso del hogar (decil de gasto per cápita), ésta variable tiene un coeficiente que no es diferente de cero. En cambio, para los eventos como malestar o episodios agudos de enfermedad, el gasto de bolsillo depende en primer lugar del ingreso del hogar (decil de gasto per cápita), pues en ambos casos esta variable explica no menos del 12% de la varianza. Este resultado plantea la necesidad de examinar de manera más exhaustiva como cambia la relación del gasto de bolsillo en salud con el ingreso total en función de la naturaleza intrínseca de la enfermedad, y revisar en que medida una característica como la ausencia de relación entre ambos es un atributo a considerar en la caracterización de los eventos catastróficos, dado que tanto la definición primera como la tercera comentada en la introducción son incompletas y arbitrarias.

Cuadro 10 Variables explicativas del Gasto del Bolsillo en Salud según tipo de evento. Perú. ENNIV 1997

	Malestar o Síntoma	Enfermedad Aguda	Accidente
	R-cuadrado =0.4841	R-cuadrado =0.5288	R-cuadrado =0.5398
	Coeficiente (IC 95%)	Coeficiente (IC 95%)	Coeficiente (IC 95%)
Decil de ingreso	0.11 (0.09;0.13)**	0.16 (0.11;0.21)**	0.06 (-0.03;0.15)
Edad	0.005 (0.002;0.007)**	0.006 (0.001;0.011)*	--
Días enfermedad (ln) ¹	0.27 (0.21;0.33)**	0.20 (-0.00;0.41)	0.29 (0.05;0.53)*
Días cama (ln) ¹	--	0.17 (0.04;0.30)*	--
Atendido por médico	0.68 (0.38;0.97)**	0.26 (-0.12;0.64)	1.12 (0.67;1.58)**
Atendido por otro profesional	0.56 (0.15;0.98)*	--	--
Atendido por no profesional	--	--	1.14 (0.77;1.52)**
No realizó consulta	-0.74 (-1.05; -0.44)**	-0.58 (-0.92; -0.24)*	--
Atendido en ESSALUD	-0.31 (-0.66;0.05)	0.39 (-0.07;0.85)	0.8 (-0.14;1.75)
Atendido en Privado	0.68 (0.48;0.88)**	1.01 (0.69;1.33)**	1.3 (0.36;2.24)*
Residencia rural	-0.30 (-0.41; -0.20)**	-0.31 (-0.57; -0.05)*	--
Atendido centro/puesto de salud	-0.25 (-0.44; -0.07)*	--	0.43 (-0.05;0.91)
Atendido en hospital público	--	0.48 (0.12;0.83)*	0.73 (0.02;1.44)*
Atendido en farmacia	-0.49 (-0.82; -0.17)*	--	1.03 (0.18;1.87)*
Vivir en Lima	--	0.39 (0.09;0.68)*	--
Tamaño del hogar	--	0.08 (0.03;0.12)*	--
Mujer (15-49 años)	--	0.21 (-0.04;0.45)	--
Constante	1.22 (0.89;1.55)**	0.42 (-0.18;1.02)	0.89 (0.05;1.73)*

¹ Logaritmo natural

*p<0.05

**p<0.001

6.3.2 Medición de la incidencia y severidad de gasto catastrófico en salud:

6.3.2.1 Incidencia y severidad del gasto catastrófico en salud como fracción del gasto per cápita. (Cuadro 11)

En la cuadro 11 se presenta la incidencia del gasto catastrófico en salud, observándose que este es mayor en el umbral más bajo y disminuye conforme el umbral se hace mayor. La incidencia de individuos cuyos gastos catastróficos en salud per cápita excedieron el 2.5% de sus gastos per cápita fue menor en el año 2000 (35.6%) comparado con los años 1997 y 1994, donde las incidencias fueron de 49.2 y 41.8% respectivamente. Si tomamos como umbral el 10% del gasto per cápita como gasto en salud per cápita, se observa que la incidencia del gasto catastrófico en salud fue también menor en el año 2000, sin embargo si se considera como umbral al 15% la menor incidencia del gasto catastrófico se presenta en el año 1997 (4.2%), comparado con un 7.4% para el año 2000 y 7.8% para 1994. Para los umbrales 20% y 25% encontramos las más bajas incidencias en 1997, es decir en este año, la proporción de individuos que tuvieron un gasto catastrófico en salud por encima del 20% del gasto per cápita es igual o menor a 1%, porcentaje 5 a 4 veces más bajo comparado con los otros años.

Con respecto a los índices de concentración se observa que a medida que el umbral se incrementa el índice de concentración también se incrementa, es decir que cuanto mayor es el gasto catastrófico en salud, estos van a ser afrontados por los más ricos.

Al igual que la incidencia del gasto catastrófico en salud; la severidad del gasto catastrófico en salud es mayor a medida que los umbrales se hacen más pequeños. Para el año 1997 la severidad del gasto catastrófico en salud fue menor en todos los umbrales.

La media de la brecha positiva mide que tan lejos se encuentran los individuos por encima del umbral en aquellos que lo excedieron, observándose que en el año 1997 estos valores son menores que los encontrados en 1994 y el 2000.

Otra manera de medir el impacto del gasto catastrófico en salud en la pobreza extrema es midiendo la proporción de nuevos pobres extremos que aparecieron a consecuencia de un gasto catastrófico en salud, es decir de aquellos que no siendo pobres extremos, después de gastar en salud se convierten en nuevos pobres extremos (si al gasto per cápita le disminuimos el gasto en salud, el gasto per cápita resultado será menor que la línea de pobreza extrema para convertirse en nuevo pobre extremo, esto significa que para realizar el gasto en salud estos individuos han tenido que disminuir o sacrificar sus gastos en alimentos para cubrir sus necesidades de salud), en la Cuadro 1.1 se observa que la proporción de nuevos pobres extremos es mayor a medida que el gasto catastrófico en salud se hace mayor, es decir cuando los umbrales son los más altos. En el año 1994, de aquellos que gastaron más de 2.5% del gasto per cápita en salud, 3.8% se volvieron pobres extremos; si el gasto catastrófico en salud excede el 5%, la proporción de nuevos pobres fue 4.9%, pero si el gasto en salud excede el 20% del gasto per cápita, los nuevos pobres fueron 11.7%. Si comparamos estos valores con los del año 1997 se observa que la proporción de pobres extremos como resultado de los gastos catastróficos en salud son menores en todos los umbrales propuestos para este año 1997. En el año 2000, la proporción de pobres extremos ocasionados por los gastos catastróficos en salud es mayor para todos los umbrales comparados con los del año 1997, observándose además que si el gasto en salud excedió el 20% del gasto per cápita 14% de los que afrontan este gasto se convirtieron en nuevos pobres extremos.

Cuadro 11

Incidencia e Intensidad de gasto en salud por eventos catastróficos y proporción de nuevos pobres extremos debido a gastos catastróficos en salud. Perú 1994-2000

ENNIV 1994						
Umbral	x2.5	x5	x10	x15	x20	X25
Incidencia						
Proporción de Individuos con gasto catastrófico (H)	41,8	26,6	13,4	7,8	5,1	3,7
Índice de Concentración de (H)	0,061	0,084	0,146	0,186	0,231	0,310
Severidad						
Severidad del Gasto catastrófico (B)	3,3	2,5	1,5	1,0	0,7	0,5
Media de la Brecha Positiva (MBP)	8,0	9,4	11,5	13,1	13,9	13,6
Porcentaje de Nuevos Pobres Extremos por gastos catastróficos en salud	3,8	4,9	6,0	9,3	11,7	12,8
ENNIV 1997						
Umbral	x2.5	x5	x10	x15	x20	X25
Incidencia						
Proporción de Individuos con gasto catastrófico (H)	49,2	31,6	13,0	4,2	1,0	0,5
Índice de Concentración de (H)	0,025	0,058	0,115	0,208	0,295	0,230
Severidad						
Severidad del Gasto catastrófico (B)	2,6	1,6	0,6	0,2	0,1	0,02
Media de la Brecha Positiva (MBP)	5,3	5,1	4,4	4,0	5,5	3,1
Porcentaje de Nuevos Pobres Extremos por gastos catastróficos en salud	3,1	3,8	5,5	4,2	11,5	11,4
ENNIV 2000						
Umbral	x2.5	x5	x10	x15	x20	X25
Incidencia						
Proporción de Individuos con gasto catastrófico (H)	35,6	23,6	12,1	7,4	4,6	2,9
Índice de Concentración de (H)	0,056	0,093	0,143	0,201	0,245	0,324
Severidad						
Severidad del Gasto catastrófico (B)	2,9	2,2	1,3	0,8	0,6	0,4
Media de la Brecha Positiva (MBP)	8,1	9,2	10,9	11,5	12,3	13,3
Porcentaje de Nuevos Pobres Extremos por gastos catastróficos en salud	3,8	4,6	6,4	8,5	14,0	13,7

Fuente: elaboración propia ENNIV 1994, 1997, 2000.

X2.5 = 2.5% del gasto per cápita en salud, X5 = 5% del gasto per cápita en salud, X10 = 10% del gasto per cápita en salud, X15 = 15% del gasto per cápita en salud, X20 = 20% del gasto per cápita en salud, X25 = 25% del gasto per cápita en salud.

6.3.2.2 Incidencia y Severidad del gasto catastrófico en salud como fracción de la capacidad de pago (gasto per cápita sin considerar los gastos en alimentos) (Cuadro 12)

La capacidad de pago es el dinero que le queda a un individuo después de gastar en alimentos; en la Cuadro 12 se describe la incidencia del gasto catastrófico en salud en la capacidad de pago; observándose que a medida que el umbral se hace mayor la incidencia del gasto catastrófico en salud es menor. En 1994 la incidencia del gasto catastrófico en salud como parte de la capacidad de pago es mayor para todos los umbrales comparándolos con los años 1997 y 2000 y en 1997 se encuentra la menor incidencia también para todos los umbrales, nótese que la incidencia es 4 veces menor en este año para el umbral 10% de la capacidad de pago, comparado con el 2000 y 5 veces menor que el año 1994. Es decir si consideramos como gasto catastrófico en salud al gasto mayor de 10% de la capacidad de pago observamos que en el año 1997 la incidencia es menor (6.1%) comparado con 1994 y el 2000 (30.5% y 24.8% respectivamente).

Los índices de concentración aumentan conforme se incrementa el umbral, es decir que los gastos catastróficos más altos se encuentran concentrados en los ricos.

La severidad del gasto catastrófico en salud también varía inversamente proporcional al incrementarse los umbrales, esta tendencia se observa en todos los años en estudio, sin embargo en el año 1997 se observan los valores más bajos comparados con los del año 1994 y el 2000; además en el 1994 se encuentran los valores más altos de severidad de los gastos catastróficos.

La media de la brecha positiva del gasto catastrófico, es decir la media de la brecha del gasto catastrófico en aquellos cuyos gastos en salud se encuentran por encima de los umbrales propuestos, es mayor en el año 1994 para todos los umbrales (10%, 20%, 30% y 40%) comparado con los años 1997 y 2000. Mientras que en el año 1997 encontramos las medias de las brechas positivas más bajas con respecto a los otros años.

En relación a la proporción de nuevos pobres extremos por gastos catastróficos en salud mayor al 10% de la capacidad de pago, se encontró que en el año 2000 las proporciones son mayores para todos los umbrales, así para el umbral 10%, la proporción de nuevos pobres extremos fue de 6.6% esto significa que 6.6% de los individuos no pobres extremos se convirtieron en nuevos pobres extremos por un gasto catastrófico en salud, en aquellos que tuvieron un gasto mayor al 20% de la capacidad de pago 9.8% se convirtieron en nuevos pobres extremos, 13.5% de aquellos que gastaron más del 30% de su capacidad de pago se volvieron pobres extremos, y finalmente aquellos que gastaron más del 40% de su capacidad de pago en salud 17.1% se convirtieron en nuevos pobres extremos. Para el año 1997, la proporción de nuevos pobres extremos en aquellos que gastaron en salud más del 10%, 20%, 30% y 40% de su capacidad de pago fue 3.7%, 7.6%, 10.8% y 9.4% respectivamente, nótese que en el año 2000 la proporción de nuevos pobres en aquellos que gastaron más del 40% de su capacidad de pago es casi el doble del encontrado para el año 1997.

Cuadro 12

Incidencia y Severidad del Gasto en Salud en eventos catastróficos como fracción del gasto per cápita sin considerar los gastos en alimentos per cápita (Capacidad de pago). Perú 1994-2000.

ENNIV 1994					
Umbral	x10	x20	x30	x40	
Incidencia					
Proporción de individuos con gasto catastrófico (H)	30,5	15,9	9,3	6,0	
Índice de Concentración	0,024	0,067	0,148	0,176	
Severidad					
Brecha del gasto catastrófico (B)	5,3	3,1	1,8	1,1	
Media de la Brecha Positiva del gasto catastrófico (MBP)	17,3	19,3	19,6	17,9	
Porcentaje de Nuevos Pobres Extremos por gastos catastróficos en salud	5,1	6,5	8,7	12,1	
ENNIV 1997					
Umbral	x10	x20	x30	x40	
Incidencia					
Proporción de individuos con gasto catastrófico (H)	6,1	2,2	0,4	0,2	
Índice de Concentración	0,019	0,035	0,086	0,130	
Severidad					
Brecha del gasto catastrófico (B)	3,5	1,3	0,4	0,1	
Media de la Brecha Positiva del gasto catastrófico (MBP)	10,35	9,15	8,51	7,24	
Porcentaje de Nuevos Pobres Extremos por gastos catastróficos en salud	3,7	7,6	10,8	9,4	
ENNIV 2000					
Umbral	x10	x20	x30	x40	
Incidencia					
Proporción de individuos con gasto catastrófico (H)	24,8	12,8	7,2	4,2	
Índice de Concentración	0,031	0,064	0,128	0,169	
Severidad					
Brecha del gasto catastrófico (B)	3,9	2,2	1,2	0,6	
Media de la Brecha Positiva del gasto catastrófico (MBP)	15,9	16,8	16,4	14,7	
Porcentaje de Nuevos Pobres Extremos por gastos catastróficos en salud	6,6	9,8	13,5	17,1	

Fuente: Elaboración propia ENNIV 1994, 1997, 2000

X10 = 10% de la capacidad de pago en salud., X20 = 20% de la capacidad de pago en salud., X30 = 30% de la capacidad de pago en salud, X40 = 40% de la capacidad de pago en salud.

6.3.3 Impacto de Eventos de Salud Catastróficos y el Aseguramiento en la incidencia y severidad de la pobreza extrema:

6.3.3.1 Impacto de los gastos de salud en la incidencia de la pobreza extrema.

Perú 1994-2000. Línea de Pobreza Extrema: (Cuadro 13)

En la Cuadro 13 se describe el impacto de los gastos en salud en la incidencia de la pobreza extrema postajuste del gasto per cápita, (el gasto per cápita ajustado es el gasto per cápita sin considerar el gasto en salud); después de ajustar el gasto per cápita se calculó la incidencia de pobreza extrema.

La incidencia de aquellos pobres extremos que no tuvieron ningún gasto en salud (A) fue 38.1%, 29.3% y 44.4% para los años 1994, 1997 y 2000, se observa que la mayor incidencia se encuentra en el año 2000.

Los pobres extremos que agudizaron su situación de pobreza por gastos en salud (B) fueron un 54.5% en 1994, 60.5% en 1997 y 44.6% en el 2000, como se observa esta incidencia es menor en el último año, sin embargo si comparamos la incidencia de

nuevos pobres extremos (C), es decir aquellos que cruzaron la línea de pobreza después de realizar los gastos en salud, observaremos que en el año 2000 fue mayor encontrándose en 11%, esto significa que el 11% de los pobres extremos son nuevos por haber gastado en salud.

Para el año 1994, del 100% de los pobres extremos con gasto en salud postajuste del gasto per cápita, el 88.1% agudizaron su situación de pobreza por gastos en salud y el 11.9% fueron los nuevos pobres extremos por los gastos en salud, para 1997 del 100% de los pobres extremos con gastos en salud 85.5% agudizaron su situación de pobreza y el 14.5% fueron nuevos pobres extremos por gastos en salud, y en el año 2000, 80.3% agudizaron su situación de pobreza extrema y 19.7% fueron los que se convirtieron en nuevos pobres extremos.

Cuadro 13

Impacto de los gastos de salud en la incidencia de la pobreza extrema postajuste del gasto per cápita. Perú 1994-2000.

Incidencia de pobres extremos postajuste del gasto per cápita (gasto per cápita-gastos en salud)		ENNIV 1994	ENNIV 1997	ENNIV 2000
Sin gastos en salud:				
Pobres extremos sin gasto en salud	A	1971558	1163845	1894164
Con gastos en salud:				
Pobres extremos que agudizan su situación de pobreza por gastos en salud	B	2817793	2405653	1904575
Nuevos pobres extremos por gastos en salud	C	381542	406605	468545
Total	A+B+C	5170893	3976103	4267285
% de pobres extremos sin gastos en salud	A/(A+B+C)	38,1	29,3	44,4
% de pobres extremos que agudizan su situación de pobreza por gastos en salud	B/(A+B+C)	54,5	60,5	44,6
% de nuevos pobres extremos	C/(A+B+C)	7,4	10,2	11,0
% de pobres extremos con gastos en salud y agudizaron su situación de pobreza	B/(B+C)	88,1	85,5	80,3
% de pobres extremos nuevos por gastos en salud	C/(B+C)	11,9	14,5	19,7

Fuente: Elaboración propia ENNIV 1994, 1997, 2000

6.3.3.2 Impacto de Eventos de Salud Catastróficos y el Aseguramiento en la incidencia y severidad de la pobreza extrema (Cuadro 14):

Para evaluar el impacto de los gastos en salud en la pobreza extrema, se calcularon dos medidas de pobreza: la incidencia de la pobreza y la brecha de la pobreza. La incidencia de la pobreza extrema a nivel nacional en 1994, antes del ajuste del gasto per cápita fue 21%, la cual se incrementó a 22.7% postajuste, encontrándose una brecha de 1.7%. En 1997, esta incidencia disminuyó a 14.7% preajuste y a 16.3% postajuste, con una brecha también de 1.7%; y en el año 2000 las incidencias de pobreza extrema preajuste y postajuste fueron 14.8% y 16.8% similares a las del año 1997 y con una brecha del 2%.

Comparando la brecha de la pobreza extrema a nivel nacional en los tres años estudiados 1994, 1997 y 2000; se encontró que en el año 1994 esta fue de 6.1% y 6.9% pre y postajuste del gasto per cápita; en 1997 disminuyó a 3.4% y 3.8% y en el año 2000 fue de 3.7% y 4.2%. Como observamos la brecha de la pobreza extrema fue mayor en el año 1994.

Si consideramos a los eventos en salud como catastróficos de acuerdo al incremento de nuevos pobres extremos postajuste del gasto per cápita, se encontró que: para el

año 2000: el haber estado hospitalizado por accidente en las 4 últimas semanas previas a la Encuesta Nacional de Niveles de Vida (ENNIV), un incremento de la incidencia de la pobreza extrema de 31.13% postajuste del gasto per cápita (una variación de 10.9% preajuste a 42.1% postajuste); para 1997 esta incidencia fue 8.3% preajuste y 26.6% postajuste, con una diferencia de 18.34% de nuevos pobres extremos; en 1994 para esta misma variable las incidencias pre y postajuste fueron 7.8% y 15.6% con un incremento de 7.78% de nuevos pobres.

Un segundo evento catastrófico fue el haber estado hospitalizado en las últimas 4 semanas lo que ocasiona un incremento en 10.28% de nuevos pobres en el año 2000, para los años 1997 y 1994 la proporción de nuevos pobres extremos también se incrementa pero en menor porcentaje: 5.48% para 1997 y 6.76% para 1994. El haber estado accidentado es un tercer evento catastrófico en salud ya que en el año 2000, este evento ocasionó una incidencia de 9.18% de nuevos pobres extremos postajuste del gasto per cápita, esta brecha para el año 1997 fue 3.22% y para 1994 1.71%.

El haber tenido algún miembro enfermo durante las últimas 4 semanas previas a la ENNIV en el hogar, también incrementan la incidencia de la pobreza extrema en 2.65% para el 2000, 1.97% para 1997 y en 2.05% para 1994 y con respecto a la enfermedad crónica la incidencia de nuevos pobres extremos se incrementa en 2.26% en el año 2000 y en 3.14% en 1997.

En relación a la condición de aseguramiento, si no hay miembros asegurados en un hogar, la incidencia de nuevos pobres extremos postajuste del gasto per cápita se incrementa en 2.45% para el 2000, en 2.65% para 1997 y en 2.15% para 1994, sin embargo aunque la brecha es mayor en el año 1997, la incidencia de la pobreza extrema en el año 1994 para los no asegurados es mayor que en los años siguientes llegando a 31.6% antes del ajuste y a 33.7% postajuste, no cabe duda que el aseguramiento evita o disminuye el gasto en salud. Por el contrario, la incidencia de la pobreza en hogares con todos sus miembros asegurados es baja 1.4% pre y postajuste para el 2000, 0.7% pre y postajuste para 1997 y para el año 1994 la incidencia preajuste del gasto per cápita fue 3.7% y postajuste fue 3.9%, con una diferencia de 0.2%.

