

7. Different Dimensions of Poverty

Matching alternative data sources to Survey Observations in Measuring the Dimensions of Poverty

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1. Introduction

For policy making and analysis, a single sample observation or data point conveys little meaning. Such a number takes on real significance only when placed in the context of other information collected in similar circumstances under the same definitions or when it is related to some earlier observation of the same phenomenon or a related variable. Ideally, it needs to be situated within a recognizable framework or model that has conceptual meaning, and relates different pieces of data to other measures in a way that allows analysts to presume certain inter-linkages and patterns of behavior. Hence, the rationale (and, moreover, need) for blending regular administrative reporting with cross-sectional surveys as a method of generating data that, in principle, could be (and should be) more logically and coherently inter-related and mapped to other characteristics.

This is, inevitably, much easier said than done. There are several basic and often intractable statistical problems that must first be overcome to integrate methodologies. Then there are also some more evident practical issues that need to be addressed before it is possible to make best use of file and survey data that can be combined with other information to enable policy makers to identify the various dimensions of a problem and address each dimension accordingly.

2. Indicators of Poverty

Unfortunately, in an era where statesmen, politicians, policy makers and managers resort to "sound bites" and "bullets" there is an increasing tendency to refer to single statistical measures to describe issues, as well as indicate priority concerns and achievements. While this is understandable, it carries with it the danger that some problems will become uniquely perceived in this superficial way. More important, there is growing evidence of the adoption of such measures as key elements in the monitoring of policy and as indicators of its success. Along with the familiar data icons as "income per head", "growth rate", "inflation" and "infant mortality" or "life expectancy", each of which has already become a well established goal of policy in many countries, there is growing reference to, for example, "Green GNP" and "poverty datum lines (PDL)". These are viewed both as articles of faith and of political intention in respectively formulating environmental policy and in defining strategies for poverty alleviation.

*The views expressed in this paper are solely the responsibility of the author and do not in any way represent the official position of the World Bank.

This latter statistical artifact, the PDL, is widely recognized in the technical literature as being arbitrary and sensitive to alternative assumptions (particularly if the underlying income or consumption distribution is heavily skewed). It is a money-metric indicator that attempts to define income inadequacy. But it is used primarily to signal only one aspect of poverty; namely, "how many" are poor — according to the specific low income threshold that has been selected to define the PDL. It says little about "who" are poor or, explicitly, anything about the depth and nature of their poverty. Furthermore, it reveals nothing about where the poor are most likely to be found and why they might be poor. To answer all such inter-related questions, it is important not only to investigate the many non-monetary dimensions of poverty but also to examine its prevalence, sequential incidence and changing pattern over time. Only then is it possible to understand why, especially in developing countries, so much poverty is largely a legacy handed down through successive generations of poor households. These are the same households who have been excluded access to assets and income opportunities and who continue to have only restricted access to such facilities. There is a lasting negative impact of such limitations to being able to use goods and services that could enhance well-being over time because, for example, malnourished mothers bring up malnourished children who have less chance to gain a decent education and thus have fewer opportunities to obtain satisfactory employment with sufficient income to improve their well-being.

3. The Scope of the Measurement Problem

The persistence of poverty for more than a billion people in the world continues to be the foremost development challenge. Poverty exists and always has existed but often remains chronic in developing countries. This is not only a truism in relative terms but a fact in an absolute sense. The key question facing policy makers is how to alleviate poverty. In particular, how can those with power and responsibility help those who are born poor to escape their poverty? There remains a major gap in the current armoury of statistical measures to evaluate and monitor poverty in developing countries not least because surveys are few and far between, often do not reach out to the really poor, and are generally not integrated in a way that can capture the various interconnected features of poverty. Thus, the ability to track what happens to those families who are poor and who remain poor for most of their lives, why this happens and which of these families are able to escape poverty and by what means does not exist. Panel data and mapping information to throw light on this important problem is needed so that analysts can devise meaningful strategies for poverty alleviation.

By presenting various matrices of observed conditions of poor households, it is possible to draw attention to the inherent complexity and inter-connected skeins of influence surrounding the problem, in different countries of implementing appropriate policies of poverty reduction. This paper puts forward some measures that help to identify the chronically poor—who are not always those solely suffering from special disabilities but who are inextricably linked into certain institutional constraints. Why, despite economic growth, such groups continue to exist is discussed in a variety of papers¹.

