



# THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

## CONCEPTS OF POVERTY AND THE POVERTY LINE

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## 1. Introduction

This second working paper of the project on income distribution, poverty and usage of state services focuses on the various concepts of poverty and derived poverty lines which have been developed and applied in the literature. The first working paper surveyed previous studies which examined the extent and nature of poverty in Ireland. It was clear from that survey that a quite limited conceptual approach was common to almost all these studies, in that they used poverty lines based on official social security payment rates. The objective of the present paper is to describe and, to some extent, to assess various other conceptual approaches to the measurement of poverty and the derivation of a poverty line. A number of these approaches will be applied to the data currently being gathered on a large sample of Irish households.

In actual implementation, many issues arise with respect to the most appropriate recipient unit, the measurement of income or resources, the time-period covered, how to relate families/households of different size and composition, and so on. Here we shall not be dealing with these questions, concentrating at a more general level on the way in which different concepts lead to different methods of identifying the poor. Nor will the paper deal with the further range of problems which arise when attempting to go beyond merely 'counting the poor' to measuring the intensity of poverty, and the various summary measures of poverty taking this into account which have proliferated in the recent literature. These questions will be addressed in further work, but the specific topic we focus on is more than sufficient to warrant separate consideration.

The paper begins with a general discussion of the nature of the problem and the approaches which have been developed and used to identify the poor in developed countries. The following sections deal in more detail with a number of the more recently developed approaches, attempting throughout to elucidate the relationship between them in terms of underlying concepts of poverty and methodology of actual application. Finally, the possibilities opened up by the information being gathered in the survey for the application of the various approaches to Irish data are outlined.

## 2. The Concept of Poverty and the Derivation of Poverty Lines: An Overview

The primary objective of many poverty studies is simply stated: to say how many people in the country in question are considered to be currently 'poor' rather than 'non-poor'. In doing so, the most common approach is to identify or specify a 'poverty line' in terms of income, and measure the numbers in the population falling below that line. A considerable number of different methods of deriving such an income poverty line have been used, the distinctions between them in some cases going back to the underlying concept of poverty being employed and in other cases reflecting different methods of implementation of broadly similar concepts. Increasing the range of possibilities, some studies have relied on indicators other than income to distinguish the poor directly, notably absence of 'necessities' and other indicators of 'style of living' (rather than using these to derive an income poverty line).

The various approaches employed may be categorised on the basis of a number of different characteristics - the extent to which they involve a 'relative' rather than an 'absolute' concept

of poverty, whether the poverty line is derived 'objectively' or on the basis of opinions about adequacy or what constitutes 'necessities', and the extent to which evidence on life-styles as well as income is utilised. Without attempting a rigid classification of the various approaches encompassing all of these elements, we may usefully distinguish between some general lines of development. These may be summarily outlined as follows:

- (i) The *absolute approach* focuses, initially at least, on access to the minimum levels of food, shelter, etc., deemed necessary to continue functioning properly.
- (ii) Related to this is the *food-ratio approach*, which may take a number of forms. Minimum food requirements may be converted to an overall income poverty line using a ratio for food/total expenditure, or a poverty line may be directly specified in terms of a critical ratio.
- (iii) '*Official*' poverty lines may be derived from social security payment rates, taken as representing some form of social consensus.
- (iv) *Purely relative* poverty lines may be specified, in terms of a particular percentile in the income distribution or a proportion of mean income, for example.
- (v) *Purely subjective* assessments of individuals as to whether they consider *themselves* to be poor may be examined.
- (vi) *Subjective evaluations* in the population as to the minimum level of income required may be used as the basis for the poverty line. This is the approach developed by the Leyden project and also used by the CSB (Antwerp) research group.
- (vii) *Style of living* may be used as the key indicator of relative deprivation. This approach has been pioneered by Townsend, who derives an income poverty line from such style of living indicators. An alternative is to use these indicators directly to identify the poor, as done by Mack and Lansley (1985) and by the Luxembourg research group using a methodology derived from a model developed by Rasch. In doing so, opinions in the population as to what commodities/activities constitute necessities may be used.

In the following sections these various approaches will be discussed in turn. Section 3 deals with numbers (i) to (v): while covering a wide range, these may be relatively familiar and their advantages and shortcomings well known. Section 4 discusses the approaches based on assessing poverty/relative deprivation through

style of living, describing in some detail the methods which have been used. Section 5 considers the opinion-based income poverty line approaches. Finally, in Section 6, the scope which the data being gathered in the ESRI survey will offer for implementing the various approaches is outlined.