Cuadro 14 Impacto de Eventos de Salud Catastróficos y el Aseguramiento en la incidencia y severidad de la pobreza extrema. Perú 1994-2000

Pobreza % (FGT0)	ENNIV 1994			ENNIV 1997			ENNIV 2000		
	% Preajuste	% Postajuste	Diferencia: Postajuste- preajuste	% Preajuste	% Postajuste	Diferencia: Postajuste- preajuste	% Preajuste	% Postajuste	Diferencia: Postajuste- preajuste
Enfermedad Aguda									
Enfermo	22,2 (20,0-24,5)	24,3 (22,0-26,5)	2,05	14,8 (13,0-16,6)	16,8 (14,9-18,7)	1,97	15,8 (13,4-18,1)	18,4 (15,9-20,9)	2,65
Accidentado	20,9 (18,9-22,9)	22,6 (20,6-24,6)	1,71	7,3 (2,1-12,5)	10,5 (4,2-16,9)	3,22	15,5 (4,3-26,6)	24,7 (11,4-37,9)	9,18
Hospitalizado	17,4 (7,4-27,4)	24,2 (13,5-34,9)	6,76	3,3 (0,0-7,2)	8,8 (2,0-15,5)	5,48	6,4 (0,0-13,1)	16,6 (7,6-25,7)	10,28
Hospitalizado por accidente	7,8 (0,0-22,8)	15,6 (0,0-36,1)	7,78	8,3 (0,0-24,1)	26,6 (0,0-54,9)	18,34	11,0 (0,0-26,7)	42,1 (4,9-79,3)	31,13
Enfermedad Crónica	---	---	---	10,7 (8,5-12,8)	13,8 (11,4-16,2)	3,14	10,9 (8,7-13,1)	13,2 (10,8-15,5)	2,26
Miembros asegurados									
0%	31,6 (28,8-34,4)	33,7 (30,9-36,5)	2,15	22,2 (19,6-24,9)	24,9 (22,2-27,6)	2,65	20,3 (16,7-23,9)	22,8 (19,1-26,4)	2,45
<50%	10,7 (6,9-14,6)	12,5 (8,3-16,8)	1,80	5,8 (3,2-8,3)	6,2 (3,4-8,9)	0,43	12,9 (9,6-16,2)	16,4 (12,9-19,9)	3,46
50%	0,7 (0,0-2,1)	0,7 (0,0-2,1)	0,00	1,6 (0,0-4,7)	1,6 (0,0-4,7)	0,00	13,6 (7,6-19,6)	14,7 (8,6-20,8)	1,08
>50%	2,7 (0,8-4,5)	3,5 (1,3-5,6)	0,80	2,0 (0,4-3,6)	2,0 (0,4-3,6)	0,00	13,6 (8,7-18,6)	14,0 (9,0-18,9)	0,34
100%	3,7 (1,1-6,2)	3,9 (1,3-6,5)	0,22	0,7 (0,0-1,8)	0,7 (0,0-1,8)	0,00	1,4 (0,1-2,6)	1,4 (0,1-2,6)	0,00
Brecha de la Pobreza (FGT1)									
Enfermedad Aguda									
Enfermo	6,5 (5,6-7,3)	7,4 (6,5-8,3)	0,97	3,4 (2,9-4,0)	3,9 (3,3-4,5)	0,48	3,9 (3,1-4,6)	4,6 (3,7-5,4)	0,70
Accidentado	6,0 (5,3-6,8)	6,7 (6,0-7,5)	0,74	1,0 (0,0-2,0)	1,3 (0,2-2,4)	0,34	5,5 (0,0-11,0)	8,6 (2,2-14,9)	3,07
Hospitalizado	6,0 (1,4-10,7)	10,5 (4,4-16,5)	4,42	1,4 (0,0-3,4)	1,7 (0,0-4,2)	0,36	1,1 (0,0-2,2)	3,7 (1,4-6,1)	2,68
Hospitalizado por accidente	0,7 (0,0-2,0)	3,2 (0,0-7,5)	2,54	0,1 (0,0-0,3)	1,6 (0,0-4,2)	1,56	4,0 (0,0-10,6)	13,8 (1,6-25,9)	9,76
Enfermedad Crónica	---	---	---	2,2 (1,6-2,8)	2,7 (2,1-3,3)	0,49	2,8 (2,1-3,5)	3,4 (2,7-4,2)	0,63
Miembros asegurados									
0%	9,5 (8,3-10,7)	10,5 (9,3-11,7)	1,04	5,3 (4,5-6,1)	5,9 (5,1-6,8)	0,62	5,3 (4,1-6,6)	6,0 (4,8-7,3)	0,69
<50%	2,3 (1,4-3,2)	3,0 (1,9-4,1)	0,68	1,1 (0,4-1,7)	1,2 (0,6-1,9)	0,15	2,8 (1,9-3,7)	3,4 (2,4-4,4)	0,59
50%	0,3 (0,0-0,9)	0,3 (0,0-1,0)	0,01	0,1 (0,0-0,2)	0,2 (0,0-0,6)	0,13	3,3 (1,0-5,6)	3,6 (1,3-6,0)	0,33
>50%	0,5 (0,0-1,0)	0,6 (0,0-1,2)	0,13	0,2 (0,0-0,5)	0,3 (0,0-0,5)	0,01	3,4 (1,7-5,2)	3,7 (1,9-5,5)	0,27
100%	0,8 (0,1-1,4)	0,9 (0,2-1,7)	0,17	0,1 (0,0-0,2)	0,1 (0,0-0,2)	0,02	0,2 (0,0-0,3)	0,2 (0,0-0,4)	0,06

Fuente: Elaboración propia ENNIV 1994, 1997, 2000.

Con respecto a la brecha de pobreza extrema, estas fueron mayores en el año 1994 en los hogares con algún miembro enfermo, accidentado y hospitalizado, pero si el hogar tuvo algún miembro hospitalizado por accidente esta fue más severa sobre todo postajuste del gasto per cápita en el año 2000.

En relación a los miembros asegurados por hogar, la brecha de la pobreza es mayor en aquellos hogares con ningún miembro asegurado en todos los años, sin embargo en 1994 esta brecha es casi el doble de lo calculado para 1997 y 2000.

6.3.4 Variables predictoras de una mayor probabilidad de ser nuevo pobre extremo.

Para realizar el siguiente análisis se utilizaron como fuente de datos las Encuestas Nacionales de Niveles de Vida de 1997 y del 2000.

Se realizó una regresión logística para determinar que variables ayudan a predecir la probabilidad de que un individuo no pobre extremo cruce la línea de pobreza después de ajustar el gasto per cápita, es decir después de restarle los gastos en salud, para convertirse en un nuevo pobre extremo.

En la Cuadro 15 Para el año 1997, se encontró que si el hogar tenía algún miembro hospitalizado por accidente aumentaba la probabilidad en 9.16 veces el riesgo de cruzar la línea de pobreza y de convertirse en nuevo pobre extremo después del ajuste del gasto per cápita; el tener algún miembro accidentado, enfermo o con síntomas el riesgo tiene un OR de 4.44, además si un hogar tiene un individuo con enfermedad crónica este riesgo es menor OR: 3.12, y si un hogar tiene algún miembro menor de 5 años o mayor de 65 años el riesgo es de OR: 2.19 y OR: 1.69 respectivamente y el tener algún miembro con enfermedad aguda el OR fue de 1.39. Las variables que protegen o disminuyen la probabilidad de convertirse en nuevo pobre fueron: el porcentaje de miembros asegurados por hogar, es decir que si un hogar tiene el 100% de sus miembros asegurados la probabilidad de convertirse en nuevo pobre extremo es menor del 1%, según el decil de ingresos a mayor decil de ingresos la probabilidad de ser nuevo pobre extremo es 35% menor; y con respecto a la variable algún miembro con molestias si el hogar tiene algún miembro con molestias tiene un 37% menos de probabilidad de ser nuevo pobre extremo.

Como modelo predictivo se encontró que el área bajo la curva ROC fue de 0.917 con intervalos de confianza al 95% en 0.89-0.94.

Cuadro 15

Variables predictoras de nuevos pobres extremos postajuste del gasto per cápita. ENNIV 1997

Variables	B	S.E.	P	Exp(B)	IC 95%	
					Inf	Sup
Algún miembro hospitalizado por accidente	2,215	0,011	0,00	9,16	8,95	9,37
Algún miembro accidentado, enfermo o con síntomas	1,490	0,015	0,00	4,44	4,30	4,57
Algún miembro con enfermedad crónica	1,137	0,004	0,00	3,12	3,09	3,14
Algún miembro mayor de 65 años	0,784	0,004	0,00	2,19	2,17	2,21
Algún miembro menor de 5 años	0,506	0,004	0,00	1,66	1,65	1,67
Algún miembro con enfermedad	0,331	0,004	0,00	1,39	1,38	1,40
Decil de ingresos	-0,432	0,001	0,00	0,65	0,65	0,65
Algún miembro con molestias	-0,456	0,004	0,00	0,63	0,63	0,64
Porcentaje de miembros asegurados	-9,187	0,034	0,00	0,00	0,00	0,00
Constante	-3,711	0,015	0,00	0,02		

*Área bajo la curva ROC = 0.917(IC 95% 0.89-0.94)

En la Cuadro 16, para el año 2000, si un hogar tuviera algún miembro hospitalizado por accidente, este tendría 30 veces más riesgo de ser nuevo pobre extremo, asimismo las variables hogar con algún miembro con molestias, hogar con algún miembro con enfermedad y hogar con algún miembro de 5 años son variables que se asocian a un incremento de la probabilidad de ser nuevo pobre extremo debido al ajuste del gasto per cápita, en el caso de los hogares con algún miembro con molestias tienen 2.7 veces más riesgo de ser nuevos pobres extremos, si los hogares tuvieran algún miembro con enfermedad en últimas 4 semanas el riesgo sería 1.9 veces más y si el hogar tuviera algún miembro menor de 5 años este riesgo sería de 1.7 veces más. Las variables que están asociadas con una menor probabilidad de ser nuevo pobre extremo después del ajuste del gasto per cápita son las variables: algún miembro del hogar mayor de 65 años con un OR de 0.9, algún miembro con enfermedad crónica OR = 0.8, decil de ingreso OR = 0.6 y porcentaje de miembros asegurados OR = 0.1.

El área bajo la curva ROC de este modelo fue 0.86 con un intervalo de confianza al 95% (0.83-0.9).

Cuadro 16

Variables predictoras de nuevos pobres extremos postajuste del gasto per cápita. ENNIV 2000 (Modelo 1)

Variables	B	S.E.	p	Exp(B)	IC 95%	
					Inf	Sup
Algún miembro hospitalizado por accidente	3,433	0,010	0,000	31,0	30,4	31,6
Algún miembro con molestias	1,000	0,004	0,000	2,7	2,7	2,7
Algún miembro con enfermedad	0,631	0,004	0,000	1,9	1,9	1,9
Algún miembro menor de 5 años	0,502	0,004	0,000	1,7	1,6	1,7
Algún miembro mayor de 65 años	-0,115	0,004	0,000	0,9	0,9	0,9
Algún miembro con enfermedad crónica	-0,258	0,003	0,000	0,8	0,8	0,8
Decil de ingreso	-0,553	0,001	0,000	0,6	0,6	0,6
Porcentaje de miembros asegurados	-2,746	0,008	0,000	0,1	0,1	0,1
Constante	-1,281	0,006	0,000	0,3		

*Área bajo la curva ROC = 0.86 (IC 95% 0.83-0.90)

Se realizó un segundo modelo con los datos de la ENNIV 2000, (Ver Cuadro 17) las variables asociadas a una mayor probabilidad de la incidencia de ser nuevo pobre extremo fueron: si el hogar tuviera algún miembro hospitalizado con un riesgo de 6.2 veces, algún miembro hospitalizado por accidente OR = 5.1, algún miembro con molestias OR = 2.1, algún miembro con enfermedad OR = 1.5, algún miembro menor de 5 años OR = 1.5. Por el contrario las variables: las variables como decil de ingreso y el porcentaje de miembros asegurados, así como el tener algún miembro con enfermedad crónica, disminuyen la probabilidad de ser nuevo pobre extremo después del ajuste del gasto per cápita, la variable si el hogar tiene algún miembro con enfermedad crónica tiene un OR menor de 1 debido a que las enfermedades crónicas se encuentran concentradas en los deciles más ricos. El área bajo la curva de este segundo modelo fue 0.8724 con un intervalo de confianza al 95% (0.84-0.90).

Cuadro 17**Variables predictorias de nuevos pobres extremos postajuste del gasto per cápita. ENNIV 2000 (Modelo 2)**

Variable	B	S.E.	p	Exp(B)	IC 95%	
					Inf	Sup
Algún miembro hospitalizado	1,818	0,005	0,000	6,2	6,1	6,2
Algún miembro hospitalizado por accidente	1,629	0,011	0,000	5,1	5,0	5,2
Algún miembro con molestias	0,730	0,004	0,000	2,1	2,1	2,1
Algún miembro con enfermedad	0,430	0,004	0,000	1,5	1,5	1,5
Algún miembro menor de 5 años	0,419	0,003	0,000	1,5	1,5	1,5
Algún miembro mayor de 65 años	0,059	0,004	0,000	1,1	1,1	1,1
Algún miembro con enfermedad crónica	-0,236	0,003	0,000	0,8	0,8	0,8
Decil de ingreso	-0,570	0,001	0,000	0,6	0,6	0,6
Porcentaje de miembros asegurados	-2,834	0,008	0,000	0,1	0,1	0,1
Constante	-1,018	0,005	0,000	0,4		

*Área bajo la curva ROC = 0.872 (IC 95% 0.84-0.90)

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Anexos

Anexo 1

	Reporte de enfermedad (aguda o crónica) según quintiles del gasto	Gasto per cápita del hogar en salud	Gasto total per cápita del hogar	% del gasto total	Gasto per cápita en salud para los hogares que reportaron enfermedad y consideran necesario esos gastos	% del gasto total
Quintil 1	36.0%	4.3	78.0	5.6%	5.7	7.4%
Quintil 2	38.6%	8.9	141.5	6.3%	13.1	9.3%
Quintil 3	42.9%	15.2	211.9	7.2%	20.6	9.7%
Quintil 4	48.0%	27.5	316.9	8.7%	36.6	11.6%
Quintil 5	49.7%	69.0	780.7	8.8%	89.0	11.4%
Total	43.1%	25.0	305.8	8.2%	41.0	13.4%

Fuente: nuestras estimaciones en base a ENAHO 2002-IV

Anexo 2

Determinantes del coeficiente de gasto en salud, 2002

Costa urbana	0.013 (5.83)***
Costa rural	0.014 (4.17)***
Sierra urbana	0.007 (2.76)***
Sierra rural	-0.001 (0.50)
Selva urbana	0.001 (0.50)
Selva rural	0.007 (2.34)**
edad del jefe 02	-0.001 (2.05)**
edad al cuadrado del jefe 02	0.000 (2.23)**
sexo del jefe	-0.008 (3.67)***
casado	0.016 (7.24)***
unión libre	0.019 (7.86)***
años de estudios del jefe 02	-0.000 (2.53)**
acceso red agua potable dentro vivienda	0.002 (1.03)
alumbrado eléctrico en la vivienda	0.001 (0.67)
acceso WC dentro vivienda	-0.005 (2.52)**
total de miembros del hogar	0.010 (6.07)***
# miembros 0-9 años	-0.003 (1.51)
# miembros 10-15 años	-0.012 (6.81)***
# miembros 16-60 años	-0.012 (7.71)***
hogar extendido 02	0.004 (2.25)**
(max) bsalud	0.003 (0.78)
(max) sbsalud	0.005 (3.58)***
(max) enfermo	0.045 (33.76)***
(max) afiliadoSS	0.023 (15.67)***
Quintil 1	-0.032 (11.66)***
Quintil 2	-0.023 (9.73)***

Quintil 3	-0.016 (7.49)***
Quintil 4	-0.006 (2.96)***
Constant	0.040 (5.20)***
Observations	18365
R-squared	0.13

Absolute value of t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Anexo 3

Determinantes del gasto necesario en salud

Para aquellos individuos que:

-Tienen gasto de salud positivo

-Cuyos hogares declaran necesitar y satisfacer sus necesidades en salud

	(1)	(2)
	log del gasto indiv en salud sin imputaciones	select
Costa urbana	-0.069 (1.67)*	0.172 (7.83)***
Costa rural	0.100 (1.62)	0.098 (3.17)***
Sierra urbana	-0.037 (0.79)	0.096 (3.73)***
Sierra rural	0.017 (0.30)	-0.189 (7.45)***
Selva urbana	-0.036 (0.70)	0.116 (4.42)***
Selva rural	0.102	
(ref. Lima metropolitana)	(1.68)*	
conyugue	0.020 (0.51)	
hijos	0.101 (1.89)*	
Otros parientes	0.083	
(ref. jefe del hogar)	(1.64)	
casado	-0.184 (4.07)***	
Solteros, viudos, divorciados	-0.230	
(ref. Concubinos)	(5.07)***	
sexo	-0.022	
(ref. Mujer)	(0.75)	
edad	0.009 (7.48)***	
Educación primaria, sin nivel	-0.104 (2.53)**	
Educación secundaria	-0.146	
(ref. Educación superior)	(4.46)***	
En empresas de menos de 10 trabajadores	0.141 (0.53)	
sector formal privado	0.012 (0.26)	
sector informal	-0.237	
(ref. Sector público)	(0.88)	
Rama primaria	0.125 (3.23)***	
Rama servicios	0.093 (2.65)***	
Recurre a medicina tradicional	0.464	-1.416
padece enfermedad aguda?	(5.91)*** 0.374	(92.09)***
padece enfermedad crónica?	(12.43)*** 0.249	
individuo sufrió accidente	(3.47)*** 0.812	
migrantes de Sierra/Selva a Costa	(11.03)*** -0.069	
Educación del padre sin nivel, primaria	(1.56) -0.140	
Educación del padre secundaria	(2.34)* -0.076	
(ref. Educación superior)	(1.21)	
pertenece a alguna asociación	-0.026 (1.12)	
nació a >2000 y reside a menos de 500msnm	0.117 (2.73)***	
acceso red agua potable dentro vivienda	0.082 (1.96)**	
alumbrado eléctrico en la vivienda	0.027 (0.53)	
acceso WC dentro vivienda	-0.017 (0.56)	

total de miembros del hogar	-0.007 (0.89)	
% miembros 0-9 años	-0.033 (0.27)	
% miembros 10-15 años	-0.116 (0.96)	
% miembros 16-60 años	-0.126 (1.43)	
proporción de perceptores de ingresos por trabajo en el hogar	-0.287 (4.53)***	
Capital humano del hogar	0.053 (0.38)	
# de activos que posee el hogar	0.028 (4.73)***	
El hogar no cubre necesidades calóricas	-0.022 (0.90)	
Quintil de ingreso I	-0.906 (15.57)***	
Quintil de ingreso II	-0.648 (13.43)***	
Quintil de ingreso III	-0.469 (11.11)***	
Quintil de ingreso IV	-0.252 (6.75)***	
hogar extendido	0.049 (1.69)*	
hogar accede al Estado	0.018 (0.58)	
edad del jefe del hogar	0.001 (0.68)	0.001 (0.80)
sexo del jefe del hogar	-0.085 (1.72)*	-0.056 (1.77)*
jefe del hogar casado	0.027 (0.53)	-0.038 (2.17)**
jefe del hogar en unión libre	0.098 (1.75)*	
años de estudios del jefe del hogar	-0.001 (0.24)	0.019 (6.34)***
El barrio tiene acceso al agua potable	-0.017 (0.32)	0.036 (1.74)*
El barrio tiene acceso a la electricidad	0.004 (0.06)	
Gastos per cápita del hogar a precios de Lima metrop.		0.001 (5.78)***
Jefe sectores otros		-0.060 (1.92)*
jefe s. public		-0.068 (2.34)**
jefe s. informal		-0.061 (2.42)**
nació a > 2000msnm		-0.015 (0.89)
enfermo		0.342 (14.20)***
Constant	3.453 (17.25)***	0.115 (2.15)**
Observations	37013	37013

Robust z statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Anexo 4

Determinantes del gasto necesario en salud

Para aquellos individuos que:

-Tienen gasto de salud positivo

-Que tienen seguro de salud

-Cuyos hogares declaran necesitar y satisfacer sus necesidades en salud

	(1)	(2)
	log del gasto indiv en salud sin imputaciones	select
Costa urbana	0.104 (1.73)*	
Costa rural	0.240 (2.50)**	
Sierra urbana	0.219 (3.23)***	
Sierra rural	-0.059 (0.70)	
Selva urbana	0.147 (1.88)*	
Selva rural	0.166 (1.67)*	
(ref. Lima metropolitana)	0.004 (0.06)	
conyugue	0.125 (1.47)	
hijos	0.147 (1.71)*	
Otros parientes	-0.147 (2.06)**	
(ref jefe del hogar)	-0.193 (2.67)***	
casado	-0.085 (2.08)**	
Solteros, viudos, divorciados	0.011 (5.70)***	
(ref. Concubinos)	-0.126 (2.10)**	
sexo	-0.158 (3.35)***	
(ref. Mujer)	-0.303 (3.60)***	
edad	-0.002 (0.04)	
Educación primaria, sin nivel	0.415 (4.44)***	
Educación secundaria	0.090 (1.44)	
(ref. Educación superior)	0.186 (3.23)***	
En empresas de menos de 10 trabajadores	0.319 (2.00)**	-1.569 (65.12)***
sector formal privado	0.167 (1.47)	
sector informal	0.604 (4.98)***	
(ref. Sector público)	-0.048 (0.41)	
Rama primaria	0.310 (6.48)***	
Rama servicios	0.168 (1.17)	
Recurre a medicina tradicional	0.655 (5.77)***	
afiliado a SS o seguro FFAA	-0.014 (0.20)	
afiliado a seguros privados	-0.032 (0.43)	
afiliado a seguros integral, universitario, otros	0.015 (0.20)	
padece enfermedad aguda?	-0.012 (0.33)	
padece enfermedad crónica?	0.149 (2.18)**	
individuo sufrió accidente		
migrantes de Sierra/Selva a Costa		
Educación del padre sin nivel, primaria		
Educación del padre secundaria		
(ref. Educación superior)		
pertenece a alguna asociación		
nació a >2000 y reside a menos de 500msnm		

acceso red agua potable dentro vivienda	0.159 (2.39)**	
alumbrado eléctrico en la vivienda	0.061 (0.70)	
acceso WC dentro vivienda	0.003 (0.06)	
total de miembros del hogar	-0.024 (1.99)**	
% miembros 0-9 años	0.167 (0.85)	
% miembros 10-15 años	-0.215 (1.13)	
% miembros 16-60 años	0.004 (0.03)	
proporción de perceptores de ingresos por trabajo en el hogar	-0.259 (2.66)***	
Capital humano del hogar	-0.041 (0.18)	
# de activos que posee el hogar	0.017 (2.12)**	
El hogar no cubre necesidades calóricas	0.018 (0.48)	
Quintil de ingreso I	-0.802 (8.63)***	
Quintil de ingreso II	-0.540 (7.15)***	
Quintil de ingreso III	-0.451 (7.19)***	
Quintil de ingreso IV	-0.222 (4.31)***	
hogar extendido	0.028 (0.60)	
hogar accede al Estado	0.089 (1.73)*	
edad del jefe del hogar	-0.003 (1.18)	0.006 (4.83)***
sexo del jefe del hogar	0.112 (1.47)	-0.146 (2.66)***
jefe del hogar casado	-0.062 (0.77)	0.004 (0.15)
jefe del hogar en unión libre	0.095 (1.09)	
años de estudios del jefe del hogar	-0.015 (2.00)**	0.035 (8.08)***
El barrio tiene acceso al agua potable	-0.130 (1.53)	0.092 (2.82)***
El barrio tiene acceso a la electricidad	-0.013 (0.12)	
Gastos per cápita del hogar a precios de Lima metrop.		0.000 (3.84)***
Jefe sectores otros		0.066 (1.23)
jefe s. formal		0.140 (3.57)***
jefe s. informal		-0.018 (0.53)
nació a > 2000msnm		-0.050 (1.82)*
enfermo		0.452 (10.01)***
sierra		-0.080 (2.56)**
selva		-0.106 (3.27)***
(ref. costa)		
Constant	3.313 (9.69)***	-0.041 (0.45)
Observations	13986	13986

Robust z statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Anexo 5:

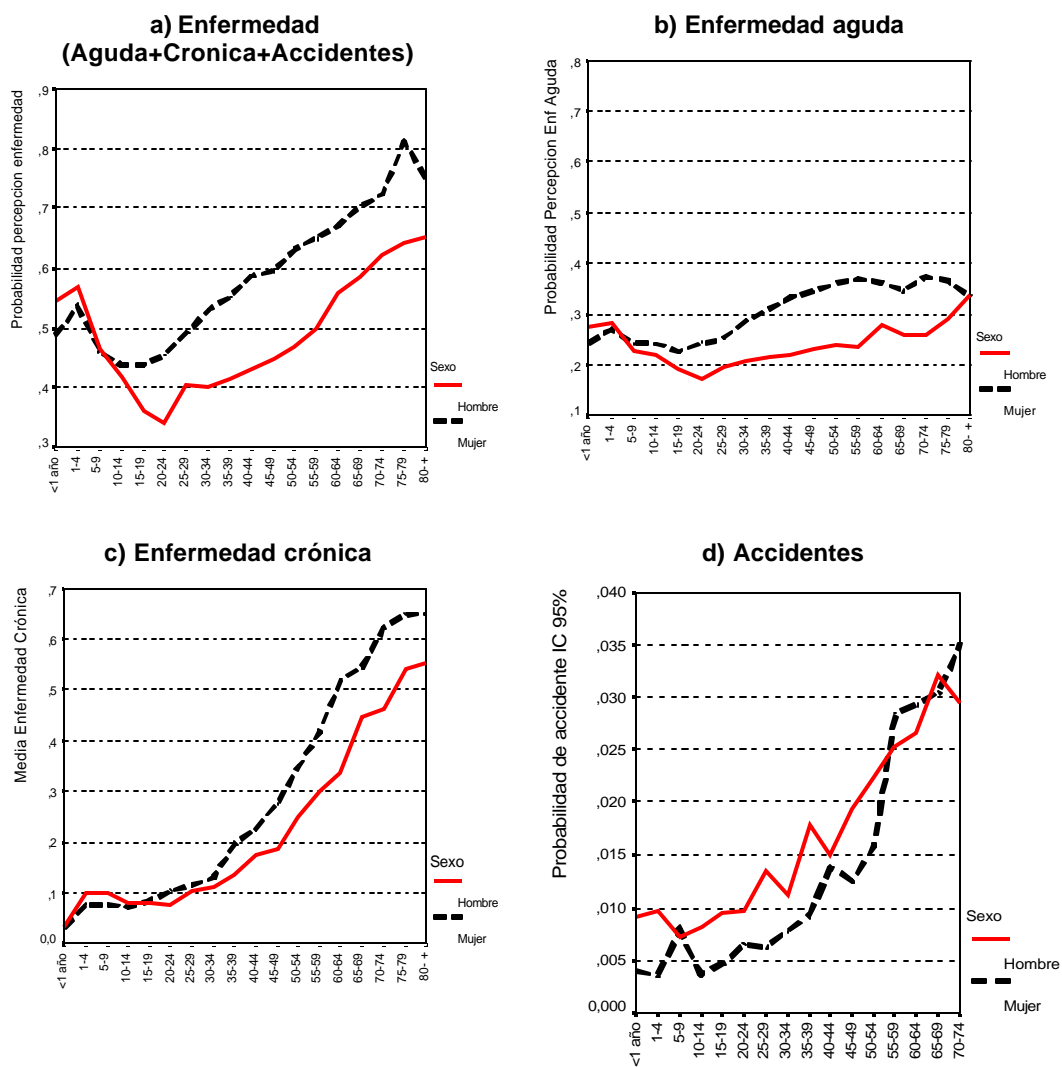
Líneas de Pobreza Extrema y Líneas de Pobreza Total definidas por las Encuestas Nacional de Niveles de Vida de 1994, 1997 y 2000. Perú.

Dominio	Decil	Gasto per cápita anual	Gasto per cápita en alimentos sin cigarros	Línea de Pobreza Extrema (CBA)	%Gas alimento /Gasto per cápita	Línea de Pobreza Total (CBC)
ENNIV 2000						
Lima Metropolitana	6	3306,41	1422,58	1216,94	0,43	2828,50
Costa Urbana	6	2398,19	1114,17	1086,54	0,46	2338,70
Costa Rural	7	1619,73	970,17	951,94	0,60	1589,29
Sierra Urbana	5	2050,60	922,98	904,57	0,45	2009,70
Sierra Rural	7	1330,10	788,80	780,45	0,59	1316,03
Selva Urbana	6	2043,98	994,57	945,57	0,49	1943,28
Selva Rural	8	1544,64	965,67	845,80	0,63	1352,90
ENNIV 2000 Líneas de Pobreza Ajustadas						
Lima Metropolitana	6	3199,61	1422,58	1216,94	0,44	2737,10
Costa Urbana	6	2329,24	1114,17	1086,54	0,48	2271,47
Costa Rural	7	1529,69	970,17	951,94	0,63	1500,95
Sierra Urbana	5	1997,07	922,98	904,57	0,46	1957,24
Sierra Rural	7	1252,07	788,80	780,45	0,63	1238,82
Selva Urbana	6	1945,09	994,57	945,57	0,51	1849,26
Selva Rural	8	1452,04	965,67	845,80	0,67	1271,80
ENNIV 1997						
Lima Metropolitana	5	2836,98	1294,06	1182,38	0,46	2463,29
Costa Urbana	7	2534,87	1165,87	1032,75	0,46	2235,39
Costa Rural	7	1614,55	1042,35	917,47	0,65	1426,86
Sierra Urbana	5	2105,75	935,41	866,45	0,44	1883,59
Sierra Rural	8	1484,52	932,20	791,48	0,63	1252,34
Selva Urbana	5	1770,56	938,73	922,57	0,53	1740,70
Selva Rural	8	1471,62	939,40	880,23	0,64	1354,20
ENNIV 1994						
Lima Metropolitana	4	---	---	911,04	0,52	1740,95
Costa Urbana	5	---	---	789,13	0,53	1492,59
Costa Rural	7	---	---	700,07	0,62	1126,60
Sierra Urbana	5	---	---	668,68	0,53	1260,00
Sierra Rural	7	---	---	583,27	0,71	823,01
Selva Urbana	4	---	---	702,99	0,59	1199,44
Selva Rural	8	---	---	647,51	0,71	912,44

Fuente: ENNIV 1994, 1997, 2000

Anexo 6

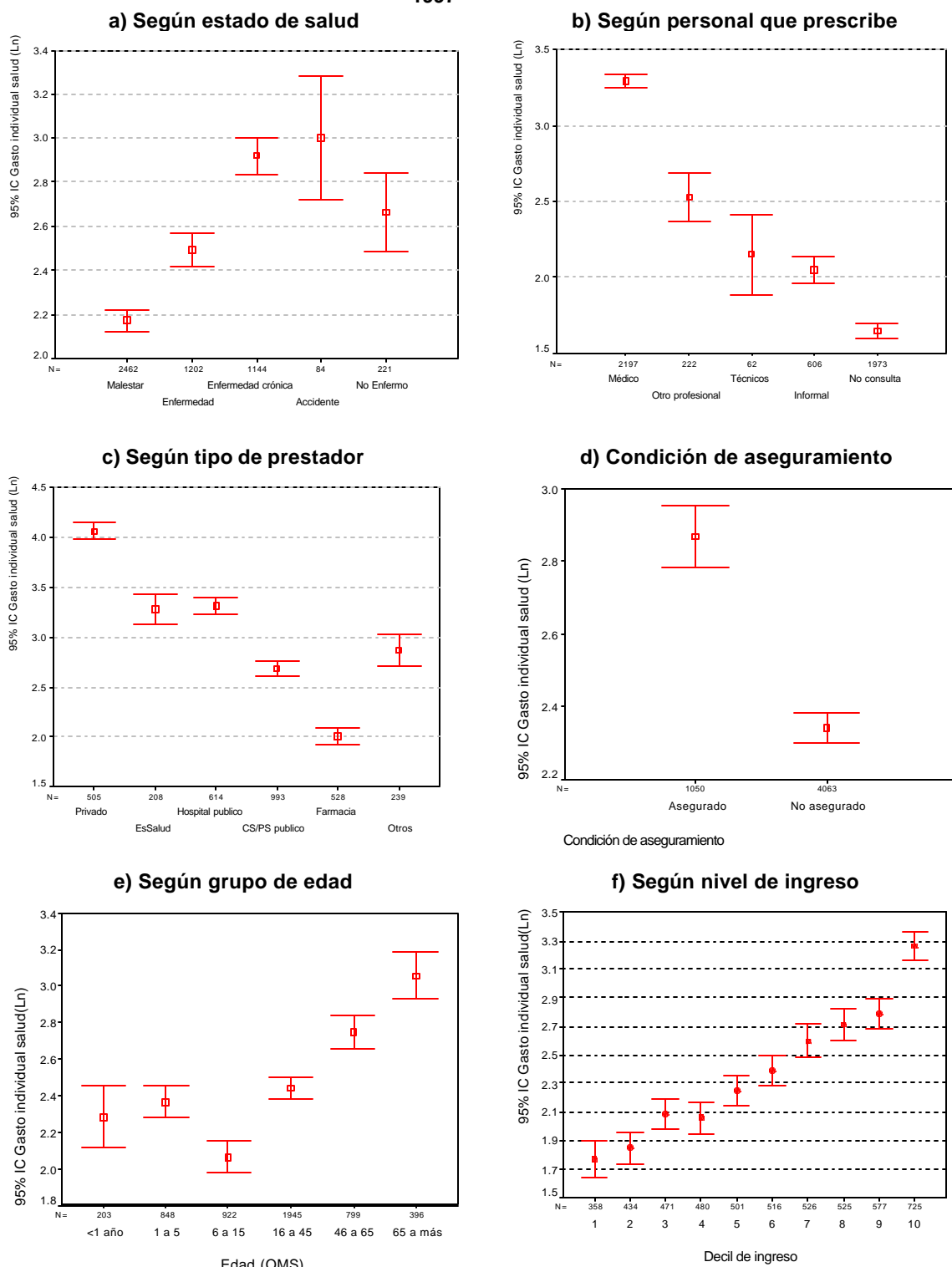
Relación entre tipo de enfermedad con la edad y el sexo. Perú. ENNIV 1997



Fuente: Encuesta Nacional de Niveles de Vida 1997

Anexo 7

Gasto individual en salud (logaritmo natural) según diferentes variables. Perú. ENNIV 1997



Fuente: Encuesta Nacional de Niveles de Vida 1997

Anexo 8

Relación entre el Gasto de Bolsillo en Salud Individual y el Ingreso Total según la naturaleza del evento de la enfermedad:

1. Gasto de Bolsillo en el grupo con Malestar

R-squared			= 0.4841			
lgas_sal	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Atendido por médico	.6778172	.150299	4.51	0.000	.3822374	.973397
Decil de ingreso	.1090029	.0094376	11.55	0.000	.0904428	.127563
Días de enfermedad(Ln)	.2732134	.0302427	9.03	0.000	.2137378	.3326891
Atendido otro profesio	.5624008	.2113541	2.66	0.008	.1467491	.9780525
No consultó	-.7445684	.1538309	-4.84	0.000	-1.047094	-.4420426
Atendido en privado	.6765814	.1017495	6.65	0.000	.4764795	.8766833
Atendido en Essalud	-.306913	.1808872	-1.70	0.091	-.662648	.0488221
Atendido cs/ps de salu	-.2545254	.0920184	-2.77	0.006	-.4354898	-.0735609
Atendido en farmacia	-.4924873	.1648959	-2.99	0.003	-.8167735	-.168201
Residencia rural	-.3041982	.0556077	-5.47	0.000	-.413557	-.1948395
Edad	.0045126	.001192	3.79	0.000	.0021685	.0068567
Constante	1.221711	.1684407	7.25	0.000	.8904533	1.552969

2. Gasto de Bolsillo en el grupo con Accidente

			R-squared		=	0.5398
lgas_sal	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Atendido en privado	1.296741	.470223	2.76	0.008	.3554872	2.237994
Decil de ingreso	.062439	.0443654	1.41	0.165	-.0263679	.1512459
Días de enfermedad (ln)	.2877917	.1183789	2.43	0.018	.0508306	.5247528
Atendido hospital púb	.7266773	.3541765	2.05	0.045	.0177161	1.435639
Atendido en Essalud	.8039384	.4706869	1.71	0.093	-.1382438	1.746121
Atendido en farmacia	1.024868	.422687	2.42	0.018	.1787684	1.870968
Atendido cs/ps salud	.4279775	.2406421	1.78	0.081	-.05372	.909675
Atendido por medico	1.123645	.2272738	4.94	0.000	.6687071	1.578583
Atendido por no profes	1.142571	.186478	6.13	0.000	.7692946	1.515847
Constante	.8867064	.4185994	2.12	0.038	.0487887	1.724624

3. Gasto de Bolsillo en el grupo con Enfermedad Aguda

R-squared					=	0.5288
lgas_sal	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Decil de ingreso	.1605017	.0250519	6.41	0.000	.1110826	.2099207
Vivir en Lima	.3856661	.1506682	2.56	0.011	.0884487	.6828835
Atendido en privado	1.007762	.1627265	6.19	0.000	.6867578	1.328767
Días enfermedad(ln)	.2039306	.1040163	1.96	0.051	-.0012584	.4091196
Días cama(ln)	.1693299	.0662847	2.55	0.011	.0385726	.3000872
Atendido en hospital p	.476343	.1806123	2.64	0.009	.1200559	.8326301
Atendido en Essalud	.391773	.2312898	1.69	0.092	-.0644838	.8480298
Atendido por médico	.2605936	.1903776	1.37	0.173	-.1149573	.6361444
No consultó	-.5799465	.1723376	-3.37	0.001	-.9199105	-.2399825
Residencia rural	-.3111189	.1323098	-2.35	0.020	-.5721215	-.0501163
Edad	.0055895	.0025259	2.21	0.028	.0006068	.0105722
Tamaño del hogar	.0746792	.0239948	3.11	0.002	.0273455	.1220129
Mujer (15-49 años)	.2065009	.1223188	1.69	0.093	-.0347928	.4477946
Constante	.4202275	.3050099	1.38	0.170	-.1814542	1.021909

EUROPEAN UNION COUNTRIES PRACTICE ON RELATIVE POVERTY MEASUREMENT

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III. RELATIVE POVERTY

A Introduction. Conceptual guidelines to define limits of the content of this section

- 1.1 It is axiomatic that before one can start to measure a phenomenon, it has first to be adequately defined. Within the European Union (EU) this issue is a subject of perennial, intrinsic interest, but in recent years it has received increasing political attention. Opinion polls have highlighted concerns about the persistence of poverty (varying definitions) and the rise of new forms (ie. new groups at risk) in the context of a re-evaluation of existing social protection systems. The concept of a 'European Social Model' as a distinguishing factor from the United States of America has increasingly seen quality of life as a complement or replacement for the central focus on economic wealth.
- 1.2 Unfortunately, it is difficult to find a definition of 'quality of life' that satisfies everyone. Even for the more restricted concept of 'poverty' the list of potential alternatives is already long and continuously evolving. Accordingly, any selected definition is to some extent arbitrary, depending on the prevailing value consensus.
- 1.3 An official definition was adopted by the Dublin European Council in 1984, which regards as poor: *"...those persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member State to which they belong."* This definition, whilst not operationally precise, clearly implies a multidimensional, dynamic and relative approach.
- 1.4 The nature of the relations between the EU institutions and Member States is still evolving. This is particularly true in the domain of social policy, which has not yet attained the degree of harmonisation/consensus apparent for economic policy. Nevertheless, important decisions have been taken and progress has been made to operationalise the political definition, and take appropriate actions to achieve greater social cohesion and eradicate the scourge of poverty and social exclusion.
- 1.5 New impetus was given at the Lisbon European Council in 2000, with a 'Social Policy Agenda' adopted at Nice later that year, and the creation of a Social Protection Committee and related Indicators Sub-Group. These developments seem likely to feature formally in the EU convention which is currently under discussion.
- 1.6 Building on the prior work of Eurostat, which is an active member of the Indicators Sub-Group, a set of quality criteria ("principles which should guide the construction of indicators for social inclusion in Europe") and a first set of 18 indicators were adopted at the Laeken European Council in December 2001. A first set of results was published by Eurostat in April 2003, covering the EU member states, and coverage was subsequently extended to the Acceding and Candidate Countries later in 2003. Use of the 'Laeken' indicators has been highlighted in the recent National

Action Plans on Social Inclusion prepared by Member States and the associated Joint Inclusion Report 2003-05 which is currently being finalised, and in the Joint Inclusion Memoranda currently being negotiated with Acceding Countries. Work is ongoing within the Indicators Sub-Group to refine and develop the list of indicators.

- 1.7 The focus of the Laeken indicators is on the ability to participate in one's own society: ie. a RELATIVE measure which recognises that behaviour patterns can and do change over time and space in response to circumstances.
- 1.8 More mundanely, the attraction of the relative measure can be seen in the following monetary example. Assuming an individual has a once-only choice between the two states of the world A and B in the table, the rational economic choice might be situation B (greater absolute income for the individual) whereas behavioural research suggest many individuals may prefer situation A in practice (greater income relative to others).

	Self	Others
A	€ 100 000	€ 67 000
B	€ 110 000	€ 165 000

- 1.9 Notwithstanding, purely relative measures may yield paradoxical results.
 - With rapid economic growth and constant inequality, absolute poverty may decrease dramatically as everybody's living standard improves ("a rising tide lifts all boats") – but relative measures will show no change (or, if the growth is unequally distributed, even a worsening), which may conflict with the popular perception. Conversely, if general living standards decline, relative poverty may show no change or even an improvement. However, this dissonance is likely to be a temporary phenomenon whilst perceptions adjust to the new situation.
 - A relative definition makes elimination of the phenomenon, and even reduction of its incidence, nearly impossible. This can sometimes be difficult to explain to policy-makers.

B. Standards and resources.

- 2.1 Because an indicator is something specific, it is possible to have a multitude of similar indicators relating to a single subject (eg. relative income situation). The indicators could be a number (eg. X persons have an income below € Y), or a percentage (eg. X% of persons have an income below € Y), or a ratio (eg. the average income of the poorest quantile is 1/X of the average income of the total population), or more complex calculations.
- 2.2 The best way to reduce a large set of data to a manageable size and still retain part of the information is to use a single representative value such as a total or a measure

of central tendency (eg. the mean, the median, the mode, others – with or without weighting). The median is the most stable such measure, avoiding the risk of contamination by potentially less-robust, extreme values at either end of the income distribution. Such distributions are rarely symmetric, and the mean is generally significantly higher than the median.