4. Measuring all the Facets of Poverty

Comprehension of the nature of poverty and, hence, of the root causes of its persistence requires therefore information on all the above aspects of its nature. Such

1. See, for example, M. Ward "Dimensions of Poverty and directions of Measurement." ECLAC Conference on Poverty, Santiago, May 7-9, 1997.

knowledge will help arm policy makers to design strategies that will have the biggest impact on its alleviation. Given the various characteristics of poverty described in Appendix I, the main statistical tools required to capture the stock and flow components of household poverty across a country and over time, and to assess its economic and social significance are:

1. Household surveys (such as the Living Standards Measurement Surveys), linked to census data. [To measure “who”, “how much” and “how many”].
2. Urban and Rural GIS information, also linked to census data. [To determine “where” and “in what concentration”].
3. Administrative records, reporting on a regular basis on official delivery systems, ideally by function and by recognizable (if not identifiable) recipient. [To understand “why” certain people remain poor].

Many would argue that even these are not sufficient and that, over and above this information, analysts and administrators need carefully designed panel studies (in effect these can be folded into the design structure of household surveys) because of the importance of measuring the impact of policy on certain control groups. They also need to supplement such information with intra-household enquiries to take account of the varying incidence – for mostly cultural reasons but also reasons of economic priorities – of poverty across the age and gender divide and, particularly, as this impacts on malnutrition within families. Added to this it is useful to implement time-use studies to help understand how the better provision of public goods can save scarce resources and enhance the well-being of poor households.

5. The Dimensions of Poverty

Various simple matrices in only two dimensions such as malnutrition and income deficiency (but with other related elements determined by their sub-components), can define a set of simple frameworks for integrating and inter-relating various poverty characteristics. Each matrix adds a different dimension to the first while anchoring new data on the essential structure and categories of other matrices to provide some depth of perspective. It should be noted, however, that the implicit totals of people affected by different characteristics in an extended dimensional framework are not independent or mutually exclusive. Being summary values, they “hide” where – and in how many different situations – individual households may be located and how they change. For policy purposes, it is helpful to list these households, individually, by the classification schema adopted if, for example, the intention of policy is to target specific family welfare support.

6. World Bank Approach to Poverty Assessment

The typical World Bank country poverty assessment analyzes three things:

1. Who are the poor? What are the economic, demographic, and social characteristics of the poor?
2. Why are they poor? (To underline the need to review the major macroeconomic and regulatory issues that impede poverty reduction.)
3. What can be done to reduce poverty? Identifying the specific policy and public expenditure changes that can help to reduce poverty more effectively. [This is clearly related to the “depth” of poverty].

The World Bank recognizes it is essential to go beyond humanitarian holding measures and related short term palliatives of family safety nets and to develop an integrated multi-dimensional strategy. This should also help reduce household vulnerability to poverty. As part of its own poverty reduction approach and recognition of the need for greater equity and involvement, the Bank has significantly increased its lending to the social sectors, especially health and education, and encouraged countries to improve the efficiency and effectiveness of their overall macroeconomic policies so that the benefits of growth can be redistributed more equitably throughout the population.

In support of poverty and living standards measurement, the Bank compiles and broadly disseminates, through a wide variety of instruments, the following information:-

- Levels of poverty among the population associated with National poverty datum lines separately distinguishing between urban and rural areas.
- Internationally comparable measures of poverty based on a predefined "standard" poverty level across all countries (1 US dollar per head per day in "equivalent" purchasing power parity terms).
- Social indicators based on administrative registers and survey results.
- Living Standards Measurement Surveys (LSMS) that provide data on production, income and expenditure patterns at the household level as well information on the general conditions of living and access to public services and amenities.
- Other community related and household based surveys for selected countries such as the "Core Welfare Indicators Questionnaires" (CWIQ) that illustrate household and individual status, provide policy performance measures and generate indicators to help monitor changes in welfare.
- For specific years and sectors, like health and education, assessments of the benefits and cost/tax burden by population groups of providing such services in particular, in the receipt of "free" or "below cost" services, and the analysis of "who pays" v. "who receives" consumption goods and services used by households.
- Special research studies that examine such questions as "do the poor pay more?" and "do they pay more for their food?"; "what are the types of sources of goods and services poor people consume?" and "who stay poor and why?"