### 3. A Range of Concepts and Approaches

#### 3.1: *'Absolute' Poverty*

As is customary, we may begin with 'absolute' concepts of poverty. Here the concern is with the maintenance of physical health and efficiency, and individuals are deemed to be in poverty if their income is insufficient to cover the minimum necessities required to maintain such a state. This very narrow conception is what Rowntree, in his early influential research on families in York around the turn of the century, termed 'primary poverty'. In order to quantify the minimum income required, the minimum level of food, clothing and shelter needed by families of different sizes had to be decided on and costed, with food intake determined on the basis of nutritional research. Apart from the problems which arise in determining required food intake and how it is to be obtained at minimum cost, the allowance for expenditure on clothing and shelter had to be based on the researcher's judgement or what the poor actually were spending. This in effect introduces an element of relativity into the approach, since clothing and shelter 'needs' will be to some extent determined by the prevailing standards in the particular community.

While based on required expenditures, Rowntree's primary poverty line was implemented as an income line. He also considered what he termed 'secondary' poverty, consisting of

families whose earnings would be sufficient for the maintenance of merely physical efficiency except that some of it is absorbed by other expenditure, either useful or wasteful. This clearly introduces a further element of relativity, since the prevalence of such expenditures on 'non-necessities' would vary over time and across communities. Families in this situation were identified by Rowntree's survey on the basis of their 'obvious want and squalor' rather than on an income poverty line, though the extent to which Rowntree actually conceived of such poverty as relative and in terms of style of living rather than income has been the subject of recent dispute.<sup>1</sup>

### 3.2: *The Food-Ratio Approach*

An adaptation of the Rowntree approach has been implemented by the US authorities in measuring poverty. This involves a basic standard of nutritional adequacy, from which a diet is derived and costed. This is then converted into an overall income line by applying the (inverse of the) average ratio of food expenditure to total expenditure in the population for different family types. While the nutritional element is based on an 'absolute' conception of adequacy, the actual diet is influenced by the types of food actually available and observed expenditure patterns/preferences. In addition, the allowance for non-food expenditure is clearly introduced in a way which reflects patterns in the particular community. A related approach is to base the required expenditure on food on the actual amounts spent by lower income groups, on the assumption that other expenditures will be cut back first. This is based on the observation that food/total expenditure ratios are relatively high for lower income groups - where about 30% of

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1. See Veit-Wilson (1986a), Townsend (1986), Veit-Wilson (1986b).

total expenditure in the population as a whole might go on food, lower income groups generally spend considerably more. Taking actual expenditure on food by, for example, the bottom 20% of the income distribution, and calculating the income which could be needed to allow this expenditure on food but at the average ratio to total expenditure in the population as a whole yields an income poverty line. An alternative is to use the food/total expenditure (or food plus clothing plus housing) ratio directly as an indication of poverty, defining a cut-off in terms of that ratio.<sup>2</sup>

While these approaches may serve as indicators of poverty, they are quite unsatisfactory in terms of producing a poverty line or poor/non-poor distinction. Going from nutritional needs - which themselves are based on broad averages - to a minimum food expenditure is fraught with difficulties. Since customary eating and spending patterns are taken into account, as is reasonable, even the official US approach comes close to defining food needs in terms of actual expenditure of the poor on food, the explicit assumption of the second approach. This circularity in the definition of poverty is noted by Townsend as the weakest feature of the approach.<sup>3</sup> Similarly, the ratio of food to other expenditures used to derive the poverty line reflects only the average pattern in the population and has no other justification in terms of need. The uneasy mix of absolute and relative conceptions of poverty implicit in the measures deprives them of a consistent rationale.

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2. See Love and Oja (1977) for a discussion of this approach as applied in Canada.

3. See Townsend, 1979, pp. 35-38.

### 3.3: 'Official' Poverty Lines

Given the narrow and unsatisfactory nature of the poverty measures produced by the 'absolute' tradition, and the absence of an alternative commanding general agreement, a common approach in both official and academic analysis has been to derive a poverty line from social security payments rates. The underlying assumption is that these rates represent in some senses an official view, reflecting a social consensus to a greater or lesser extent, on the minimum acceptable level of income for different types of family at a particular date.<sup>4</sup>

The poverty line implicit in social security schemes will often not be readily and unambiguously defined in practice.<sup>5</sup> Leaving aside these problems, the application of such an 'official' line does conceptually have a clear and useful function, of identifying those who are falling below the income implicitly regarded by the state as the minimum or subsistence level. This is extremely important from the point of view of the design and improvement of the coverage of the social security system revealing a great deal about the coverage of the system and the extent of non-take up of benefits.<sup>6</sup> As a basis for the measurement of poverty, however, it has many shortcomings.