- 2.3 At EU level (the Laeken indicators), the median is the basic measure used as a reference for the setting of the standard risk-of-poverty threshold (60% of the median income). In practice, Eurostat calculates and publishes rates according to various risk-of-poverty thresholds using various percentages (40, 50, 60, 70%) of the median and the mean.
- 2.4 Depending on available statistical sources, such thresholds could potentially be applied to data on expenditure or income or wealth, or indeed any other variable. In practice, few countries have reliable surveys to collect information on wealth. In some countries, household expenditure surveys are integrated with income surveys, whereas in others they are separate, and elsewhere only one or the other may exist. Typically, in expenditure surveys income data may only be collected as a control variable and is therefore of lower quality. Similarly, in income surveys expenditure information may be less reliable. Where separate surveys are conducted methodologies may not be similar.
- 2.5 There are strong arguments for preferring data from income surveys rather than expenditure data as the basis for establishing the risk-of-poverty threshold. Income reflects the opportunities of the consumer rather than actual outcomes, and is therefore a better basis for comparing welfare, as it focuses on access to resources rather than their use (voluntarily low consumption expenditure does not indicate poverty!). Incomes can be more volatile than expenditure levels as the latter can be sustained out of accumulated savings or borrowings, but this is generally only possible in the short-term and does not reflect the actual underlying circumstances.
- 2.6 Moreover, in practice, allocation of consumer expenditure between COICOP categories may cause difficulties in certain countries. The treatment of expenditure on durable goods can be particularly problematic. Many respondents may deliberately understate certain expenditures (eg. alcohol consumption; illegal activities) – or overstate spending on ‘conspicuous consumption’. During expenditure surveys, in order to reduce the burden, respondents are typically required to complete a short diary which is used to extrapolate spending for the rest of the year: experience suggests this may not be very accurate! Similarly, survey sections where respondents “recall” previous expenditures may suffer reliability problems.
- 2.7 This is not to say that household income surveys do not also have their practical problems. They are just as likely to miss vulnerable groups (eg. the homeless; persons in collective institutions) as are expenditure surveys. Valuation of owner-occupation and other non-monetary (‘in-kind’) transactions generate similar

problems for both sorts of survey. There may be under-declaration of income for reasons of modesty, or more probably to exclude income from illicit activity or to evade taxation. Certain categories (eg. self-employment; benefits-in-kind) are notoriously difficult to measure.

- 2.8 On balance it has long been accepted at EU level that incomes are a preferable basis. This could not be reflected in practice until 1994, when the pioneering ‘European Community Household Panel’ survey was launched, prior to which expenditure data from Household Budget Surveys was used. Alongside other variables, the ECHP collects information on net monetary income accruing to the household and its members from all sources – including work (employment and self-employment), private income from investment and property and social transfers received directly. No account is taken of indirect social transfers, loan interest payments, transfers to other households, imputed rent from owner-occupation, income-in-kind. This longitudinal survey was launched prior to adoption of the Canberra Manual and does not therefore allow full compliance: its successor, the EU-SILC, will permit greater consistency.
- 2.9 Once total household net income (or expenditure) is collected, the figures are typically converted to reflect differences in household size and composition, using an equivalence scale. Whilst the desirability of such adjustment is commonly accepted, various such scales exist and the choice is essentially arbitrary. They all assume a greater or lesser degree of sharing of household resources amongst household members. In the EU the so-called “modified-OECD” scale is used, which gives a weight of 1.0 to the first adult, 0.5 to any other persons aged 14 or over, and 0.3 to each child. The resulting value is attributed to each household member.
- 2.10 Alternative approaches to the setting of a national relative monetary risk-of-poverty threshold are possible. These include a pan-European poverty threshold (eg. established as the population-weighted average of the individual national thresholds); arbitrary methods such as separately-established official minimum income levels (eg. eligibility for benefits); subjective methods such as the ‘Leyden Poverty Line’ using some variant of the question “How much do you need to make ends meet?/Are you able to make ends meet?”; objective methods such as measuring the distribution of asset ownership, of general consumption expenditure, or identifying the expenditure necessary to ensure a minimum calorific food intake – and setting the risk-of-poverty threshold accordingly.
- 2.11 For varying reasons, most of these approaches have been explicitly rejected at EU level. In particular, the budget standard approach is felt to be too costly to implement and update. The distribution of asset ownership raises problems in terms of quality comparability. By contrast, the subjective approach is thought worthy of further consideration, resources permitting.
- 2.12 The discussion has so far concentrated on variants of the “headcount ratio” relative approach to monetary poverty measurement. Within the EU, the need to

complement the official indicator (risk of poverty rate according to threshold set at 60% of median income) with other indicators.

2.13 Additional Laeken indicators of monetary poverty include measures to assess the duration of poverty (eg. the persistent risk-of-poverty rate); the severity ('depth') of poverty (eg. the risk-of-poverty gap); the distribution of income within the non-poor population (eg. the Gini coefficient; the s80/s20 income quintile share ratio); and a new proposal for a specific indicator concerning the poverty risk of persons in work.

1. Standards.
 - a. Percentage of the median household income or expenditure (per-capita or equivalence scales).
 - b. Percentage of the average income or expenditure (per-capita or equivalence scales).
 - c. Budget standards as a limit to be satisfied for all households to achieve a given standard of life.
 - d. Child poverty as a characteristic of inequality
2. Standards. Units of measurement.
 - a. Monetary income.
 - b. Imputed monetary value of service of own occupied dwelling.
 - c. Imputed monetary value of freely received public service.
 - d. Imputed monetary value of service derived from durable consumer goods.
 - e. Budget standards: Monetary minimum value or quantity consumption or possession of selected items of expenditure for different types of families or households. Quantity, quality, prices and lifetime for durable goods.
3. Standards. Sources of information.
 - a. Households surveys of income and expenditure.
 - b. Population and housing census.
 - c. National accounts household income and public expenditure.
 - d. Other administrative information.
4. Resources to satisfy standards.
 - a. Household income.
 - b. Public monetary transfers.
 - c. Public freely provided services.

- d. Imputed income for own house occupiers.
 - e. Imputed income from durable consumer goods.
 - f. Households expenditure components.
5. Resources for satisfying standards. Sources of information.
- a. Household surveys that include income.
 - b. Household surveys that include expenditure.
 - c. National accounts household income and public expenditure.
 - d. Other administrative information

C. Availability of regular established calculations.

1. World or regional level. EUROSTAT, ECLAC, UNICEF.
- 3.1 The Laeken indicators and other statistics are compiled/produced by Eurostat from common sources (currently the ECHP, soon to be the EU-SILC). These are published by Eurostat in regular series (eg. electronic database “New Cronos” and paper texts such as Eurostat Yearbook, Social Situation Report, IP&SE Detailed Tables, Statistics in Focus) and ad-hoc publications. They are also supplied to policy directorates within the Commission, for use in regular publications (eg. Joint Inclusion Report, Joint Inclusion Memoranda for Acceding and Candidate Countries, Commission ‘synthesis’ report to the Spring European Council) and other purposes.
 - 3.2 The ECHP survey is organised in annual ‘waves’. Data supplied by member states is combined, anonymised and made available for public use in a ‘user data base’. Similar indicators can thus be produced by academics, researchers, etc. using the Laeken indicator criteria and methodology which have been publicised. The methodology is employed by Member States and by Acceding and Candidate Countries using national data sources, and can be applied by other interested parties such as NGOs and the academic research community. These are complemented by other indicators of relative poverty calculated according to different methodologies and using alternative data sources.
 - 3.3 The Luxembourg Income Study is an independent organisation which compiles/produces a range of international statistics, including relative monetary poverty, covering many EU member states, Acceding and Candidate countries, and additional countries such as USA and Japan for which Eurostat does not currently compile data. However, their results have no official status for EU countries.
 - 3.4 The OECD compiles and publishes various social statistics for its member countries using a relative approach. To the extent these are not based on data provided by Eurostat they have no official status for EU member states.

D. Technical characteristics: Similarity and differences among estimates.

1. Experience in time, frequency.
2. Official status. Alternatives
3. Objectives, uses, dissemination.
4. Geographical coverage and desaggregation of results.

- 4.1 EU data to allow calculation of Laeken and other indicators is collected annually under ECHP for member states and under annual pilot project for Acceding and Candidate Countries. Indicators are calculated whenever validated data becomes available. Coverage is summarised in the table below:

Country			Time series	EU-SILC
01	BE	Belgium	ECHP: 1994..2000 (2001)	2004
02	DK	Denmark	ECHP: 1994..2000 (2001)	2004
03	DE	Germany	ECHP: 1994..2000 (2001)	2005
04	EL	Greece	ECHP: 1994..2000 (2001)	2004
05	ES	Spain	ECHP: 1994..2000 (2001)	2004
06	FR	France	ECHP: 1994..2000 (2001)	2004
07	IE	Ireland	ECHP: 1994..2000 (2001)	2004
08	IT	Italy	ECHP: 1994..2000 (2001)	2004
09	LU	Luxembourg	ECHP: 1994..2000 (2001)	2004
10	NL	Netherlands	ECHP: 1994..2000 (2001)	2005
11	AT	Austria	ECHP: 1994..2000 (2001)	2004
12	PT	Portugal	ECHP: 1994..2000 (2001)	2004
13	FI	Finland	ECHP: 1994..2000 (2001)	2004
14	SE	Sweden	ECHP: 1994..2000 (2001)	2004
15	UK	United Kingdom	ECHP: 1994..2000 (2001)	2005
16	IS	Iceland	-	2004
17	NO	Norway	National: 1995..2000 (str.ind. only)	2004
18	CH	Switzerland	-	-
19	CZ	Czech Republic	Microcensus: 1996, 2001	2006
20	EE	Estonia	HBS: 1996..2002	2005
21	CY	Cyprus	HBS: 1997	2005
22	LV	Latvia	HBS: 1996..2002	2005
23	LT	Lithuania	HBS: 1996..2002	2006
24	HU	Hungary	HBS: 2000..2001	2005
25	MT	Malta	HBS: 2000	2005
26	PL	Poland	HBS: 1999..2001	2005
27	SI	Slovenia	HBS: 1996..2000	2005
28	SK	Slovak Republic	-	2006
29	BG	Bulgaria	HBS: 1998..2001	2005
30	RO	Romania	HBS: 1998..2001	2005
31	TR	Turkey	HBS: 1994, 2002	2004

Note: launch dates for Iceland and for the Acceding and Candidate Countries are provisional.

- 4.2 Research is ongoing to establish the feasibility and methodology of establishing regional breakdowns of the indicators.

4.3 Breakdowns of the Laeken ‘risk-of-poverty rate’ indicator are established according to the analytical variables in the following list:

- Age
- Gender
- Household type
- Activity status
- Tenure status

This allows identification of the most vulnerable groups in society (eg. the elderly (especially women); children aged 0-15; young adults aged 16-24; single person households; lone parents; families with more than 2 children; the unemployed; the inactive; tenants).

4.4 Eurostat already produces on a regular basis the following additional breakdowns of the risk of poverty:

- Main source of income
- Educational attainment level

4.5 Other breakdowns could also be considered:

- Nationality (eg. citizenship/ethnic origin/language)
- Occupation (eg. managerial/administrative/manual; eg. permanent/ temporary)
- Health status
- Location (eg. rural/urban)

4.6 The Laeken indicators have official status within the EU. They are used to monitor progress of member states towards commonly agreed objectives (this evaluation process also makes reference to additional indicators).

E. Challenges, options, and shortcomings.

1. Relation between relative income level and other patterns of poverty.
2. Relation with poverty Dynamics.
3. Spatial measurement in countries with heterogeneous regions

5.1 Whilst the headcount at-risk-of-poverty rate estimate at national level for the total population may have the highest profile, the Laeken ‘portfolio’ is intended to be used as a balanced set and complemented by “third-level” indicators as necessary to help explain specific circumstances.

5.2 The main limitations in the current portfolio are felt to be:

- ECHP (and Acceding/Candidate Country) income definition non-compliance with Canberra Manual recommendations. This will be corrected with eventual launch of EU-SILC in all countries.
- Over-emphasis on monetary poverty. This may shortly be corrected depending on the results of a Eurostat research into non-monetary indicators.

- Absence of agreed indicators on housing quality, housing precarity and homelessness. This may also shortly be corrected depending on the outcome of a Eurostat research project into homelessness and the foregoing research into non-monetary indicators.
- Non-breakdown by nationality/ethnicity. This is a sensitive political question.
- Absence of indicators relating to health, including disability, drug abuse, alcoholism, teenage pregnancy, etc. The Indicators Sub-Group is expected to take up the subject of Health Indicators during 2004.
- Absence of specific measures of over-indebtedness and benefit-dependency. Research to date has not resulted in an agreed measure.
- Absence of measures of exposure to crime, access to justice, respect for human rights.
- Absence of a subjective measure of poverty and exclusion to complement the existing indicators.

5.3 The lack of a necessary connection between economic growth and relative poverty reduction has already been discussed earlier in this paper.

5.4 The main advantage of longitudinal panel surveys over periodic ‘snapshots’ is the ability to investigate the dynamics of poverty. With two consecutive periodic surveys it is difficult to be sure whether the “poor” population involves the same individuals, a whole new set of persons, or some halfway combination. Unfortunately, Eurostat resource constraints have to date prevented full analysis of poverty dynamics from the ECHP, although some work has been undertaken (eg. 2nd IP&SE Report).



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Directorate E: Social statistics
Unit E-2: Living conditions



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WORKING GROUP
“STATISTICS ON INCOME, POVERTY & SOCIAL EXCLUSION”
28-29 APRIL 2003
LUXEMBOURG, BECH BUILDING, “QUETELET” ROOM
START: 10H00

‘LAEKEN’ INDICATORS
- DETAILED CALCULATION METHODOLOGY -

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<http://forum.europa.eu.int/Members/irc/dsis/soipase/home>
Theme “3 – Population and social conditions”
Domain “ILC – Income and living conditions”
Collection “ILC_LK – Laeken indicators”
Explanatory notes

Introductory remarks

At the Nice European Council in December 2000, Heads of State and Government re-confirmed and implemented their March 2000 (Lisbon) decision that the fight against poverty and social exclusion would be best achieved by means of the open method of co-ordination. Key elements of this approach are the definition of commonly-agreed objectives for the European Union (EU) as a whole, the development of appropriate national action plans to meet these objectives, and the periodic reporting and monitoring of progress made.

It is in this context that the Laeken European Council in December 2001 endorsed a first set of 18 common statistical indicators for social inclusion, which will allow monitoring in a comparable way of Member States’ progress towards the agreed EU objectives. These indicators need to be considered as a consistent whole reflecting a balanced representation of EU social concerns. They cover four important dimensions of social inclusion (financial poverty, employment, health and education), which highlight the “multidimensionality” of the phenomenon of social exclusion.

Indicator 1a	:	At-risk-of-poverty rate by age and gender
Indicator 1b	:	At-risk-of-poverty rate by most frequent activity and gender
Indicator 1c	:	At-risk-of-poverty rate by household type
Indicator 1d	:	At-risk-of-poverty rate by tenure status
Indicator 1e	:	At-risk-of-poverty threshold (illustrative values)
Indicator 2	:	Inequality of income distribution S80/S20 quintile share ratio
Indicator 3	:	At-persistent-risk-of-poverty rate by gender (60% median)
Indicator 4	:	Relative at-risk-of-poverty gap
Indicator 5	:	Regional cohesion (dispersion of regional employment rates)
Indicator 6	:	Long term unemployment rate
Indicator 7	:	Persons living in jobless households
Indicator 8	:	Early school leavers not in education or training
Indicator 9	:	Life expectancy at birth
Indicator 10	:	Self defined health status by income level
Indicator 11	:	Dispersion around the at-risk-of-poverty threshold
Indicator 12	:	At-risk-of-poverty rate anchored at a moment in time
Indicator 13	:	At-risk-of-poverty rate before social transfers by gender
Indicator 14	:	Inequality of income distribution Gini coefficient
Indicator 15	:	At-persistent-risk-of-poverty rate by gender (50% median)
Indicator 16	:	Long term unemployment share
Indicator 17	:	Very long term unemployment rate
Indicator 18	:	Persons with low educational attainment

Methodological notes:

PRIMARY INDICATORS

1. At-risk-of-poverty rate

1.1 At-risk-of-poverty rate (after social transfers)

1.1.1 Definition

The share of persons with an equivalised total net income below 60% national median income.

Source : European Community Household Panel (ECHP)

1.1.2 Algorithm

1.1.2.1 Calculation of equivalised income

The total net income of each household is calculated by adding together the income received by all the members of the household from all sources.

For each person, the 'equivalised total net income (EQ_INC)' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale (which gives a weight of 1.0 to the first adult, 0.5 to other persons aged 14 or over who are living in the household and 0.3 to each child aged less than 14).

Consequently, each person in the same household receives the same 'equivalised total net income'.

The population consists of all the persons living in private households of a country. The term person therefore includes all the members of the households, whether they are adults or children.

Persons with missing 'equivalised total net income' are excluded from the calculations (ie. people with missing household income or households with missing composition details).

1.1.2.2 Calculation of the 'at-risk-of-poverty threshold'

Firstly, persons have to be sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

Secondly, the median is calculated as the equivalised income of the household person for whom the cumulative sum of personal weights is less than or equal to 50% of the total sum of weights.

In other words, persons in the same household are located together, on the same side of the median.

Thirdly, the 'at-risk-of-poverty threshold' is calculated as 60% of the national median.

$\text{At risk of poverty threshold} = 60\% * EQ_INC_i \Big _{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$
--

The ‘Laeken’ indicators : Detailed calculation methodology

1.1.2.3 Calculation of ‘at-risk-of-poverty rate (after social transfers)’

The ‘at-risk-of-poverty rate (after social transfers)’ is calculated as the percentage of persons with an equivalised net total income below the ‘at-risk-of-poverty threshold’.

$$\text{At risk of poverty rate (after social transfers)} = \frac{\sum_{\text{All persons: EQ_INC} < \text{at risk of poverty threshold}} \text{Weights}}{\sum_{\text{All persons}} \text{Weights}}$$

1.1.2.4 Calculation of the EU average

The EU average of the ‘at-risk-of-poverty rates (after social transfers)’ established for each individual country is calculated as a weighted average of the country rates, where the weighting of countries is done according to the number of persons living in private households (POPTOT) in each country.

$$\text{EU average of 'at risk of poverty rate'} = \frac{\sum_{\text{all countries}} ('at risk of poverty rate'_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$$

year = year of the survey

1.2 'At-risk-of-poverty rate' broken down according to certain variables

The 'at-risk-of-poverty rate (after social transfers)' has been broken down by the following variables:

- Age and gender
- Most frequent activity status in the previous year
- Household type
- Tenure status

The calculation of the 'at-risk-of-poverty rate (after social transfers)', as described in point 1.1, remains the same. In particular, note that the threshold used is the same for each breakdown as the one described in point 1.1 (and not a different threshold for each breakdown).

Each breakdown gives the proportion of the population in each subgroup who is at-risk-of poverty.

1.2.1 'At-risk-of-poverty rate (after social transfers)' with breakdown by age and gender

For this table the 'at-risk-of-poverty rate (after social transfers)' is calculated with a breakdown by 5 age-groups (0-15 years, 16-24 years, 25-49 years, 50-64 years, and 65 years and more), and by gender.

1.2.2 'At-risk-of-poverty rate (after social transfers)' with breakdown by most frequent activity status in the previous year

'Most frequent activity' as used in the ECHP is defined by asking each person aged 16 or over to state for each month of the previous year their main activity. From this 'calendar of activities', the most frequent activity of a person is defined as follows:

- a) First, the person is classified into one of only two categories: economically active (at work or unemployed) versus economically inactive. A person has to be either at work or unemployed for at least 6 months of the year to fall into the category of 'economically active'.
- b) Next, persons classified 'economically active' are classified as 'at work' if within the months of activity the period of 'at work' equals or exceeds the period of 'unemployment'. Persons 'at work' are then classified as 'employed' or 'self-employed' (more than half of the time in self-employment).
- c) Persons classified as 'economically inactive' are classified into the categories 'retired' and 'other economically inactive' on the basis of the majority criterion, with priority given to 'retirement' over 'other economically inactive' in case a person is 'retired' for the same number of months as they are 'other economically inactive'.

The 'Laeken' indicators : Detailed calculation methodology

Thus the following categories of 'most frequent activity' status can be established:

Economically active

At work

Employed (1)

Self-employed (2)

Unemployed (3)

Economically inactive

Retired (4)

Other economically inactive (5)

1.2.3 'At-risk-of-poverty rate (after social transfers)' with breakdown by household type

For this table the 'at-risk-of-poverty rate (after social transfers)' has been calculated with a breakdown by household type. In this 'economic' typology, the focus is on 'adults' and 'dependent children', rather than on 'couples' and 'families'. Households are classified according to the number of adults and the number of dependent children that are living in the household.

'Dependent children' includes two groups. All persons below 16 are considered to be dependent children. Persons aged 16 to 24, living in a household of which at least one of their parents is a member, and who are economically inactive are also considered as 'dependent children'.