Much of this information can now be found in the Bank's "World Development Indicators" and "Atlas" publications and accompanying CD-ROM that provides extensive time series data.

7. Concluding Remarks

The importance of defining all the various dimensions of poverty and their inter-linkages is to draw attention to the enormous difficulty of identifying any single strategy, particularly a macro-economic one, to solve all the issues. Many countries are still looking at exchange rate adjustments, pricing policies and fiscal and monetary initiatives - and perhaps, specifically, economic growth and particularly "redistribution with growth" and "poverty focused growth" - to achieve their goals. Such desirable strategies are not always feasible, however given other macro conditions and institutional constraints and can they can rarely be attained at a level significant enough to make serious in-roads into the magnitude and underlying momentum of poverty.

Basic Needs		
Income/consumption		
Assets	Physical capital (including land)	Public/government
		Private
		Common 'rights' property
	Human capital	
Human rights	Dignity/autonomy	
	Political freedom and security	
	Equality (gender and ethnic)	

Figure 1: Typology of poverty concepts

Absolute	Calorie requirement	Calories only Calorie cost divided by food share
	Basket of goods (including food)	Calorie intake plus basket of other goods (costed or estimated by fixed percentage uplift based on total consumption patterns)
Relative	Relative to income base	Multiple of wage Share of mean income or expenditure
	Specific percentage of income distribution	

Figure 2: Typology of poverty lines

Appendix I

Measuring the Characteristics of Poverty

Apart from the separate question of assessing "vulnerability," there are, fundamentally, two primary "superficial" (that is outwardly visible) dimensions of poverty. These relate to *flows* of income-or more strictly, "incomings"-to poor households, and the inter-related *stock* or status of poor people and their families. The two features, naturally, are often closely correlated but overlaying this distinction, is the inevitable legacy of poverty inherited from progenitors who were themselves poor. The inability of chronically poor people to gain access to the range of assets and services that might alleviate their poor condition, represents one of the major problems to be solved.

Logistically, none of these measures provide any direct link with the nature of the poverty policy itself-as distinct from general economic progress and macro strategy-but each aspect delivers a particular message and helps send a specific signal to those concerned with improving the situation of poor people.

Flow Measures

a. Single Dimension

(i) Poverty Datum Lines (PDL)

To determine the number of people who are poor, and-to a more limited extent-to identify who are poor, various approaches are applicable.

- Relative; pre-defined share, say 40%, of a given average income, e.g. mean, median or mode and percentile levels.
- Absolute; national, urban, rural. Based on minimal nutritional requirements, basic needs, etc. can be adjusted for actual expenditures made and prices paid by poor households.
- Comparable; 1\$ per person per day in 1985 international prices (purchasing power parity comparisons).

Problems of Determining Valid PDLs

- Better to use income or consumption?
- How to incorporate the value of non-market (own produced) consumption of goods and services
- Should the measures relate to household, family or individual standards? (Variations in household size and composition over time and between areas, within and between countries, can distort the significance of changes and observed differences in poverty).
- What to do when the survey reference base is truncated, or not comparable and not consistent over time? (See Annex)
- What value should be applied to non-priced goods and services?
- What prices do poor people pay? Are they higher or lower than average? For which products?

- How are different measures of poverty affected by the underlying income distribution?
- What is the inherent scale of preferences of poor families? How does this change? Difficulties of identifying "target" groups.

(ii) **Poverty Gap Measures**

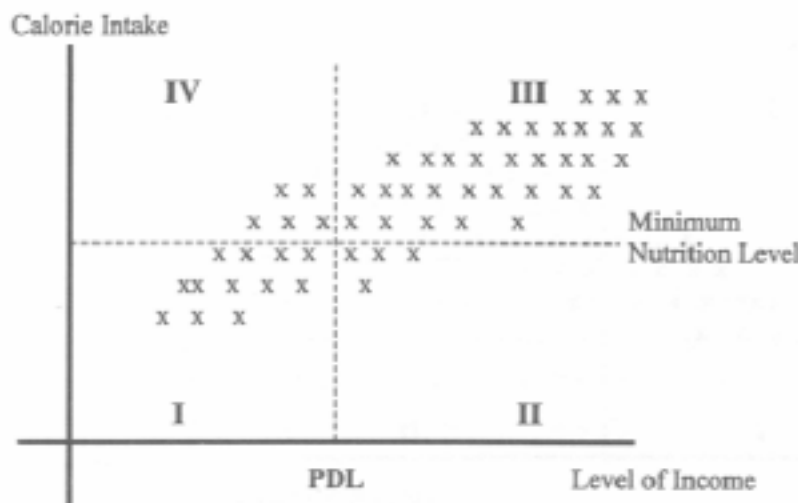
The mean shortfall below the poverty line (defined as the level of income that represents zero shortfall) expressed as a percentage of the poverty line. This reflects depth of poverty and its incidence. Both PDLs and poverty gap measures are strongly affected by the concentration of income in particular parts of distribution "bunching".