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4. In the UK this approach was used by Abel-Smith and Townsend (1965) in their pioneering work, and has been used in many academic and official studies since them.

5. Frequently, individuals' entitlements will vary with their situation in a manner not obviously related to needs, and with 'safety-net' schemes there are often 'discretionary' payments made in addition to basic rates. In these circumstances it may not be possible to identify a particular level of income being provided by the state to a family of a given size, and a consistent relationship between different family types.

6. It should be noted that this advantage is lost if, as is common in application, figures of 120% and 140% of the basic rates payable, rather than those rates themselves, are taken as the 'official' poverty line.



The basic rates payable at the lower end of social security structures, for 'safety-net' schemes, often at some stage bore some relation to the costs of what were thought to be subsistence standards of diet, clothing, etc.<sup>7</sup> Over time, however, rates of payment are revised, with both the increase in prices and that in earnings/incomes being important influences. Both initially and in adjustments over time, the state of the public finances is also a major factor in the setting of rates of support. The actual rates paid at any particular date are therefore the product of a complex evolution over time, and may be quite distant from the views of the population on what constitutes an 'adequate' level of income.

The use of official support rates incorporates relativity into the concept of poverty being employed, but in a manner which defies a consistent interpretation. It is open to obvious problems when used to measure changes in the level of poverty over time, or to compare the extent of poverty in different countries. Raising the level of state support provided tends to result in an increase rather than a reduction in measured poverty. Over time, changes in the rates and thus in the poverty line being applied may dominate the results, while across countries differences in the poverty lines, due perhaps to historical factors, will be confused with differences in underlying conditions.

Sen (1982) points to a fundamental flaw in the general tradition of the "policy definition" of poverty, i.e., the poverty cut-off being identified as that level which society feels responsibility for providing to all persons. Not only is that level determined by a variety of political and economic influences

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7. The National Assistance rates at the time of introduction in the UK, for example, were influenced by Rowntree's work as reflected in the Beveridge Report.

and considerations "going well beyond reflecting the cut-off point of identified poverty", but it reflects what is *feasible*. But the fact that the elimination of some specific deprivation - even of starvation - might be seen, given particular circumstances, as infeasible does not change the fact of that deprivation, "Inescapable poverty is still poverty" (Sen, 1982, p.158).

#### 3.4: *Relative Poverty*

It is clear from the discussion so far that even those approaches to the measurement of poverty based on the absolute tradition or the level of state support have a relative element, they are not invariant over time and place. The 'relativist' view of poverty, explicitly seeing poverty in terms of the standards of living of the society being examined, has gained increasing support over the past twenty-five years or so, and now appears to represent a consensus among researchers.<sup>8</sup>

Considerable care must be taken in interpreting the 'relativity' involved, however. Some have gone so far as to see poverty purely in terms of relative position vis-a-vis others in the income distribution, so that it becomes indistinguishable from inequality. The poverty line may then be that income below which 20% of the population fall, for example - in which case the number in poverty can neither rise nor fall no matter what, and the focus is purely on comparing the bottom 20% with the rest of the population.<sup>9</sup> Alternative formulations of a purely relative poverty line can avoid this feature, for example specifying a level  $x\%$  below the median income, in which case the number in

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8. See Sen (1982) for an exploration of the relative versus absolute conceptions which throws considerable light on the issues while expressing a view which diverges somewhat from the apparent consensus.

9. See Miller and Roby (1971).

poverty can change over time.<sup>10</sup> However, not only is the cut-off chosen in an arbitrary manner, but a general decline in the level of incomes will not be reflected in an increase in poverty, even if it is quite sudden and substantial.

Such a purely relative concept of poverty, though it has its adherents, is not what underlies most of the recent literature on the relative nature of poverty. While emphasising the way in which 'needs' as commonly perceived are influenced by the general standard of living in the society, this literature would not equate poverty with inequality. The nature of the relativism involved will be discussed in more detail in sections 4 and 5, in the context of the various approaches to which this literature has given rise.