The following household types have been chosen for this breakdown:

- One person household, under 30 years
- One person household, between 30 and 64 years
- One person household, 65 years plus
- One person household, male
- One person household, female
- One person household, total
- 2 adults, no dependent children, both adults under 65 years
- 2 adults, no dependent children, at least one adult 65 years or more
- Other households without dependent children
- Single parent household, one or more dependent children
- 2 adults, one dependent child
- 2 adults, two dependent children
- 2 adults, three or more dependent children
- Other households with dependent children

1.2.4 'At-risk-of-poverty rate (after social transfers)' with breakdown by tenure status

The following household types have been chosen for this breakdown:

- Owner or rent free
- Tenant

1.3 'At-risk-of-poverty threshold': illustrative values

1.3.1 Definition

The value of the 'at-risk-of-poverty threshold' in PPS, Euro and national currency for the total population, for a one person household and for a household consisting of two adults and two children are presented as illustrative examples.

1.3.2 Algorithm

1.3.2.1 Calculation of the 'at-risk-of-poverty threshold'

Firstly, persons have to be sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

Secondly, the median is calculated as the equivalised income of the household person for whom the cumulative sum of personal weights is less than or equal to 50% of the total sum of weights.

In other words, persons in the same household are located together, on the same side of the median.

Thirdly, the 'at-risk-of-poverty threshold' is calculated as 60% of the national median.

$\text{At risk of poverty threshold} = 60\% * EQ_INC_i \Big _{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$
--

1.3.2.2 Calculation of illustrative values for a one person household and for a household consisting of two adults and two children

To illustrate the threshold value for a one person household and for a household consisting of two adults and two children, the 'at-risk-of-poverty threshold' has to be multiplied:

* by 1 (for a one person household) ;

* by 2.1 (for a household consisting of two adults and two children). The factor 2.1 is obtained by reference to the 'modified-OECD equivalence scale' as the sum of 1 (first adult) + 0.5 (second adult) + 0.3 * 2 (the two children).

The conversion of national currency values into Euro and into PPS is done using official exchange rates and PPS values published by Eurostat : *New Cronos, Theme 2, Domain "Price", Collection "PPP", Table "PPPSNA95"*

2. Inequality of income distribution S80/S20 quintile share ratio

2.1 Definition

S80/S20 income quintile share ratio: Ratio of total income received by the 20% of the country's population with the highest income (top quintile) to that received by the 20% of the country's population with the lowest income (lowest quintile).

'Income' must be understood as 'equivalised total net income'.

Source : European Community Household Panel (ECHP)

2.2 Algorithm

2.2.1 Equivalised total net income

For each person, the 'equivalised total net income' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale.

Persons with missing 'equivalised total net income' are excluded from the calculations.

2.2.2 Grouping the population into quintiles

The sample population of each country has to be grouped into quintiles.

Firstly, persons are sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

The 20% of persons at the lower end of the distribution that represent 20% of persons are defined as 'poorest' (first quintile). The 20% of persons at the upper end of the distribution are defined as 'richest' (fifth quintile).

The cut-off point is set in such a way that the cumulated sum of weights is less than or equal to $x \times 20\%$ (where $x = 1, 2, 3, 4, 5$) of the total sum of weights.

Technically, two methodological choices were retained:

1/ persons in the same household belong to the same quintile.

2/ persons with the same income but belonging to different households can eventually belong to different quintiles, according to their position in the ranking (the first ranking variable is the equivalised total net income, the second ranking variable is the household identification number).

2.2.3 Calculation of the S80/S20 quintile share ratio

In theory the net equivalised income available to a quintile is the sum of the equivalised income of the individuals belonging to the quintile. In practice, the mean equivalised income of the quintile is used instead¹.

S80/S20 is the quotient of the equivalised income available to the 5th quintile (richest) over the 1st quintile (poorest).

$$S80/S20 = \frac{\sum_{\text{all persons in 5th quintile}} (WEIGHT * (EQ_INC))}{\sum_{\text{all persons in 1st quintile}} (WEIGHT * (EQ_INC))}$$

¹ This is done to minimise any impact from the fact that the numbers of persons in the quintiles may vary from the anticipated 20% of the total population during the quintile-distribution process.

2.2.4 Calculation of the EU average

The EU average of S80/S20 quintile share ratios is calculated as a weighted average of the country ratios. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

$$EU \text{ average of S80/S20 ratios} = \frac{\sum_{all \text{ countries}} (S80 / S20_i * POPTOT(year)_i)}{\sum_{all \text{ countries}} (POPTOT(year)_i)}$$

year = year of the survey

3. At-persistent-risk-of-poverty rate (60% median)

3.1 Definition

The share of persons with an equivalised total net income below the risk-of-poverty threshold in the current year and in at least two of the preceding three years. Gender breakdown + total

Source : European Community Household Panel (ECHP)

3.2 Algorithm

3.2.1 Calculation of the equivalised total income for each year

For each person, the 'equivalised total net income' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale.

Persons with missing 'equivalised total net income' are excluded from the calculations.

3.2.2 Calculation of 'at-risk-of-poverty thresholds' for each year

For each of the four years, the 'at-risk-of-poverty threshold' is calculated for each country in the following way:

Firstly, persons have to be sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

Secondly, the median is calculated as the equivalised income of the household person for whom the cumulative sum of personal weights is less than or equal to 50% of the total sum of weights.

In other words, persons in the same household are located together, on the same side of the median.

Thirdly, the 'at-risk-of-poverty threshold' is calculated as 60% of the national median.

$\text{At risk of poverty threshold} = 60\% * EQ_INC_i \Big _{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$
--

3.2.3 Linking information for four years

A file should contain for each person his/her equivalised total net income for the four years.

BUT only persons that have been in the panel for all four waves should be included in the analysis. Therefore, all persons with missing values for at least one of the four EQ_INC variables are to be excluded.

The ‘Laeken’ indicators : Detailed calculation methodology

3.2.4 Calculation of the ‘at-persistent-risk-of-poverty rate’

The ‘at-persistent-risk-of-poverty rate’ is calculated as the percentage of persons with an equivalised total net income below the respective ‘at-risk-of-poverty threshold’ for the current year and at least 2 of the preceding 3 years.

The persons who are concerned by one of the following four cases have to be taken into account:

	T	T-1	T-2	T-3
1.	At risk of poverty	At risk of poverty	At risk of poverty	At risk of poverty
2.	At risk of poverty	At risk of poverty	NOT at risk of poverty	At risk of poverty
3.	At risk of poverty	At risk of poverty	At risk of poverty	NOT at risk of poverty
4.	At risk of poverty	NOT at risk of poverty	At risk of poverty	At risk of poverty

$$\text{At persistent risk of poverty rate} = \frac{\sum_{\text{All persons: case 1 or case 2 or case 3 or case 4}} \text{weights}}{\sum_{\text{All persons: } EQ_INC(T) \neq \text{ AND } EQ_INC(T-1) \neq \text{ AND } EQ_INC(T-2) \neq \text{ AND } EQ_INC(T-3) \neq} \text{weights}}$$

For this longitudinal at-risk-of-poverty rate, the base weight of the last wave is to be used.

3.2.5 Calculation of the EU average

The EU average of the ‘at-persistent-risk-of-poverty rate’ is calculated as a weighted average of the country rates. The weighting of countries is done according to the number of persons living in private households in the last year (T) in each country.

$$\text{EU average of persistent at risk of poverty rate} = \frac{\sum_{\text{all countries}} (\text{persistent at risk of poverty rate} * POPTOT (T))}{\sum_{\text{all countries}} (POPTOT (T))}$$

4. Relative at-risk-of-poverty gap

4.1 Definition

Difference between the median equivalised total net income of persons below the at-risk-of-poverty threshold and the at-risk-of-poverty threshold, expressed as a percentage of the at-risk-of-poverty threshold. Gender breakdown + total.

Source : European Community Household Panel (ECHP)

4.2 Algorithm

The indicator is calculated in the following way:

4.2.1 Calculation of equivalised income

For each person, the 'equivalised total net income' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale.

Persons with missing 'equivalised total net income' are excluded from the calculations.

4.2.2 Calculation of the 'at-risk-of-poverty threshold'

Firstly, persons have to be sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

Secondly, the median is calculated as the equivalised income of the household person for whom the cumulative sum of personal weights is less than or equal to 50% of the total sum of weights.

In other words, persons in the same household are located together, on the same side of the median.

Thirdly, the 'at-risk-of-poverty threshold' is calculated as 60% of the national median.

At risk of poverty threshold = $60\% * EQ_INC_i$ | $i = \text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}$

4.2.3 Identification of the 'at-risk-of-poverty' persons

Each person is classified as 'at-risk-of-poverty rate (after social transfers)' or not, depending on the fact that his/her equivalised income is below the 'at-risk-of-poverty' threshold or not.

4.2.4 Calculation of the median equivalised total net income for the 'at-risk-of-poverty' persons

Once the 'at-risk-of-poverty' persons are known, the median equivalised total net income of those persons is calculated in the following way:

Firstly the 'at-risk-of-poverty' persons have to be sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

Secondly, the median is calculated as the equivalised total net income of the 'at-risk-of-poverty' household person for whom the cumulative sum of personal weights is less than or equal to 50% of the total sum of weights of the 'at-risk-of-poverty' persons.

The 'Laeken' indicators : Detailed calculation methodology

In other words, 'at-risk-of-poverty' persons in the same household are located together, on the same side of the median.

4.2.5 Calculation of 'relative at-risk-of-poverty gap'

Calculation of relative median at-risk-of-poverty gap:

$$100 \times \frac{(\text{At-risk-of-poverty threshold} - \text{median equivalised total net income for the 'at-risk-of-poverty' persons})}{\text{At-risk-of-poverty threshold}}$$

5. Regional cohesion (dispersion of regional employment rates)

Coefficient of variation of employment rates across regions within countries, broken down by gender (Total, Male, Female)

5.1. Definition

The regional cohesion indicator is the coefficient of variation of employment rates at NUTS (Nomenclature of Territorial Units for Statistics) level 2.

It is calculated separately for each country and gives a measure of the regional spread of employment rates.

5.2 Algorithm

The indicator is established in the following way:

5.2.1 Source of data to calculate the 'regional cohesion' indicator

For this indicator, the source of data is the results from the Spring quarterly EU Labour Force Survey at NUTS 2 level.

The EU Labour Force Survey is a personal-interview based survey conducted amongst private households. The target population is restricted to persons of working age (15 years and above). The questions and definitions in the EU Labour Force Survey closely follow those adopted by the 13th International Conference of Labour Statisticians, organised by the International Labour Office (ILO) in 1982. See appendix 1 for a summary flowchart of labour classification.

For individual countries, the limitation to regions at NUTS 2 level (c.200 locations) reduces the number of observations considerably by comparison to NUTS 3 level (c.1100 locations), which makes the indicator more sensitive to any changes. Data is not applicable at NUTS 2 level for Denmark, Ireland or Luxembourg because NUTS 2 level is close to national level.

5.2.2 Identification of persons in employment

Within a particular region (country), persons are considered as having an employment if they did any work for pay or profit during the specified reference week, even for as little as one hour. Pay includes cash payments or payments in-kind, whether payment was received during the reference week or not².

Thus the employed comprise persons who fall into one of the following categories:

(a) Paid employment.

- At work (perform some work for wage or salary in cash or in kind).
- With a job but not at work (temporarily not at work and having a formal attachment to their job) according to one of the following criteria:
 - Continued receipt of wage or salary.
 - Assurance of return to work or an agreement as to the date of return.
 - Elapsed period of absence in relation to period for which workers are entitled to compensation benefits).

² "The EU Labour Force Survey: Methods and Definitions, 2001" DRAFT v03feb2003 per NewCronos enquiry 26feb2003

The 'Laeken' indicators : Detailed calculation methodology

Notes

1. Seasonal workers during the 'off' season are not considered to be in employment as they do not continue to receive payment although they may have an assurance of return to work.
2. Persons on maternity leave should always be considered to be in employment.
3. Persons who have been temporarily laid-off are considered to be in employment if they continue to receive payment which is at least 50% of their previous wage or salary, or if they have an assurance of a return to work within 3 months.
4. Persons who are absent from work for more than 3 months ('long-term absence') are only considered to be in employment if they continue to receive at least 50% of their previous wage or salary.
5. Persons on parental leave should be treated as a case of long-term absence from work
6. Military conscripts are not considered to be in employment.
7. Persons who receive payment for on-the-job training which involves production of goods or services are considered to be in employment.

(b) Self-employment.

- At work (perform some work for profit or gain in cash or in kind).
- With an enterprise (eg. farm, commerce, professional practice) but temporarily not at work for a specified reason.

Notes

1. Time spent on the operation of the enterprise, even if not directly linked to the making of sales or the production of goods or services, is also considered to be self-employment.
2. Time spent in setting-up an enterprise including the purchase/installation of equipment, pre-ordering of supplies, etc. is also considered to be self-employment.
3. Unpaid work by family members, which contributes directly to an enterprise owned or operated by a related member of the same household, is also considered to be self-employment.
4. Unpaid family workers are still considered to be in self-employment if they have an assurance of a return to work within 3 months.
5. The classification of agricultural smallholdings where production is for own consumption rather than for resale, depends on the relative importance of such activity in the national accounts (ESA 1995 paragraph 3.08) – if significant, then work on the farm should be considered as self-employment.

5.2.3 Identification of regional population (persons of working age: 15-64)

Figures at national level are broken down over individual regions by applying regional structures of most recent population census or results of regional labour force survey.

5.2.4 Calculation of regional employment rates

The employment rate represents persons in employment as a percentage of the population of working age.

Employment rate	=	$\frac{\sum x_i}{\sum y_i}$
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where \mathbf{x}_i is the persons aged 15-64 who are in employment and \mathbf{y}_i is the total population of persons aged 15-64.

Note: To establish the 'regional cohesion' indicator, the source of data is the Spring quarterly survey.

The 'Laeken' indicators : Detailed calculation methodology

5.2.5 Calculation of the coefficient of variation of regional employment rates

5.2.5.1 Calculation of the arithmetic mean of regional employment rates.

The Arithmetic Mean employment rate is calculated using the total population, as follows:

$$\text{Arithmetic Mean employment rate} = \frac{\sum_{\text{all regions}} x_i}{\sum_{\text{all regions}} y_i}$$

where x_i is the persons aged 15-64 who are in employment and y_i is the total population of persons aged 15-64.

Note that this is a departure from the standard calculation of the Arithmetic Mean (sum of the employment rates for each region, divided by the number of regions).

5.2.5.2 Calculation of the standard deviation of regional employment rates.

The Standard Deviation is the square root of the Variance. The Variance is calculated as the sum of the population weighted, squared difference of the employment rate for each region from the Arithmetic Mean, as follows:

$$\text{Variance of employment rates} = \sum_{\text{regions}} \left(\frac{y_i}{\sum_{\text{regions}} y} \cdot (x_i - \bar{x})^2 \right)$$

where \bar{x} is the arithmetic mean of x_i and x_i is the regional employment rate for region i , and y_i is the population aged 15-64 for region i .

Note that this is a departure from the standard calculation of the Variance (sum of the squared difference of the employment rate for each region from the Arithmetic Mean, divided by the number of regions).

5.2.5.3 Calculation of the coefficient of variation of regional employment rates.

The coefficient of variation is the Standard Deviation divided by the Arithmetic Mean, as follows:

$$\text{C.V. of regional employment rates} = \frac{\text{Standard Deviation of regional employment rates}}{\text{Arithmetic Mean of regional employment rates}}$$

5.2.6 Calculation of the EU average

The EU average 'regional cohesion' indicator is calculated for the EU as whole using data for all regions in all countries (including Denmark, Ireland and Luxembourg).

6. Long-term unemployment rate

Long-term unemployment rate, broken down by gender

6.1 Definition

The long term unemployment rate is the total number of long-term unemployed (at least 12 months) as a percentage of the total active population aged 15-64. (Gender breakdown + total)

The total active population or labour force is the total population at work and the unemployed population. It excludes persons who are inactive.

6.2 Algorithm

The indicator is established in the following way:

6.2.1 Source of data to calculate the 'long-term unemployment rate' indicator

To establish this indicator, the source of data is the harmonised monthly series of numbers of unemployed persons. This compiles the latest annual results from the EU Labour Force Survey, quarterly results from national Labour Force Surveys and monthly results from national Labour Force Surveys, together with administrative data. The series is seasonally adjusted. The annual total is simply the sum of these monthly values.

The questions and definitions in the EU Labour Force Survey closely follow those adopted by the 13th International Conference of Labour Statisticians, organised by the International Labour Office (ILO) in 1982. See appendix 1 for a summary flowchart of labour classification.

6.2.2 Identification of persons in employment

For the definition of employed persons, please see the description under 5.2.2

6.2.3 Identification of persons who are unemployed

Within a particular country, persons are considered to be unemployed³ if :

- (a) They are aged 15-74
- (b) They are without work during the reference week (ie. neither had a job nor were at work for one hour or more in employment or self-employment which is paid either in cash or in kind, not necessarily during the reference week itself).
- (c) They are currently available for work (ie. were available to start paid employment or self-employment before the end of two weeks following the reference week).
- (d) They are actively seeking work (ie. have taken specific steps in the four weeks period ending with the reference week to seek paid employment or self-employment, or who have found a job to start within at least 3 months). The following are considered as specific steps:
 - Having been in contact with a public employment office in order to find work, whoever took the initiative. Note: renewing registration for administrative purposes only is not an active step.

³ Commission Regulation (EC) No 1897/2000 of 7 September 2000 implementing Council Regulation (EC) No 577/98 on the organisation of a labour force sample survey concerning the definition of unemployment (OJ L 228 8.9.2000 p.18). This definition remains fully compatible with ILO standards.

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- Having been in contact with a private agency (temporary work agency, firm specialising in recruitment, etc.) in order to find work.
- Applying to employers directly.
- Asking among friends, relatives, unions, etc. in order to find work.
- Placing or answering job advertisements.
- Taking a recruitment test or examination or being interviewed.
- Looking for land, premises or equipment.
- Applying for permits, licences or financial resources.

Notes

1. Seasonal workers during the 'off' season are not considered to be in employment as they do not continue to receive payment although they may have an assurance of return to work. However, they will only be considered to be unemployed if they are 'currently available for work' and 'actively seeking work'.
2. Persons on maternity leave are not considered to be unemployed.
3. Persons who have been temporarily laid-off are considered to be in employment if they continue to receive payment which is at least 50% of their previous wage or salary, or if they have an assurance of a return to work within 3 months. However even if they are not considered to be in employment, they will only be considered to be unemployed if they are 'currently available for work' and 'actively seeking work'.
4. Persons who are absent from work for more than 3 months ('long-term absence') are only considered to be in employment if they continue to receive at least 50% of their previous wage or salary. However even if they are not considered to be in employment, they will only be considered to be unemployed if they are 'currently available for work' and 'actively seeking work'.
5. Persons on parental leave should be treated as a case of long-term absence from work
6. Military conscripts are not considered to be unemployed.
7. Persons who receive payment for on-the-job training which involves production of goods or services are considered to be in employment. Education and training are considered as ways to improve employability but not as methods of seeking work. Persons without work and in education or training will only be considered to be unemployed if they are 'currently available for work' and 'actively seeking work'.

6.2.4 Identification of the duration of unemployment

Duration of unemployment is defined as (a) the duration of the search for work, or, if shorter, (b) the length of time since the last job was held.

For the 'long-term unemployment rate' indicator, the relevant duration is 12 months: persons who have been unemployed for more than 12 months are considered to be long-term unemployed. Clearly, this is a subset of the total number of unemployed persons.

6.2.5 Identification of the active population

The total active population (total labour force) is defined as the sum of persons who are in employment and persons who are unemployed.

Total active population	=	$\sum_{\text{Persons aged 15+}} x_i + \sum_{\text{Persons aged 15-74}} y_i$
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where x_i is the persons who are in employment and y_i is the persons who are unemployed.

6.2.6 Calculation of the long-term unemployment rate

The long-term unemployment rate (LTU rate) represents persons who have been unemployed for more than 12 months as a percentage of the total active population.

Long - term unemployment rate	=	$\frac{\sum z_i}{\text{Persons aged 15-74}}$ $\text{Total active population}$
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where z_i is the persons who are unemployed for more than 12 months.

6.2.7 Calculation of the EU average

The EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

EU average of long - term unemployment rates	=	$\frac{\sum_{\text{all countries}} (LTU rate_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$
$year = \text{year of the survey}$		

7. Persons living in jobless households

Persons living in jobless households, for persons aged 0-65 and 0-60

7.1 Definition

The 'persons living in jobless households' indicator shows the number of persons aged 0-65 who are living in eligible households where none of the members are working as a percentage (proportion) of the total population aged 0-65 who are living in eligible households.

Note: this indicator is also calculated separately for the population aged 0-60 to take account of the variation in retirement ages (legal or effective) across Member States. This indicator shows the impact upon individual members of a household based upon the degree of contact with the world of work of all the members of their household.

7.2 Algorithm

The indicator is established in the following way:

7.2.1 Source of data to calculate the persons living in jobless households

To establish this indicator, the source of data is the results from the Spring quarterly EU Labour Force Survey.

The EU Labour Force Survey is a personal-interview based survey conducted amongst private households. The target population is restricted to persons of working age (15 years and above). The questions and definitions in the EU Labour Force Survey closely follow those adopted by the 13th International Conference of Labour Statisticians, organised by the International Labour Office (ILO) in 1982. See appendix 1 for a summary flowchart of labour classification.