(iii) **Simple Indicators**

- Infant mortality
- Life expectancy
- Literacy levels
- Services delivered (received)

b. **Two-Dimensional**

(i) **Poverty (Income or Consumption) and Nutrition (Calorie Intake)**



Notes

People (households) in quadrant I are clearly "Poor".

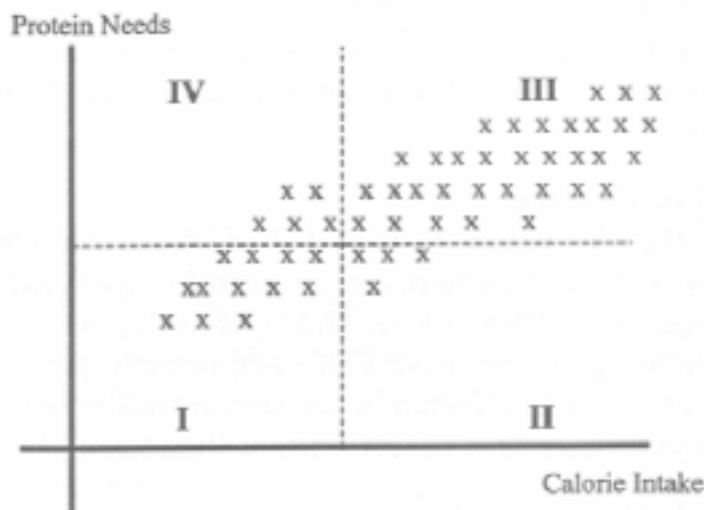
Those in quadrant III are, equally, "Non-Poor".

But those in areas II and IV are poor according to different criteria.

Those in II have enough income but do not eat enough to subsist satisfactorily (perhaps because they do not have good access to food or sufficient education to choose a proper diet).

Those in IV do not have sufficient income (apparently) but eat more than enough to survive (own farming? good resource use and nutritional practice?). So, depending upon how well they manage their income or nutritional requirements (diets), people in these groups may be poor or not.

(ii) Nutritional Intake (Calories) and Protein Requirements



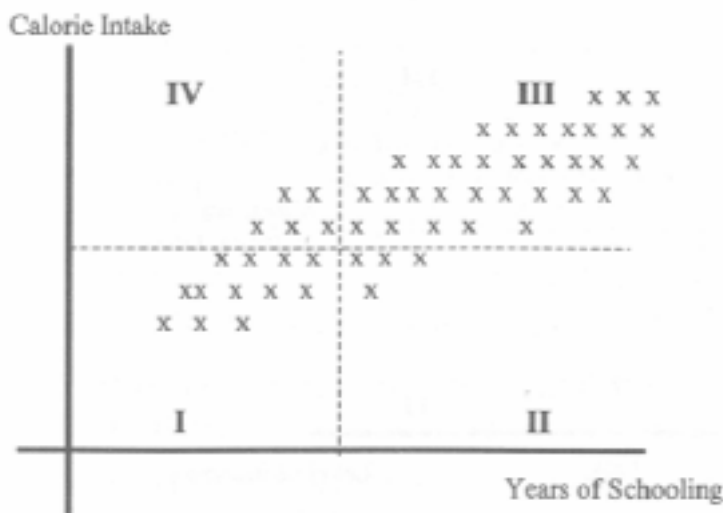
Notes

Again, quadrant I households must be a focus of policy.

Quadrant III have enough basic nutrition and protein to lead healthy lives.

Quadrants II and IV demand policy attention.

(iii) Nutrition and Education



c. Multi-dimensional

These cannot be shown so easily in graphical form, but can be analyzed by defining, first, basic reference states, e.g. urban, rural; industrial, agricultural; employed, unemployed; educated or uneducated-or more complex inter-related categories of them, e.g. urban industrial unemployed, and plotting the key characteristics concerning income and nutritional flows, etc. each group faces.