### 3.5: *Purely Subjective Poverty*

Individuals' views and feelings about their own situation are increasingly being taken into account in the analysis of poverty. It would of course be possible to base poverty measurement purely on subjective feelings of individuals about whether they themselves are 'poor' or have an income inadequate to cover what they regard as 'necessities'. As Townsend points out, the term 'relative deprivation' itself was first developed and applied as meaning such *feelings* of deprivation relative to others rather than conditions of deprivation. Such an approach to poverty measurement, which might be termed 'subjectivist', has clear limitations. While feelings of deprivation are undoubtedly an important phenomenon in themselves, concentrating purely on how people see their situation obscures some essential elements of

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10. Such a poverty line was utilised in an OECD cross-country study (OECD 1976) and in an ILO study (Beckerman 1979) for example.

what is generally conceived, however imprecisely, as poverty. Clearly individuals may feel deprived relative to their reference group while attaining a standard of living above the average, while some of those near the bottom of the distribution may have very modest expectations. It is essential to separate feelings from actual living conditions, while supplementing study of the latter with information on the feelings and attitudes of those at different income levels.

Before going on, it may be useful to clarify some terminological or definitional points. Approaches taking into account views in the population on what constitutes an adequate income (as in the Leyden and CSB/Antwerp methods) or what are 'necessities' (as in Mack and Lansley's work) are sometimes called 'subjective'. It is important to distinguish these from the purely 'subjectivist' analysis based on feelings of deprivation: the approaches considered below aggregate individual opinions into some social standard which is then applied to all individuals, rather than relying merely on individuals' assessments of their own position. The relationship between such individual assessments and the poor (non-poor) as identified by these approaches will be considered in assessing each in turn, in Sections 4 and 5.

Subjective or opinion-based methods are sometimes contrasted with 'objective' approaches to measuring poverty, and it is also important to clarify what subjective means in this context. It means that the research is using data on respondent's subjective opinions: it does not mean that the researcher's own subjective opinions are necessarily involved. This is parallel to Sen's remarks on the nature of a prescriptive exercise as against an exercise that takes note of prescriptions made by others:

"There is a difference between saying the exercise is *itself* a prescriptive one and saying that the

exercise must *take note* of the prescriptions made by members of the community... For the person studying and measuring poverty, the conventions of society are matters of fact (what are the contemporary standards?), and not issues of morality or of subjective search (what *should* be the contemporary standards? what *should* be my values? how do I *feel* about all this?)." (Sen, 1982, p.17)

We now turn to the more detailed discussion of some approaches to poverty measurement developed in the recent literature, focusing in the next section on those based on indicators of style of living, flowing largely from the work of Townsend.

#### 4. Measuring Poverty through Style of Living

##### 4.1: Townsend and Measuring Poverty

Townsend's work in the UK has been a major impetus towards the definition and implementation of a concept of poverty framed explicitly in relative terms. His widely-quoted definition is that

Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong. Their resources are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities. (1979, p. 31).

In putting forward what he calls a new approach, Townsend recognises (in a footnote) that the general line of thought had often been put forward in the past, notably by Adam Smith (in an equally widely quoted passage):

By necessities I understand not only the commodities which are indispensably necessary for the support of life, but what ever the custom of the country renders it indecent for creditable people, even of the lowest order to be without. (Quoted in Townsend, 1979, p. 32, ft. 4).

Examples of such 'necessaries' put forward by Smith are linen shirts and leather shoes. Townsend strongly argues, however, that his work is the first to spell out the implications of such an approach systematically and apply it. The general approach has been widely accepted<sup>11</sup>, and underlies much of the recent research on poverty.

In implementation, the key innovation is his focus on style of living and on resources rather than the narrower income measure. He presents this approach as an 'objective' definition of poverty in terms of relative deprivation, while not avoiding the need for value judgement. People's style of living, in terms of activities as well as possessions, is examined, and those who are unable to participate in the 'national style of living' due to lack of resources identified. Judgement is required, he acknowledges, for example in taking decisions about the precise way in which style of living is to be measured, but values have been "pushed one or two stages further back" and measurement made more dependent on externally instead of subjectively assessed criteria (p. 60).

In actually measuring 'style of living', however, judgement and *a priori* beliefs play a major part. A list of 60 indicators was built up as representative of "the major areas of personal, household and social life" and included in the survey on which his results were based. In actual implementation, however, a set of only 12 of these was used and the basis on which these, or indeed the original 60, were selected is not clear. Correlation between each indicator and personal disposable income was measured, but was not used as a consistent criterion for selection, nor was

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11. The EEC in framing anti-poverty programmes has adopted such an approach, for example.

actual frequency in the population - three of the twelve indicators of deprivation actually apply to the majority of the sample.