7.2.2 Identification of eligible households

The denominator (bottom) of this fraction is the total population aged 0-65 (0-60) which is living in eligible private households.

Eligible households comprise all households except those where all the household members fall into one of the following categories:

- aged less than 18 years old
- aged 18-24 in education and inactive
- aged 65 (60) and over and not working

In other words, eligible households contain at least one member of the household who is either aged between 18 and 24 and not in education and inactive, or who is aged between 24 and 65 (60).

7.2.3 Identification of persons who are unemployed

The numerator (top) of this fraction is the number of persons living in eligible private households, where none of the members are working (ie. none are 'in employment'). For the definition of employed persons, please see the description under 5.2.2

The ‘Laeken’ indicators : Detailed calculation methodology

7.2.4 Calculation of the ‘persons living in jobless households’ indicator

The indicator is calculated by dividing the number of persons identified under 7.2.3 above by the total number of persons identified under 7.2.2 above.

$$\text{Number of persons living in jobless households} = \frac{\sum x_i}{n}$$

persons living in eligible households

where x_i is the persons who are living in jobless eligible households and n is the total number of persons living in eligible households.

7.2.5 Calculation of the EU average

The EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

$$\text{EU average of persons living in jobless households} = \frac{\sum_{\text{all countries}} (\text{JoblessHH}_i * \text{POPTOT}(\text{year})_i)}{\sum_{\text{all countries}} (\text{POPTOT}(\text{year})_i)}$$

year = year of the survey

8. Early school leavers not in education or training

Early school leavers not in education or training, broken down by gender (Total, Male, Female)

8.1 Definition

The 'early school leavers not in education or training' indicator is defined as the percentage (proportion) of the total population of 18-24 year olds who have achieved ISCED level 2 or less and are not attending education or training.

This stock measure of persons flowing out of the education system is a proxy measure both of the efficiency of the education system and a predictor of the future ability of the society to fight poverty and social exclusion.

8.2 Algorithm

The indicator is established in the following way:

8.2.1 Source of data to calculate the 'early school leavers not in education or training' indicator

To establish this indicator, the source of data is the results from the Spring quarterly EU Labour Force Survey.

The EU Labour Force Survey is a personal-interview based survey conducted amongst private households. The target population is restricted to persons of working age (15 years and above).

8.2.2 Identification of persons who are in education or training

Respondents are asked whether they are participating in education and training. The reference period is the last four weeks preceding the survey.

The data collected refer to all education or training, whether or not relevant to the declarant's current or future employment. This includes initial education, continuing or further education, training within enterprises, apprenticeships, on-the-job training, seminars and workshops, distance-learning, evening classes, self-learning, etc. It includes courses followed for personal or general interest and may cover all forms of learning and training in subjects such as languages, data processing/computer studies, business studies/management, art/culture, health/medicine.

Persons who do not reply to the question are excluded from the calculation of the denominator (bottom) of the fraction.

8.2.3 Identification of highest level of educational attainment

Respondents are asked to identify their highest level of educational attainment, coded according to the 1997 International Standard Classification of Education established by UNESCO (ISCED'97) as follows:

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Level 0 – Pre-primary education.

Level 1 – Primary education or first-stage of basic education.

Level 2 – Lower secondary education or second stage of basic education.

Level 3 – Upper secondary education.

Level 4 – Post-secondary non-tertiary education.

Level 5 – First stage of tertiary education (not leading directly to an advanced research qualification)

Level 6 – Second stage of tertiary education (leading directly to an advanced research qualification)

The classification refers to the level successfully completed and involves obtaining a certificate or diploma or full attendance. When determining the level, both general and vocational education/training should be taken into consideration.

Persons who do not reply to the question are excluded from the calculation of the denominator (bottom) of the fraction.

8.2.4 Identification of the persons with ISCED level 2 or below who are not in education or training

Firstly, the number of persons aged 18-24 with a highest level of educational attainment equal to ISCED level 2 (excluding those who did not answer the question) is identified in accordance with the approach in 8.2.3 above. In other words, the numbers who achieved ISCED level 0, 1 or 2 is identified. This is the denominator (bottom) of the fraction to be calculated.

Secondly, the number of these persons who are not participating in education or training (excluding those who did not answer the question) is identified in accordance with the approach in 8.2.2 above. This is the numerator (top) of the fraction to be calculated.

$\text{Early school leavers not in education or training} = \frac{\sum x_i}{n}$ <p style="text-align: center; margin: 0;"><i>Persons aged 18–24 with low educational attainment</i></p>

where \mathbf{X}_i is the persons who are not in education or training and \mathbf{n} is the total number of persons aged 18-24 with low educational attainment.

8.2.5 Calculation of the EU average

The EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

$\text{EU avg. of early school leavers not in educ. or training} = \frac{\sum_{\text{all countries}} (\text{Early leavers}_i * \text{POPTOT}(\text{year})_i)}{\sum_{\text{all countries}} (\text{POPTOT}(\text{year})_i)}$ <p><i>year = year of the survey</i></p>
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9. Life expectancy at birth

Life expectancy at birth, broken down by gender (Total, Male, Female)

9.1 Definition

The 'life expectancy at birth' indicator is defined as the number of years a person may be expected to live, starting at age 0, if subjected throughout their lives to the current mortality conditions.

This gives an indication both of the efficiency of the healthcare system and a predictor of the future ability of the society to fight poverty and social exclusion.

9.2 Algorithm

The indicator is established in the following way:

9.2.1 Source of data to calculate the 'life expectancy at birth' indicator

To establish this indicator, the source of data is demographic information collected by Eurostat on an annual basis, under a gentleman's agreement in collaboration with the Council of Europe and the UN Statistical Division. This data is processed centrally by Eurostat using standard algorithms⁴.

9.2.2 Identification of death rates

Life expectancy at birth is an estimate of the average length of time (in years) that a person can expect to live, assuming that the prevailing rates of death for each age group will remain the same for the lifetime of that person. This is because no-one knows what death rates will be in the future, although they will almost certainly change over the lifetime of a person born now, because of changes in social and economic conditions, lifestyle, nutritional and environmental factors, and advances in the detection and treatment of disease.

The crude death rate is an estimate of the proportion of a population that dies in a specified period. It is calculated by dividing the number of deaths in a specified period by the number at risk during that period (typically per year). It does not take into account the age structure of the population studied, and can therefore be misleading. This is corrected via age standardisation: the directly age-standardised rate is the weighted sum of age-specific (five-year age group) rates, where the weighting factor is the corresponding age-specific standard population.

9.2.3 Estimation of life expectancy for total population

Life expectancy values are currently established by Eurostat unit E4 (demographic statistics) for males and females only.

A value for the total population has been estimated by Eurostat unit E2 as a population weighted average of the male and female values. The weighting is done according to the number of persons by gender.

⁴ SYSCODEM software. Eurostat demographic statistics unit is in the progress of switching to a new calculation system.

9.2.4 Calculation of the EU average

Finally, the EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

$$EU \text{ average life expectancy at birth} = \frac{\sum_{\text{all countries}} (Life \text{ Expectancy}_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$$

year = year of the survey

10. Self defined health status by income level

An indicator of health inequality by income was tentatively adopted in Laeken, calculated as the ratio of the proportions in the bottom and top income quintile groups of the population aged 16 and over who classify themselves as in a bad or very bad state of health (source: ECHP). However, Eurostat is still undertaking research into the feasibility and suitability of this indicator, in collaboration with the Indicators Sub-Group of the Social Protection Committee.

In the absence of an agreed methodology, this indicator is not currently being produced.

SECONDARY INDICATORS

11. Dispersion around the 'at-risk-of-poverty threshold'

11.1 Definition

The share of persons with an income below 40%, 50% and 70% national median income.

Source : European Community Household Panel (ECHP)

11.2 Algorithm

11.2.1 Calculation of equivalised income

See the description under 1.1.2.1

11.2.2 Calculation of the 'at-risk-of-poverty threshold'

See the description under 1.1.2.2

The at-risk-of-poverty threshold is set firstly at 40% of the national median

$$\text{At risk of poverty threshold} = 40\% * EQ_INC_i \Big|_{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$$

Secondly it is set at 50% of the national median

$$\text{At risk of poverty threshold} = 50\% * EQ_INC_i \Big|_{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$$

Thirdly it is set at 70% of the national median

$$\text{At risk of poverty threshold} = 70\% * EQ_INC_i \Big|_{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$$

11.2.3 Calculation of 'at-risk-of-poverty rate (after social transfers)'

See the description under 1.1.2.3

The at-risk-of-poverty rate is calculated firstly using the 40% threshold, secondly using the 50% threshold and thirdly using the 70% threshold.

11.2.4 Calculation of the EU average

See the description under 1.1.2.4

12. 'At-risk-of-poverty rate' anchored at a moment in time

12.1 Definition

For a given year « t » (eg. 1999), the “at-risk-of-poverty rate anchored at a moment in time is the share of the population whose equivalised total net income in that given year is below a risk-of-poverty threshold calculated in the standard way for the earlier year « t-3 » (eg. 1996) and then up-rated for inflation (eg., the period concerned is 1996-1999, but the inflation rate to be applied is that for the period 1995-1998 because the income reference year in the ECHP is the year prior to the survey)

Source : European Community Household Panel (ECHP)

12.2 Algorithm

1) 'At-risk-of-poverty thresholds' are calculated as follows:

a) for the base year :

The 'at-risk-of-poverty threshold' is calculated for the base year as described in section 1 (i.e. 60% of the median equivalised income).

b) for subsequent years :

The inflation factor is applied to base year threshold.

2) The 'at-risk-of-poverty rate' is calculated as described for the standard 'at-risk-of-poverty rate'.

However, the special inflated threshold is used.

This is illustrated by an example. The base year is 1996 (income 1995).

The median of equivalised income of base year (1996, income 1995) is computed (Median3).

Then, we calculate the 'at-risk-of-poverty threshold', which corresponds to 60% of Median3. It is called Med3_60.

Example : 'at-risk-of-poverty rate' for 1999

- Calculation of the 'at-risk-of-poverty threshold' for 1999 (income data from 1998) using the inflation factor 95-98

The 'Laeken' indicators : Detailed calculation methodology

- $\text{Med6X}_{60} = (\text{Med3}_{60} \cdot \text{idx95}_{98}) / 100$ → 'at-risk-of-poverty threshold' of 1996 (income 1995) multiplied with the inflation factor idx_{95}_{98}

Calculation of 'at-risk-of-poverty rate' using Med6X_{60} as the 'at-risk-of-poverty threshold'.

Source for the Inflation factors used from the Eurostat Price statistics: Eurostat, New Cronos, Theme 2, Domain "Price", Collection "ipc", Table "ipca"

13. 'At-risk-of-poverty rate before social transfers'

13.1 Definition

The 'at-risk-of-poverty rate before social transfers' shows the percentage of the population having an equivalised net income before social transfers below the national 'at-risk-of-poverty threshold'.

Two definitions of the income before social transfers have to be applied, depending on whether pensions are considered as transfers or not.

The 'at-risk-of-poverty rate before social transfers' should only be used in connection with the 'at-risk-of-poverty rate (after social transfers)' in order to evaluate the impact of social transfers. On its own it does not have any explanatory value.

Source : European Community Household Panel (ECHP)

13.2 Algorithm

13.2.1 Calculation of the 'Equivalised income before social transfers'

For each household the 'equivalised income before social transfers' is to be calculated as:

1. EQ_INC_BST = total net household income minus social transfers (except old-age or survivors pensions), divided by the equivalised household size according to the modified OECD scale).
2. EQ_INC_Btp = total net household income minus social transfers (including old-age or survivors pensions), divided by the equivalised household size according to the modified OECD scale).

Households with missing 'equivalised income before social transfers' are excluded from the calculations.

13.2.2 Calculation of the 'at-risk-of-poverty rate before social transfers'

The 'at-risk-of-poverty rate before social transfers' is calculated as the percentage of persons with an equivalised income before social transfers (including or excluding pensions) below the 'at-risk-of-poverty threshold' (60% of the national median).

The 'at-risk-of-poverty threshold' (60% of the national median) is the same as the one described in point 1. In other words, the threshold is computed on the basis of the distribution **after** transfers.

$$\text{At risk of poverty rate before social transfers (excl. pensions)} = \frac{\sum_{\text{All persons: EQ_INC_BST} < \text{At risk of poverty threshold}} \text{Weight}}{\sum_{\text{All persons}} \text{Weight}}$$

$$\text{At risk of poverty rate before social transfers (incl. pensions)} = \frac{\sum_{\text{All persons: EQ_INC_Btp} < \text{At risk of poverty threshold}} \text{Weight}}{\sum_{\text{All persons}} \text{Weight}}$$

13.2.3 Calculation of the EU average

The EU average of the 'at-risk-of-poverty rates' is calculated as a weighted average of the country rates. The weighting of countries is done according to the number of persons living in private households.

$$EU \text{ average of 'at risk of poverty rate'} = \frac{\sum_{\text{all countries}} ('at risk of poverty rate'_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$$

year = year of the survey

14. Inequality of income distribution Gini coefficient

14.1 Definition

The relationship of cumulative shares of the population arranged according to the level of income, to the cumulative share of the equivalised total net income received by them.

Source : European Community Household Panel (ECHP)

14.2 Algorithm

14.2.1 Calculation of the equivalised total net income

For each person, the 'equivalised total net income' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale.

Consequently, people in the same household receive the same 'equivalised total net income'.

Persons with missing 'equivalised total net income' are excluded from the calculations.

14.2.2 Sorting

Persons have to be sorted according to EQ_INC (sorting order: lowest to highest value). Persons with unknown EQ_INC are excluded from calculations.

14.2.3 Calculation of the Gini coefficient

$$GINI = 100 * \left(\frac{2 * \sum_{i=\text{first person}}^{\text{last person}} \left(weight_i * EQ_INC_i * \sum_{j=\text{first person}}^{\text{person } i} weight_j \right) - \sum_{i=\text{first person}}^{\text{last person}} (weight_i)^2 * EQ_INC_i}{\left(\sum_{i=\text{first person}}^{\text{last person}} weight_i \right) * \sum_{i=\text{first person}}^{\text{last person}} (weight_i * EQ_INC_i)} - 1 \right)$$

14.3 Calculation of the EU average

The EU average of the Gini coefficient is calculated as a weighted average of the country coefficients. The weighting of countries is done according to the number of persons living in private households in each country.

$$EU \text{ average of gini coef.} = \frac{\sum_{\text{all countries}} (Gini_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$$

year = year of the survey

15. At-persistent-risk-of-poverty rate (50% median)

15.1 Definition

The share of persons with an equivalised total net income below the 50% risk-of-poverty threshold in the current year and in at least two of the preceding three years.
Gender breakdown + total

Source : European Community Household Panel (ECHP)

15.2 Algorithm

15.2.1 Calculation of the equivalised total income for each year

For each person, the 'equivalised total net income' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale.

Persons with missing 'equivalised total net income' are excluded from the calculations.

15.2.2 Calculation of 'at-risk-of-poverty thresholds' for each year

For each of the four years, the 'at-risk-of-poverty threshold' is calculated for each country in the following way:

Firstly, persons have to be sorted according to their 'equivalised total net income' (sorting order: lowest to highest value).

Secondly, the median is calculated as the equivalised income of the household person for whom the cumulative sum of personal weights is less than or equal to 50% of the total sum of weights.

In other words, persons in the same household are located together, on the same side of the median.

Thirdly, the 'at-risk-of-poverty threshold' is calculated as 50% of the national median.

At risk of poverty threshold = $50\% * EQ_INC_i$ $\Big _{i=\text{person for whom the cumulated sum of weights} = 0.5 * \text{total sum of weights}}$

15.2.3 Linking information for four years

A file should contain for each person his/her equivalised total net income for the four years.

BUT only persons that have been in the panel for all four waves should be included in the analysis. Therefore, all persons with missing values for at least one of the four EQ_INC variables are to be excluded.

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15.2.4 Calculation of the ‘at-persistent-risk-of-poverty rate’

The ‘at-persistent-risk-of-poverty rate’ is calculated as the percentage of persons with an equivalised total net income below the respective ‘at-risk-of-poverty threshold’ for the current year and at least 2 of the preceding 3 years.

The persons who are concerned by one of the following four cases have to be taken into account:

	T	T-1	T-2	T-3
1.	At risk of poverty	At risk of poverty	At risk of poverty	At risk of poverty
2.	At risk of poverty	At risk of poverty	NOT at risk of poverty	At risk of poverty
3.	At risk of poverty	At risk of poverty	At risk of poverty	NOT at risk of poverty
4.	At risk of poverty	NOT at risk of poverty	At risk of poverty	At risk of poverty

$$\text{At persistent risk of poverty rate} = \frac{\sum_{\text{All persons: case 1 or case 2 or case 3 or case 4}} \text{weights}}{\sum_{\text{All persons: } EQ_INC(T) \neq \text{ AND } EQ_INC(T-1) \neq \text{ AND } EQ_INC(T-2) \neq \text{ AND } EQ_INC(T-3) \neq} \text{weights}}$$

For this longitudinal at-risk-of-poverty rate, the base weight of the last wave is to be used.

15.2.5 Calculation of the EU average

The EU average of the ‘at-persistent-risk-of-poverty rate’ is calculated as a weighted average of the country rates. The weighting of countries is done according to the number of persons living in private households in the last year (T) in each country.

$$\text{EU average of persistent at risk of poverty rate} = \frac{\sum_{\text{all countries}} (\text{persistent at risk of poverty rate} * POPTOT (T))}{\sum_{\text{all countries}} (POPTOT (T))}$$

16. Long-term unemployment share

Long-term unemployment share, broken down by gender (Total, Male, Female)

16.1 Definition

The long term unemployment share is the total number of long-term unemployed (at least 12 months) as a percentage of the total number of unemployed. (Gender breakdown + total)

16.2 Algorithm

This indicator is established in the following way:

16.2.1 Source of data to calculate the 'long-term unemployment share' indicator

To establish this indicator, the source of data is the harmonised monthly series of numbers of unemployed persons. This compiles the latest annual results from the EU Labour Force Survey, quarterly results from national Labour Force Surveys and monthly results from national Labour Force Surveys, together with administrative data. The series is seasonally adjusted. The annual total is simply the sum of these monthly values.

16.2.2 Identification of persons who are unemployed

For the definition of persons who are unemployed, please see the description under 6.2.3

16.2.3 Identification of the duration of unemployment

Duration of unemployment is defined as (a) the duration of the search for work, or, if shorter, (b) the length of time since the last job was held.

For this indicator, the relevant duration is 12 months: persons who have been unemployed for more than 12 months are considered to be long-term unemployed. Clearly, this is a subset of the total number of unemployed persons.

16.2.4 Calculation of the long-term unemployment share

The long-term unemployment share represents persons who have been unemployed for more than 12 months (the numerator) as a percentage of the total number of unemployed persons (the denominator).

<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: right; margin-right: 20px;">Long - term unemployment share</div> <div style="text-align: center;"> $= \frac{\sum z_i}{n}$ </div> <div style="text-align: left; margin-left: 20px;"> $\frac{\text{Unemployed persons aged 15-74}}{n}$ </div> </div>

where z_i is the persons who are unemployed for more than 12 months and n is the total number of unemployed persons.

16.2.5 Calculation of the EU average

The EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

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$$EU \text{ average of long - term unemployment shares} = \frac{\sum_{\text{all countries}} (LTU \text{ share}_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$$

year = year of the survey

17. Very long-term unemployment rate

Very long-term unemployment rate, broken down by gender (Total, Male, Female)

17.1 Definition

The very long term unemployment rate is the total number of very long-term unemployed (at least 24 months) as a percentage of the total active population. (Gender breakdown + total)

17.2 Algorithm

This indicator is established in the following way:

17.2.1 Source of data to calculate the very long-term unemployment rate

To establish this indicator, the source of data is the harmonised monthly series of numbers of unemployed persons. This compiles the latest annual results from the EU Labour Force Survey, quarterly results from national Labour Force Surveys and monthly results from national Labour Force Surveys, together with administrative data. The series is seasonally adjusted. The annual total is simply the sum of these monthly values.

17.2.2 Identification of persons in employment

For the definition of employed persons, please see the description under 5.2.2

17.2.3 Identification of persons who are unemployed

For the definition of persons who are unemployed, please see the description under 6.2.3

17.2.4 Identification of the duration of unemployment

Duration of unemployment is defined as (a) the duration of the search for work, or, if shorter, (b) the length of time since the last job was held.

For this indicator, the relevant duration is 24 months: persons who have been unemployed for more than 24 months are considered to be very long-term unemployed. Clearly, this is a subset of the total number of unemployed persons.

17.2.5 Identification of the active population

The total active population (total labour force) is defined as the sum of persons who are in employment and persons who are unemployed.

Total active population	=	$\sum_{\text{Persons aged 15+}} x_i + \sum_{\text{Persons aged 15-74}} y_i$
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where x_i is the persons who are in employment and y_i is the persons who are unemployed.

17.2.6 Calculation of the very long-term unemployment rate

The very long-term unemployment rate (VLTUrate) represents persons who have been unemployed for more than 24 months as a percentage of the total active population.

The ‘Laeken’ indicators : Detailed calculation methodology

$$\text{Very long - term unemployment rate} = \frac{\sum \mathbf{z}_i}{\text{Persons aged 15-74}} \div \text{Total active population}$$

where \mathbf{z}_i is the persons who are unemployed for more than 24 months.