Stock Measures

a. Single Dimension

(i) Economic

- Ownership of land, property, productive assets
- Skills and job experience
- Economic “engagement” status (i.e., occupation, employment).
- Possession of financial and other liquid assets, e.g. jewelry, (as a protection against “vulnerability”).

(ii) Social

- Housing quality and location
- Services, private and collective, available
- Access - physical, economic (cost), legal and institutional-to supporting services and facilities
- Human Capital
 - Education (level)
 - Health (status)

(iii) Intangibles

- Independence
- Security
- Political freedom
- Equality

b. Multi-Dimensional

The association of assets - physical capital (communal and personally available) and human capital-with basic rights and access to conditions that can improve peoples standards of living (see Tables 3, 4 and 5).

Appendix II

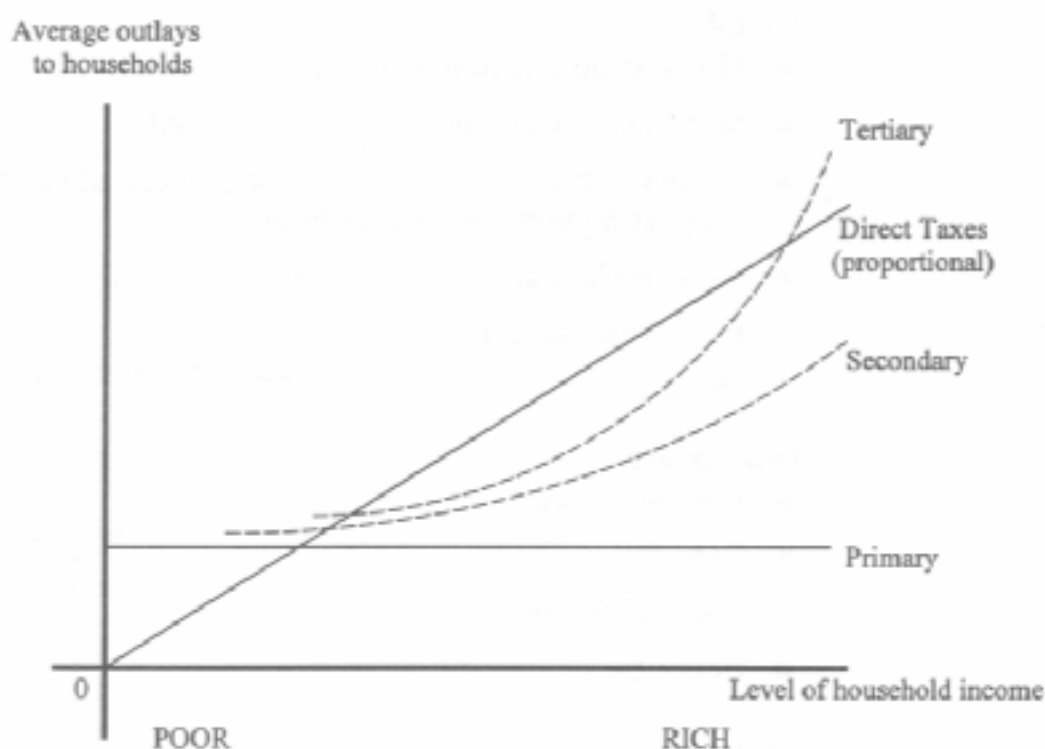
Tracking Official Policies; Beneficiary Assessment and Benefit-Incidence Analysis

1. The Impact of Service Delivery on Households

Techniques are being developed to try and track more effectively the impact of government policies on the population in general and specific target groups in particular. Through household income and expenditure surveys, specific user-service studies and extensions to existing administrative procedures, administrations are now better able to assess their effectiveness, to focus more effectively on groups at risk and determine appropriate priorities. Furthermore, through the more exact linking (at the minimum, at the classificatory and definitional level) of household survey data with administrative

files, some authorities have been able to provide a more transparent picture of the way their services and facilities are used by different people and household groups. In the area of providing public health and educational services of different types this has important implications for understanding how real opportunities are made more open to the poor and how such services are effectively delivered to them. The diagram below provides an interesting illustration of how such more detailed functional analysis of expenditures can be linked to households of different income levels and tell an interesting story that has policy relevance.