17.2.7 Calculation of the EU average

The EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

$$\text{EU average of very long - term unemployment rates} = \frac{\sum_{\text{all countries}} (VLTU \text{ rate}_i * POPTOT(\text{year})_i)}{\sum_{\text{all countries}} (POPTOT(\text{year})_i)}$$

year = year of the survey

18. Persons with low educational attainment

Persons with low educational attainment, broken down by age and gender (Total, Male, Female)

18.1 Definition

The 'persons with low educational attainment' indicator is defined as the percentage (proportion) of the total population of 25-64 year olds who have achieved ISCED level 2 or less .

When broken down into 10-year age bands (25-34, 35-44, 45-54 and 55-64), this stock measure shows the extent to which general educational attainment levels are changing over time. This gives an insight into both of the efficiency of the education system and the future ability of the society to fight poverty and social exclusion.

18.2 Algorithm

The indicator is established in the following way:

18.2.1 Source of data to calculate the 'persons with low educational attainment' indicator

To establish this indicator, the source of data is the results from the Spring quarterly EU Labour Force Survey.

The EU Labour Force Survey is a personal-interview based survey conducted amongst private households. The target population is restricted to persons of working age (15 years and above).

18.2.1 Identification of the highest level of educational attainment

For the definition of level of educational attainment please see the description under 8.2.3

Note : the 1997 International Standard Classification of Education is used.

18.2.2 Identification of the persons with ISCED level 2 or below

Firstly, the number of persons aged 25-64 (and 10-year age bands 25-34, 35-44, 45-54 and 55-64) who have a highest level of educational attainment equal to ISCED level 2 or less are identified in accordance with the approach in 18.2.1 above. This is the numerator (top) of the fraction to be calculated.

Secondly, this number is expressed as a percentage of the total number of persons aged 25-64 (and 10-year age bands).

$$\text{Persons with low educational attainment} = \frac{\sum x_i}{n}$$

where $\sum x_i$ is the persons aged 25-64 who have low educational attainment and n is the total number of persons aged 25-64.

The 'Laeken' indicators : Detailed calculation methodology

18.2.3 Calculation of the EU average

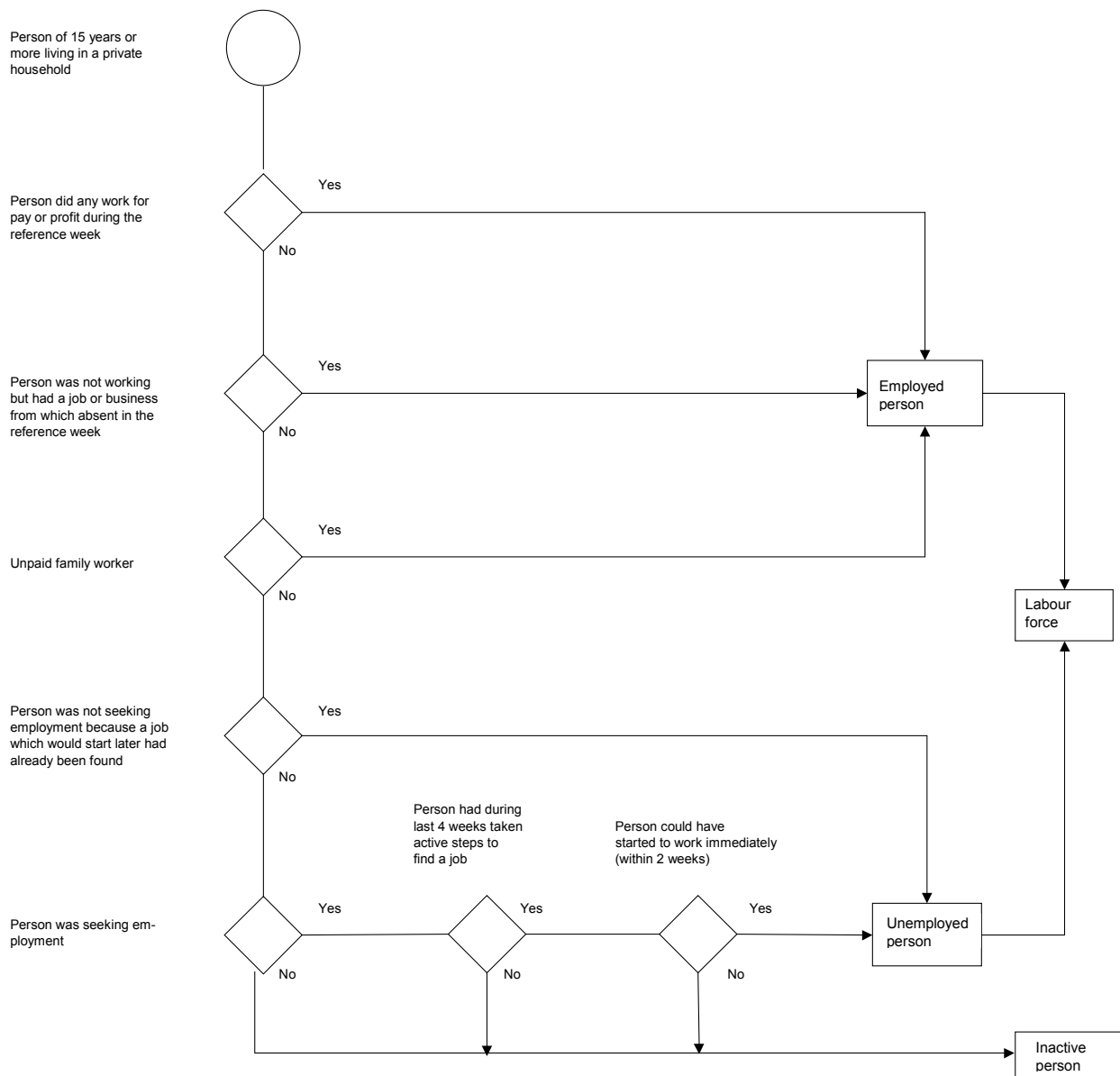
The EU average of this indicator is calculated as a weighted average of the available individual country values. The weighting of countries is done according to the number of persons living in private households in each country (POPTOT).

$$EU \text{ average of persons with low educational attainment} = \frac{\sum_{\text{all countries}} (Low \text{ attainment}_i * POPTOT(year)_i)}{\sum_{\text{all countries}} (POPTOT(year)_i)}$$

year = year of the survey

The 'Laeken' indicators : Detailed calculation methodology

APPENDIX 1



Labour force classification in the Labour Force Survey

COMBINED RESOURCES & DEPRIVATION POVERTY LINES

DRAFT¹

DAVE GORDON

¹ DRAFT, ONLY FOR INTERNAL USE WITHIN THE
RIO GROUP.

DRAFT

I. COMBINED RESOURCES & DEPRIVATION POVERTY LINES: The Poverty and Social Exclusion Survey of Britain Method

A. Introduction. Conceptual guidelines to define limits of the content of this section

Poverty lines that combine measures of low resources/income and deprivation/unsatisfied basic needs have been developed independently in a number of European (eg. Townsend, 1979) and Latin American countries (e.g. Beccaria and Minujin, 1987). They are considered by many academic researchers to be superior to income/expenditure/consumption poverty lines and/or deprivation/unsatisfied basic needs poverty lines.

Peter Townsend (1979) has argued that poverty is a lack of command over sufficient resources and deprivation is a consequence of poverty. By contrast Stein Ringen (1985; 1987; 1988, 1995) has argued the opposite position - that poverty is deprivation (direct measurement of poverty) which results from low resources (indirect measurement of poverty).

Poverty measures which combine low income/resources with low standard of living/deprivation present a technical solution to this normative debate. Although a range of methodologies have been used, in general, in Europe, the poor have been defined as those who have both a low income AND suffer from unacceptable levels of deprivation (for example, Callan *et al*, 1993; Halleröd, 1995), whereas in Latin America the poor are often defined as those who have a low income OR suffer from unsatisfied basic needs. Only the combined measurement method used in the Poverty and Social Exclusion (PSE) survey of Britain is described below.

B. Standards and Resources

1. Standards. Combining income and deprivation

Townsend first pioneered the use of deprivation indicators in his relative deprivation index for his mammoth study of *Poverty in the United Kingdom* (1979). The techniques were developed further in the Breadline Britain Surveys of 1983 and 1990 (Mack and Lansley, 1985; Gordon and Pantazis, 1997). Mack and Lansley's consensual approach to defining poverty is also known as the deprivation indicator approach, to distinguish it from the other empirical approaches based on the public perception of poverty such as the income proxy or subjective approach (see Veit-Wilson, 1987). The deprivation indicator approach aims to discover if there are people living below the minimum publicly-accepted standard. It defines poverty from the viewpoint of the public's perception of minimum necessities which no one should be without:

*"This study tackles the questions 'how poor is too poor?' by identifying the minimum acceptable way of life for Britain in the 1980's. Those who have no choice but to fall below this minimum level can be said to be 'in poverty'. This concept is developed in terms of those who have an enforced lack of **socially perceived** necessities. This means that the 'necessities' of life are identified by public opinion and not by the views of experts or, on the other hand, the norms of behaviour per se." (Mack and Lansley, 1985).*

The approach is based on three steps. First, to identify what constitutes socially perceived necessities; second, to identify those who, because of a lack of economic resources, are forced to do without these necessities; and third, to discover at what levels of income people run a greater risk of not being able to afford them (the poverty threshold).

The first step was taken by building up a list of ordinary household goods and common activities. Respondents are asked *"Please would you indicate... the living standards that all adults should have in Britain today. For each item which you think is necessary, which all adults should be able to afford and which they should not have to do without."*

The second step was to ask people what items they already had or wanted but could not afford. Items defined as necessities by more than 50% of the population but which were lacked because of a shortage of money were then used to construct an initial deprivation index. The deprivation index was then refined using standard scientific methods to ensure that all the components were valid, reliable and additive (see below).

The third step, finding the poverty threshold, was taken by using multivariate methods to determine the income for each kind of household that maximised the differences between the 'poor' and 'not poor' and minimised the differences within the two groups ('poor' and 'not poor'). This is the 'objective' poverty line and households which have to survive on this low level of income for any appreciable length of time are highly likely to suffer from multiple deprivations (Gordon and Spicker, 1998).

2. Standards. Measuring Command of Resources

The concept of command of resources over time (sometimes equated with the econometric concept of permanent income) has proved very difficult to operationalise. Most poverty estimates are based upon narrow measures of income (such as usual disposable income after deductions from direct taxation) or household expenditure (measured over a month or less by the diary method) or consumption. Townsend (1979) showed that the more comprehensively that income is measured the more accurate will be the poverty estimate. The Canberra Group has made a range of proposals to aid the more comprehensive measurement of income – but most countries have not yet implemented these proposals. In the PSE survey command of resources was estimated using the

standard UK National Statistical Office method - net usual total weekly household income (e.g. after the deduction of direct taxes).

Total income for an individual refers to income at the time of the interview, and is obtained by summing the components of earnings, benefits, pensions, dividends, interest and other regular payments. Gross weekly income of employees and those on benefits is calculated if interest and dividends are the only components missing. If the last pay packet/cheque was unusual, for example in including holiday pay in advance or a tax refund, the respondent is asked for usual pay. No account is taken of whether a job is temporary or permanent. Payments made less than weekly are divided by the number of weeks covered to obtain a weekly figure. Usual gross weekly household income is the sum of usual gross weekly income for all adults in the household. Those interviewed by proxy are also included (Bridgwood *et al*, 2000). Usual net weekly income is calculated by deducting direct taxes from the usual gross weekly income.

Equivalisation – One of the most significant and unresolved problems is how to equivalise the measurement of household resources to allow for economies of scale for different sized households as well as additional costs. A range of equivalisation scales have been used (e.g. OECD, modified OECD, etc) but these are often based upon little more than educated guess work. Gordon, Pantazis and Townsend (2000) have proposed that equivalisation scales should be based upon budget standards results so that they are socially meaningful. In the Poverty and Social Exclusion Survey of Britain, the equivalisation scale shown below was used which is based upon the simplified relativities in the Low Cost but Acceptable (LCA) budgets for various ‘idealised’ household types (Bradshaw, 1993; Parker, 1998, 2000)

Type of household member	Equivalence value
Head of household	0.70
Partner	0.30
Each additional adult (anyone over 16)	0.45
Add for first child	0.35
Add for each additional child	0.30
If head of household is a lone parent, add	0.10
If a household member is disabled, add	0.30

3. Standards. Measuring Deprivation

There are several stages required to create a reliable, valid and additive deprivation index which is composed of items and activities the majority of the population consider to be ‘necessities of life’ which everyone should be able to afford. A worked example of how this was accomplished in the PSE survey is shown below.

Step 1 – creating a ‘politically’ valid deprivation index.

Only deprivation indicators were selected for the index that 50% of the population agree were ‘necessities of life that everybody should be able to afford’. This provided ‘political’ validity (and face validity) for the deprivation index since the majority of the population considered that these items and activities were necessities.

	Necessary	Desirable	D/K
Beds and bedding for everyone	95	4	
Heating to warm living areas	94	5	
Damp free home	93	6	1
Visiting friends or family in hospital	92	7	1
Two meals a day	91	9	1
Medicines prescribed by doctor	90	9	1
Refrigerator	89	11	1
Fresh fruit and vegetables daily	86	13	1
A warm waterproof coat	85	14	1
Replace broken electrical goods	85	14	2
Visits to friends or family	84	15	1
Celebrations on special occasions	83	16	2
Money to keep home decorated	82	17	1
Visits to school e.g. sports day	81	17	2
Attending weddings, funerals	80	19	1
Meat, fish or vegetarian equiv	79	19	1
Insurance of contents of dwelling	79	20	1
A hobby or leisure activity	78	20	1
A washing machine	76	22	1
Collect children from school	75	23	3
Telephone	71	28	1
Appropriate clothes for job interviews	69	28	2
Deep freezer/fridge freezer	68	30	2
Carpets in living rooms and bedrooms	67	31	2
Regular savings for rainy days	66	32	2
Two pairs of all weather shoes	64	34	2
Friends or family round for a meal	64	34	2
Money to spend on self weekly	59	39	2
A television	56	43	2
A roast joint/vegetarian equivalent weekly	56	41	3
Presents for friends/family yearly	56	42	2
A holiday away from home	55	43	3
Replace worn out furniture	54	43	3
A dictionary	53	44	3
An outfit for social occasions	51	46	3

The 35 items above were thought to be necessities by more than 50% of the population of Britain in 1999.

Step 2 – creating a preference free deprivation index.

Only select items to include in the deprivation index that people ‘don’t have because they can’t afford’ them. This answers Piachaud’s (1981) criticism of Townsend’s *Poverty in*

the UK index that the poor may chose to live in squalor rather than be forced to by a lack of resources.

Percent of PSE Respondents who don't have and can't afford a necessity of life

	Don't have & can't afford
Regular savings for rainy days (£10 month)	24.0
Replace worn out furniture	20.8
A holiday away from home	16.9
Money to keep home decorated	13.5
A small amount of money to spend on self weekly	13.0
Replace broken electrical goods	11.4
Insurance of contents of dwelling	8.0
A hobby or leisure activity	6.7
Two pairs of all weather shoes	5.8
Friends or family round for a meal	5.8
Damp free home	5.4
An outfit for social occasions	4.1
Fresh fruit and vegetables daily	4.0
Appropriate clothes for job interviews	4.0
A warm waterproof coat	3.6
A roast joint/vegetarian equivalent weekly	3.3
Visiting friends or family in hospital	3.1
Presents for friends/family yearly	3.0
Carpets in living rooms and bedrooms	2.7
Heating to warm living areas	2.6
Attending weddings, funerals	2.6
Visits to friends or family	2.4
Visits to school e.g. sports day	1.8
Meat, fish or vegetarian equiv	1.7
Collect children from school	1.7
Celebrations on special occasions	1.6
Deep freezer/fridge freezer	1.5
Telephone	1.2
Medicines prescribed by doctor	1.1
A dictionary	1.1
A washing machine	1.0
Beds and bedding for everyone	0.6
Two meals a day	0.5
Refrigerator	0.1
A television	0.1

Note: Only 0.1% of respondents don't have and can't afford a TV or Fridge so these two variables do not add much to the deprivation index.

Step 3 – creating a ‘scientifically’ valid deprivation index.

In order to construct a valid deprivation index it is necessary to demonstrate that each component in the index is a valid measure of deprivation. This can be complex, however since the majority of the population consider these items to all be ‘necessities of life’ this

provides a-priori evidence for ‘face validity’. The ‘criterion validity’ of the deprivation index can be demonstrated by ensuring that the individual components of the index all exhibit statistically significant relative risk ratios with independent indicators known to correlate highly with poverty e.g.

- Ill Health (health in last 12 months was ‘not good’ and Limiting Long Term Illness)
- Subjective poverty measures (Genuinely poor now ‘all the time’, income ‘a lot below’ the poverty line, income ‘a lot below’ the absolute and overall poverty line)

Odds Ratios for Can’t afford Necessities by Poor Health Variables
(Items highlighted in bold are not significant at the 5% level)

	General Health	LLTI
Beds and bedding for everyone	1.4	1.5
Heating to warm living areas	2.2	2.4
Damp free home	2.4	2.0
Visiting friends or family in hospital	2.5	4.4
Two meals a day	9.6	3.7
Medicines prescribed by doctor	1.4	1.5
Refrigerator	4.3	2.1
Fresh fruit and vegetables daily	4.0	3.3
A warm waterproof coat	2.0	2.4
Replace broken electrical goods	2.2	1.9
Visits to friends or family	1.7	2.3
Celebrations on special occasions	3.6	4.2
Money to keep home decorated	2.2	1.9
Visits to school e.g. sports day	2.9	2.4
Attending weddings, funerals	2.2	2.9
Meat, fish or vegetarian equiv	4.3	2.8
Insurance of contents of dwelling	1.9	1.7
A hobby or leisure activity	1.8	1.9
A washing machine	1.4	1.5
Collect children from school	2.0	1.2
Telephone	1.0	1.1
Appropriate clothes for job interviews	2.1	1.4
Deep freezer/fridge freezer	1.9	1.5
Carpets in living rooms and bedrooms	2.7	1.8
Regular savings for rainy days	1.9	2.0
Two pairs of all weather shoes	2.0	1.9
Friends or family round for a meal	2.1	2.7
Money to spend on self weekly	1.7	1.5
A television	2.9	3.2
A roast joint/vegetarian equivalent weekly	3.0	2.6
Presents for friends/family yearly	2.6	2.4
A holiday away from home	1.7	1.9
Replace worn out furniture	1.8	1.8
A dictionary	3.2	2.0
An outfit for social occasions	2.8	2.6

Note: due to multiple tests you can expect 1 in 20 items to be misclassified e.g. shown as not significant when in reality they are or vice versa

The odds ratio table above shows that respondents who don't have and can't afford beds and bedding for everyone in the household are 40% (1.4 to 1) more likely to have reported that their general health over the last 12 months was 'not good'. They were also 50% (1.5 to 1) more likely to have reported a Limiting Long Term Illness. However, in both these cases the 95% confidence intervals for these odds spans 1.0 to 1.0 so they do not provide evidence to reject the null hypothesis.

Odds Ratios for Can't afford Necessities by Perceptions of Poverty Variables
(Items highlighted in bold are not significant at the 5% level)

	Poor All the time	Poverty	Absolute Poverty	Overall Poverty
Beds and bedding for everyone	4.7	8.1	10.0	7.6
Heating to warm living areas	8.0	6.1	4.6	5.5
Damp free home	6.2	4.9	4.0	4.3
Visiting friends or family in hospital	6.2	4.0	3.5	4.2
Two meals a day	17.0	12.9	20.8	33.6
Medicines prescribed by doctor	1.3	5.0	2.3	3.2
Refrigerator	28.0	5.7	21.0	11.3
Fresh fruit and vegetables daily	10.1	7.6	7.1	8.5
A warm waterproof coat	8.3	5.8	8.7	6.6
Replace broken electrical goods	8.7	8.6	6.0	8.0
Visits to friends or family	9.6	6.0	5.0	6.2
Celebrations on special occasions	7.7	6.8	8.5	11.4
Money to keep home decorated	12.1	8.4	7.6	7.5
Visits to school e.g. sports day	2.1	2.4	2.2	3.9
Attending weddings, funerals	7.1	5.5	4.4	5.0
Meat, fish or vegetarian equiv	10.1	9.4	6.7	8.3
Insurance of contents of dwelling	7.3	6.1	5.7	5.7
A hobby or leisure activity	7.7	8.2	5.3	6.5
A washing machine	5.1	3.6	3.2	4.8
Collect children from school	2.8	3.0	2.7	3.9
Telephone	6.8	9.0	10.0	12.7
Appropriate clothes for job interviews	7.6	6.2	6.4	6.2
Deep freezer/fridge freezer	1.6	3.6	4.9	3.9
Carpets in living rooms and bedrooms	10.4	7.5	4.9	4.8
Regular savings for rainy days	8.9	7.8	8.0	6.0
Two pairs of all weather shoes	9.9	7.1	7.6	7.4
Friends or family round for a meal	10.9	8.1	6.7	7.4
Money to spend on self weekly	10.2	10.1	9.5	10.1
A television	6.2	3.8	0.9	2.5
A roast joint/vegetarian equivalent weekly	7.6	8.1	6.8	7.1
Presents for friends/family yearly	12.0	8.5	10.5	10.3
A holiday away from home	8.4	8.6	7.1	6.6
Replace worn out furniture	8.1	6.0	5.1	6.1
A dictionary	6.2	8.4	6.9	9.8
An outfit for social occasions	6.5	8.2	9.4	8.3

**Possible invalid indicator summary table
(scores of 2 or more probably denote lack of validity)**

	Number of non significant validity indicators
A television	5
Medicines prescribed by doctor	4
Refrigerator	3
Beds and bedding for everyone	2
A washing machine	2
Telephone	2
Deep freezer/fridge freezer	2
Visits to friends or family	1
Visits to school e.g. sports day	1
Collect children from school	1
Appropriate clothes for job interviews	1
Carpets in living rooms and bedrooms	1
A dictionary	1

Step 4 – creating a reliable index of deprivation

After establishing that the individual deprivation index components are all ‘preference-free’, ‘politically’ and ‘scientifically’ valid, it is necessary to establish that they also form a reliable scale. This can be accomplished using through a classical test theory model by calculating Cronbach’s Alpha (SPSS Reliability) for each deprivation item and removing all items in the index that would increase Alpha if the ‘Item was deleted’

Unreliable items (e.g. those that do not decrease alpha) are highlighted in bold below.