**INCIDENCE OF PUBLIC EXPENDITURES ON EDUCATION
ON DIFFERENT INCOME GROUPS**



The table shows:-

- a) Richer households are the major recipients of public expenditures on education.
- b) The rich are the major beneficiaries, paying in taxes relatively less for the services they receive.

Notes

Many Poor and Middle Income households do not get access to Tertiary Education because they do not complete secondary schooling-- mainly because of real and opportunity cost factors.

For higher income households, the relative incidence of direct taxes may even decline as total incomes rise, thus increasing the net benefits to them.

Tertiary education costs (per pupil) are higher than those for secondary and primary (the lowest) education.

2. The Impact of Price Differences

In the area of personal expenditures and, particularly, food consumption outlays, studies are being carried out in a number of African countries under Bank auspices to determine whether the poor pay more for their food and whether what they receive for their money is of the same quality as that generally available in the market. It is argued that because the poor tend to buy in small quantities, are not regularly able to shop at the cheapest outlets and often have to buy when cash is available rather than when market conditions are favorable, there are many more living below "national" poverty data lines than is officially reported. A broad measure of such disparities, and of the differences between urban and rural areas, has been obtained from the detailed outlet specific price and expenditure surveys carried out under the ICP purchasing power parities exercise.

Determining the relationships between economic and social status and the delivery of public services and specific policies is an area of investigation that would clearly benefit from further expansion, if governments are serious about improving the effectiveness of their poverty reduction programs.

Table 1: Indicators of changing well-being per household with declining income

Variable	Percentage of households	
	1963-66	1982-84
Residing on patron's land	31	0
Taking loan from other besides patron	13	
Withdrawing children from school during crop season	17	6
Having ready cash at home of Rs200 or more during the off-season	0	26
Relying on day-to-day petty purchases of key provisions	100	51
Occasionally consuming green vegetables in non-crop season	0	100
Consuming rice on non-festive occasions	0	14
Women and children regularly wear shoes	0	36
House with separate room/space for human and animals	6	32
Possessing radio	0	7

Source: N.S. Jodha "Poverty Debate in India: a Minority view" *Economic and Fiscal Weekly*, 1988.

Table 2: Numbers of main groups of the poor

Group	Number (millions)	Percent share
Ethiopia (share of poor)		
Chronic poor	16.50	61.7
Drought affected	7.40	27.5
Refugees	0.49	1.8
Displaced returnees and ex-soldiers	2.10	7.3
Redundant civil servants	0.33	1.2
Total poor (millions)	26.9	100.0
Uganda (share of population)		
Orphaned, displaced and abandoned children	0.73	4.3
The handicapped	1.25	7.3
Members of female headed households	3.73	21.9
Older people and their dependents	-	-
Landless persons	-	-
The North (Karamoja)	3.15	18.3
Population (millions)	71.2	-

Source: Ethiopia and Uganda Poverty Assessments

Comments

by

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Michael Ward's paper is mainly concerned with deprivation in the undeveloped countries, stressing the importance of using many data sources in measuring the different dimensions of poverty. The same is true even if our main concern is relative poverty. Using data from a welfare survey in Finland it is shown that different poverty measures seem to identify different groups of poor. The importance of getting more information about the factors contributing to households in poverty and helping them to escape from poverty is stressed.

1. Introduction

In his paper Michael Ward raises several important issues. Ward in particular stresses the importance of using many data sources in measuring the different dimensions of poverty. If we are interested in the factors causing poverty and in the persistence of poverty, is it of very little use to know, for example, only the proportion of households or individuals with incomes below a certain poverty line at a certain point of time. Also, depending on what criteria we use for classifying a household as poor, the picture of poverty might change dramatically.

Michael Ward is mainly interested in poverty in developing countries. Of course, as about 1.3 billion people still live on less than one US-dollar per day, there can be no doubt about where the main battle against poverty should be fought. On the other side, we should not forget that poverty is still a major problem even in the advanced countries. As pointed out by A.B. Atkinson:

"The relief of famine and the redistribution of world income has priority, but hardship in advanced countries may legitimately come second on the list of our concerns." ([1], p. 3)

Naturally, poverty in the developed part of the world is more a question of deprivation than destitution, more about ability to take part in the functioning of the society than to physically survive. Poverty in the Netherlands or Finland is something completely different than poverty in, for example, Zambia or India. What, however, from a scientific point of view is common to both cases is that poverty has many dimensions.

2. The Dimensions of Relative Poverty

As our research group in Turku has been mainly dealing with statistical problems in the measurement of poverty in industrialised countries, I will try to complement Ward's paper with an example showing that when measuring relative poverty our results will also depend heavily on which figures we choose to look at. In 1995, Olli Kangas and Veli-Matti Ritakallio at the Dept. of Social Policy at the University of Turku made a mail survey, addressing among other things the level of welfare and subsistence of the Finnish population (see [3]). The target population was the total Finnish population between the ages of 18 and 70 and the sample design was a simple random sample of individuals. The original sample size was almost 3000 individuals and the effective response rate was about 65%. The main methodological objective of the study was to investigate to what extent the conclusions concerning the extension and location of poverty changed, due to the choice of the poverty measure. Without going into details, the five measures compared could be characterised as:

1. Low relative income
2. Consensual deprivation
3. Subjective feeling of scarcity
4. Overindebtedness
5. Reciprocity of social assistance

Depending on which measure was used, the proportion of poor individuals varied between 8.5 and 12.6 per cent, which for various reasons is much higher than the poverty rates calculated from the mainly register-based income distribution survey conducted by Statistics Finland. What from a methodological point of view, however, is more interesting is that the connection between the poverty measures seems to be relatively weak (see Table 1).

Table 1 The overlap between different poverty measures (%)

Povert measure	Low Relative Income	Consensual Deprivation	Subj. Feeling of Scarcity	Over-indebtedness	Rec. of Social Assistance
Low Relative Income	100.	31.9	20.7	18.9	17.8
Consensual Deprivation	18.9	100.0	34.9	25.8	30.8
Subj. Feeling of Scarcity	19.5	50.3	100.0	51.0	35.1
Overindebtedness	14.0	29.6	39.9	100.0	22.2
Rec. of Social Assistance	16.7	45.2	35.3	27.5	100.0

Note. Rows indicate overlap. For example, of those with low relative income only 17.8% were also recipients of social assistance.

We note that especially the correlation between low income and the other poverty measures seems to be rather low. Similar results have been found also in other studies (see e.g.[2]).

For policy making, it is of course very important to know in which segments of the population the poverty risks are highest. In Table 2 we list for some commonly used background variables the categories with the highest poverty risks for each of the above mentioned five measures of poverty.

Table 2. The population groups with the highest poverty risks

Pov. Measure Population group	Low relative Income	Consensual Deprivation	Subj. Feeling of Scarcity	Overindebted- ness	Rec. of Social Assistance
Labour mar- ket status	Student	unemployed	unemployed	unemployed	unemployed
Education	basic level	basic level	basic level	basic level	vocational /college worker
Socio-eco- nomic stat.	farmer	worker	worker	self- employed	worker
Parents	farmer	worker	self-employed	self- employed	low, white- collar
Parents recip. of Soc. ass	no	yes	yes	yes	yes
Type of house- hold	single	solo mother/ father	solo mother/ father	solo mother/ father	solo mother/ father
Number of children	three or more	no children	two	two	three or more
Age	-25	-25	35-44	35-44	-25
Family status	bachelor	divorced	divorced	divorced	divorced
Gender	male	male	male	male	male
Place of residency	small village	bigger city	small village	small village	bigger city

Classifications: Labour market status: full-time work, part-time work, unemployed, student, retired; Education: basic level, vocational/college, university; Socioeconomic status: farmer, self-employed, worker, lower white-collar, upper white collar; Parents: farmer, self-employed, worker, lower white-collar, upper white collar; Parents' reciprocity of social assistance: no, yes; Type of household: single, couple, no children, couple with children, solo mother/father; Number of children: no children, one two, three or more; Age: -25, 25-34, 35-44, 45-54, 55-64, 65-70; Family status: bachelor, married, divorced, widow; Gender: male, female; Place of residence: small village, small town, bigger city.

Again we see that we get quite a different picture of what the risk factors of poverty are if we concentrate on low incomes rather than using the other more direct poverty measures.

3. The Dynamics of Poverty

I fully agree with Michael Ward in his plea for more information about the duration of poverty, the factors bringing households into a situation of poverty and those helping them to escape from poverty. As more and more panel data sets on household income and welfare become available, it will also be possible to use statistical techniques for life event analysis in poverty studies.

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