RELIABILITY ANALYSIS - SCALE (ALL)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
BEDDING	1.7933	11.2818	.1322	.8856
HEATING	1.7731	11.0271	.2866	.8841
DRYHOME	1.7451	10.8976	.2723	.8848
HOSPVIS	1.7684	10.8517	.4169	.8821
TWOMEALS	1.7942	11.2200	.2790	.8847
MEDICINE	1.7882	11.2097	.1938	.8851
FRIDGE	1.7981	11.3349	.0914	.8859
FRUITVEG	1.7588	10.6511	.5181	.8802
COAT	1.7627	10.7136	.4947	.8808
ELECGOOD	1.6854	9.9423	.6552	.8760
FAMVISIT	1.7754	10.9993	.3297	.8835
CELEBS	1.7834	11.0781	.3160	.8838
DECORATE	1.6652	9.7873	.6810	.8751
VISCHOOOL	1.7816	11.2179	.1363	.8858
WEDFUNER	1.7729	10.9941	.3164	.8837
MEATFISH	1.7823	11.0514	.3361	.8836
INSURANC	1.7191	10.3929	.5079	.8800
HOBBY	1.7327	10.3996	.5561	.8789
WASHMASH	1.7890	11.2390	.1582	.8854
COLLKIDS	1.7819	11.2045	.1534	.8856
PHONE	1.7869	11.1525	.2604	.8845
CLOTHJOB	1.7592	10.7348	.4536	.8814
DEEFPREE	1.7843	11.1536	.2315	.8848
CARPET	1.7725	10.9000	.4039	.8824
SAVINGS	1.5603	9.6018	.5945	.8792
TWOSHOES	1.7412	10.5359	.5043	.8801
FAMMEAL	1.7415	10.4585	.5590	.8790
MONEYSEL	1.6694	9.8869	.6412	.8764
TV	1.7981	11.3376	.0774	.8859
ROAST	1.7665	10.8233	.4278	.8819
PRESENTS	1.7688	10.8234	.4455	.8817
ANHOLS	1.6305	9.8834	.5653	.8792
FURNITUR	1.5920	9.6236	.6231	.8777
DICTION	1.7877	11.1401	.2871	.8843
OUTFIT	1.7586	10.7528	.4357	.8817

RELIABILITY ANALYSIS SCALE (ALL)

Reliability Coefficients

N of Cases = 1534

N of Items = 35

Alpha = .8853

Possible unreliable items are;

	Increase in Alpha if deleted
A television	8859
Refrigerator	8859
Visits to school e.g. sports day	8858
Beds and bedding for everyone	8856
Collect children from school	8856
A washing machine	8854

Validity and Reliability Summary Table
(Note index Alpha = .8853)

	Number of non significant validity indicators	Level of reliability (bold = unreliable)
A television	5	8859
Medicines prescribed by doctor	4	8851
Refrigerator	3	8859
Beds and bedding for everyone	2	8856
A washing machine	2	8854
Telephone	2	8845
Deep freezer/fridge freezer	2	8848
Visits to friends or family	1	8835
Visits to school e.g. sports day	1	8858
Collect children from school	1	8856
Appropriate clothes for job interviews	1	8814
Carpets in living rooms and bedrooms	1	8824
A dictionary	1	8843

Therefore Items that should be removed from the index as they are invalid and/or unreliable are;

- TV
- Fridge
- Beds and Bedding for Everyone
- A Washing Machine
- Medicines prescribed by a doctor
- Deep Freezer/fridge freezer
- Telephone
- Visits to School
- Collect Kids from School

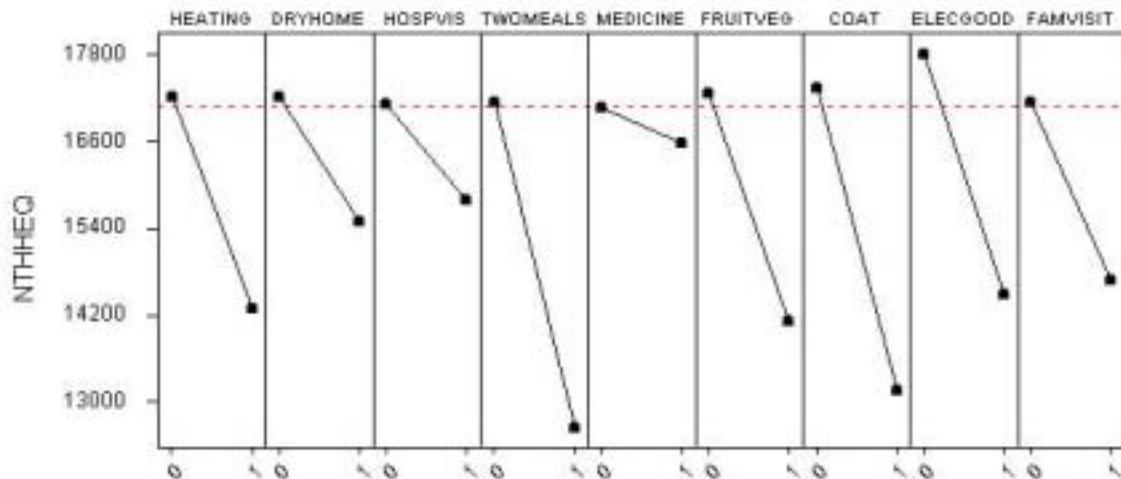
Removing these nine items produces a 26 item deprivation index which is valid and reliable.

Step 5 – checking the revised index is additive

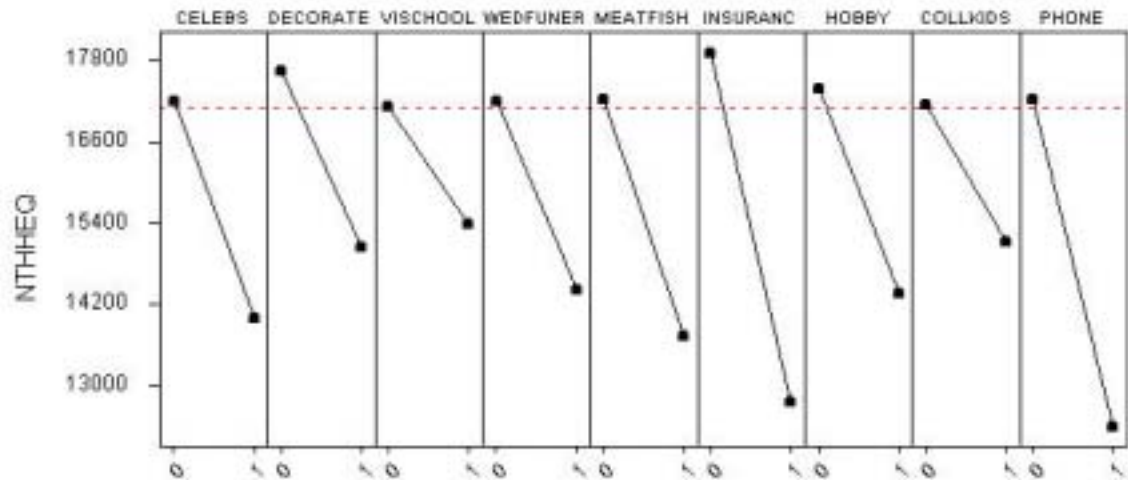
The components of any deprivation index should be additive e.g. a person or household with a deprivation score of three should be poorer than a person or household with a deprivation score of two. Some components of the index may not be additive, for example it is necessary to check that a respondent who ‘can not afford’ a hobby and a phone is poorer than a person who ‘can not afford’ a phone but has a hobby. There is no easy way to do this as the number of possible combinations with a 26 component index is huge (26 factorial) but it is possible to check that any two components are additive by looking at the second order interaction effects in a ANOVA with equivalised income as the dependent variable and all the components of the index as the 26 independent variables.

The main effects plots below show the mean amount of equivalised net household income of respondents who ‘don’t have and cant afford’ an item (dot on lower right of graph) compared with the income of those who gave another answer (e.g. have, don’t want, etc) for each of the 31 deprivation items. The dotted line is the average equivalised net household income for the PSE sample. Those who don’t have and can’t afford medicines do not have a very much lower average incomes than those respondents who gave other answers for this item (e.g. have, don’t want, etc). Respondents who don’t have and can’t afford two meals a day have a lot less equivalised household income (less than 13,000) than those that gave a different answer to this question.

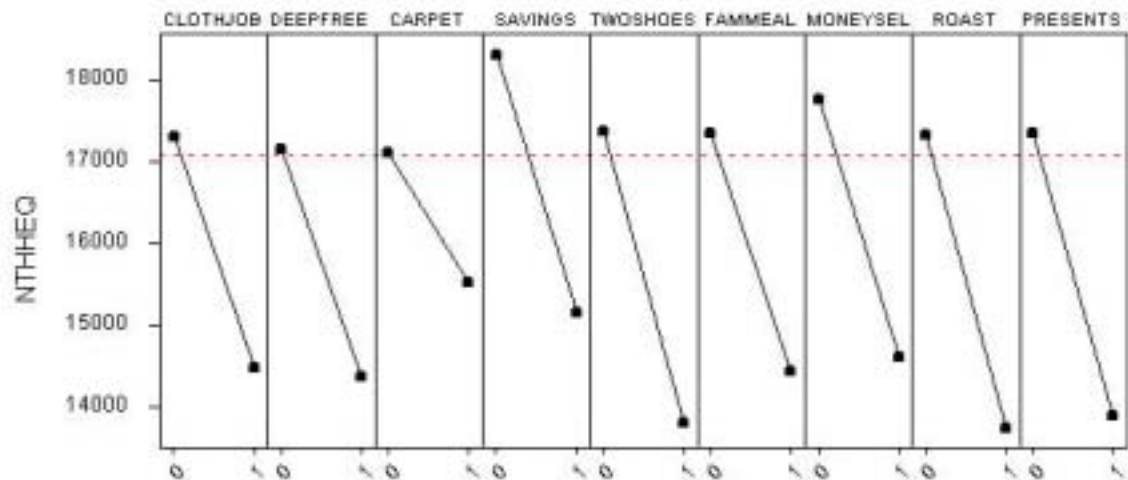
Main Effects Plot - Data Means for NTHHEQ



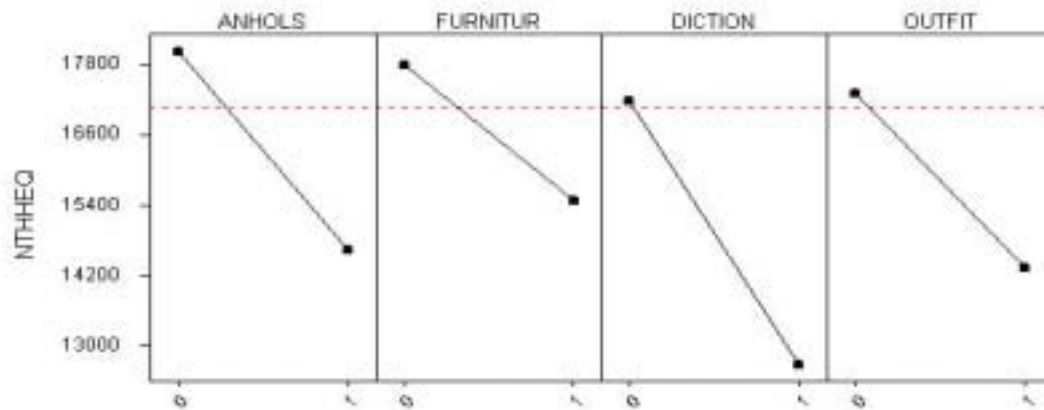
Main Effects Plot - Data Means for NTHHEQ



Main Effects Plot - Data Means for NTHHEQ



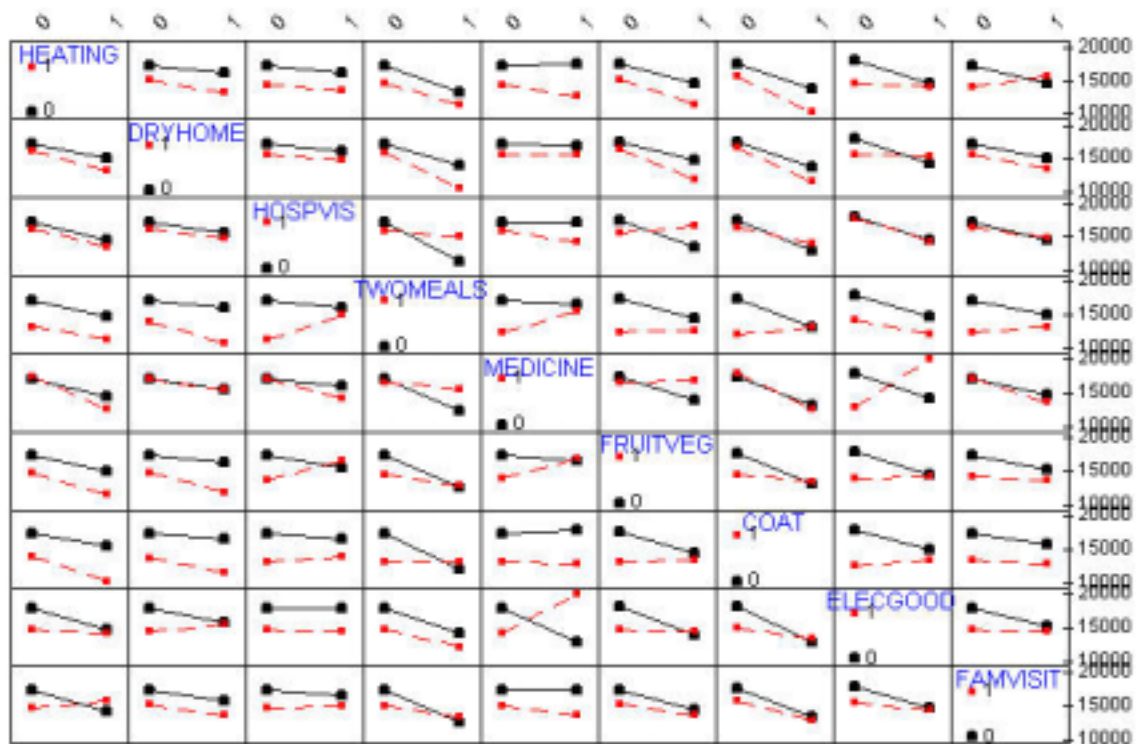
Main Effects Plot - Data Means for NTHHEQ



Some of the possible second order interaction plots are shown below. The first graph shows the interaction between heating (Heating to warm living areas of home if cold) and dryhome (A damp free home). The vertical scale on each graph is equivalised net household income which ranges between 10,000 and 20,000 and the horizontal scale is don't have and can't afford = 1 or other = 0. There are two lines on the each graph – a solid black line and a dotted red line. The first black dot on the solid line (top left) shows the average equivalised net household income of those respondents who had heating and a dry home. The first red dot on the dotted line (on the left just below the black dot) shows the income of those who cant afford heating but have a dry home e.g. its less. The second black dot on the solid line (top right) shows the income of those who can't afford a dry home but have heating and the second red dot on the dotted line shows the average equivalised net household incomes of respondents who don't have and cant afford heating and a dry home. Therefore respondents who don't have and cant afford both heating and a dry home are 'poorer' than respondents who can't afford just one of these items.

Two parallel line slanting from top left to bottom right indicate that the variables are additive. However, if the lines cross there may be problems e.g. the variables are not additive e.g. Medicine and Elecgoods. However, there will be a few graphs with crossing lines due to multiple test effects so only get concerned if there are variables which do not appear to be additive with several other variables e.g. medicines.

Interaction Plot - Data Means for NTHHEQ



Examination of the second order interactions showed that not being able to afford 'all medicines prescribed by a doctor' was not additive 18 other deprivation items. Similarly not being able to afford 'a deep freezer/fridge freezer' was not additive with 7 other deprivation items, so both these items were not included in the final valid, reliable and additive deprivation index.

4. Standards. Identifying the combined poverty line.

The 'objective' combined poverty line can be defined as the division between the 'poor' group and the 'not poor' group that maximises the between group sum of squares and minimises the within group sum of squares. This can be identified using the General Linear Model (in one of its forms e.g. ANOVA, Discriminant Analysis or Logistic Regression) to do this, controlling for income, deprivation and household size and composition.

Income outliers must be identified and removed prior to the GLM analysis using standard robust Exploratory Data Analysis techniques (e.g. Boxplots). This resulted in all households with net incomes above £895 per week, which is the equivalent of an annual income after tax of over £46,500 per year and approximately £77,500 gross annual income not being included in the final poverty threshold model.

General Linear Models (both ANOVA and Logistic Regression) were used to determine the scientific poverty threshold e.g. the deprivation score that maximises the between group differences and minimises the within group differences (sum of squares). These techniques were applied to a succession of groups created by increasing the number of

items that respondents did not have because they could not afford them. Thus, the first analysis was undertaken on groups defined by households lacking no items compared with households lacking one or more items (a deprivation score of one or more). Similarly, the second analysis was undertaken on a group comprised of households lacking one or no items against two or more items, and so forth.

The dependent variable in the ANOVA model was net household income and the independent variables were deprivation group (constructed as described above), number of adults in each household and the number of children in each household. With the Logistic Regression models the dependent variable was the deprivation group and the independent variables were net household income, number of adults and number of children. Both the ANOVA and Logistic Regression models yielded the same final result – that a score of two or more on the deprivation index was the optimum position for the poverty line. Summary results are shown in Table below;

Summary Table for ANOVA and Logistic Regression Models of Optimum Position for the Poverty Threshold.

Model	F Statistic for corrected ANOVA Model	Logistic Regression Model Chi-square
Null Model	26	
Deprivation score of 1 or more	45	145
Deprivation score of 2 or more	51	223
Deprivation score of 3 or more	45	205
Deprivation score of 4 or more	42	192
Deprivation score of 5 or more	36	170
Deprivation score of 6 or more	31	126

The summary table shows that the optimum position for the poverty threshold is a deprivation score of two or more.

4. Standards. Geographic disaggregation and time series.

Results are available for most European Union member states and many Latin American countries.

5. Resources for satisfying standards. Sources of information.

Household income and expenditure surveys which also include deprivation questions such as the European Community Household Panel (ECHP) survey or the Swedish ULF surveys.

C. Availability of regular established calculations.

Mack and Lansley's consensual approach has had a big impact on modern poverty research. Their original 1983 study was replicated in Britain in 1990 and 1999 (Gordon and Pantazis, 1997; Gordon *et al*, 2000), in Wales in 1995 and in Northern Ireland in 2002 (Hillyard *et al*, 2003). City authorities in the UK in London, Manchester, Liverpool and Kent have conducted similar surveys. The UK national statistical office used a similar set of questions to measure the standard of living of disabled adults and families with disabled children in Britain in 1985 (Martin and White, 1988; Smyth and Robus,

1989). Similarly, representative surveys were carried out by the PPRU amongst disabled people in Northern Ireland in 1990 and 1991 (Zarb and Maher, 1997). The European Statistical Office (Eurostat) has used a similar set of questions to measure standard of living in all European Union member states annually since 1994 as part of the *European Community Household Panel Survey* (Ramprakash, 1994; Vogel, 1997). This approach to measuring poverty and standard of living has also been used in Denmark (Mack and Lansley, 1985), Sweden (Halleröd, 1994, 1995, 1998), Ireland (Callan, Nolan and Whelan, 1993; Nolan and Whelan, 1996), Belgium (Van den Bosch, 1998), Holland (Muffels *et al*, 1990; Muffels and Vreins, 1991; Muffels, Berghman and Dirven, 1992), Finland (Kangas and Ritakillio, 1998), Germany (Andreß and Lipsmeir, 1995), New Zealand (Krishnan, Jensen and Ballantyne, 2002; Jensen *et al*, 2002) and Vietnam (Davies and Smith, 1998).

E. Challenges, options, and shortcomings.

The measurement of command of resources using the net usual weekly household income is not ideal and the Canberra Group's proposals would if implemented yield a more reliable and valid estimate of household incomes. Further research is needed on the best methods for equivalising household income in different countries.

Combined poverty measures are not used routinely in government surveys except in Ireland. The list of deprivation items and activities are chosen by researchers, albeit this does not appear to be an important criticism given that there is a very high correlation between deprivation scores and the likely statistically true scores as estimated by classical test theory analysis.

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