Counting one for each of the twelve indicators, a score of five or six or more on the summary deprivation index is "highly suggestive of deprivation, though no basis for this particular cut-off is provided. The deprivation score is not itself used to directly identify the poor, but is rather the basis for deriving an income poverty line. Townsend hypothesises that "as resources for any individual or family are diminished, there is a point at which there occurs a sudden withdrawal from participation in the customs and activities sanctioned by the culture. The point at which withdrawal 'escalates' disproportionately to falling resources could be defined as the poverty line" (1979, p.57). In reporting his results, the evidence from the survey is acknowledged to be inconclusive but "suggests that such a threshold may exist" (p.255).

Criticism of Townsend's methodology falls under two main heads, the first relating to the income threshold/poverty line derived. Both Piachaud (1982) and Mansfield (1986) examine the actual procedure whereby Townsend related deprivation scores with income and identifies a threshold "below which people are disproportionately deprived", which is then used as the poverty line. This involved plotting the mode of the deprivation score for different income groups against the log of income (with income expressed as a percentage of Supplementary Benefit entitlement to control for differences in household size and composition). Both the use of modal values and of a logarithmic income score are questionable. The identification of a threshold even on this basis is not unambiguous, and no statistical tests are applied.

The existence of a threshold is not a detail, but is central to Townsend's approach. If there is no threshold the style of living approach does not enable an 'objective' income poverty line to be produced, to be set against 'official' or 'subsistence' income poverty lines. Piachaud asserts that such a threshold is intrinsically implausible, and that reality is more accurately described as a continuum from great wealth to chronic poverty, with a wide diversity of patterns of living. Townsend, on the other hand, believes that differences in the level of resources are very important in explaining what may be generally attributed to diversity in tastes. Even if he is correct in this, though, Townsend has failed to convince at either conceptual or empirical level on the existence of a discrete break or threshold in the income/deprivation relationship.

The second major area of criticism relates to the way the indicators of deprivation are chosen, and, at a more general level, to the identification of deprivation through such style of living indicators. The 12 indicators used in the 'illustrative index are chosen in a fairly ad hoc manner. The actual items chosen have been subjected to considerable criticism: Piachaud (1982) for example asserts that "there is no ... *a priori* reason why many of the components of the deprivation index should bear any relationship to poverty" (p.420). On the more general issue, in his view 'the problem of disentangling the effects of differences in tastes from those of differences in income are intractable and a large part of the variation in deprivation scores is merely due to diversity in styles of living wholly unrelated to poverty. Townsend's deprivation index is therefore of no practical value as an indicator of deprivation, he asserts. Piachaud appears to believe that these strictures apply to, and



undermine the usefulness of, any attempt to measure poverty through styles of living.

#### 4.2: Mack and Lansley's Approach

Mack and Lansley's (1985) 'Poor Britain' study can be regarded as a development of Townsend's approach based on life-style indicators. It must be noted, however, that it departs from Townsend's concepts and methods in several significant ways. At a conceptual level the main difference is that Townsend's definition of poverty leans more towards the idea of exclusion from the normal life-style, while Mack and Lansley's definition is in terms of "an enforced lack of socially defined necessities", which deprive a person of a minimal socially acceptable standard of living. They argue for a definition based on social perceptions of necessities because "these perceptions determine the importance and significance that can be attached to the various aspects of our living standards.". While recognising the advantage of an income based approach in taking account of the ability to afford the socially defined minimal standard of living, they favour the more direct approach of asking people if they "would like, but can't afford" these items. (If a person would like, but can't afford an item, this is termed a "lack"; if a person does not have an item but says he/she does not want it, this is said to be "going without" an item.) This direct method of controlling for tastes is, however, supplemented (or in some circumstances supplanted) by income information: in refinements to their poverty measure described later, income is used to decide whether the lack of an item is an enforced lack (the adjustment for high income) or the apparent choice to do without a necessity is

in fact an enforced lack (the adjustment for low expectations).

There are rather greater differences between Townsend's and Mack-Lansley's operational definitions of the poverty line, relating to the methods of selecting items, the definitions of the indices of deprivation/poverty, and the identification of the population in poverty. The selection of the items which are used in Mack and Lansley's poverty scale has two elements:

- (i) For an item to be regarded as a socially defined necessity, there must be a majority vote within the sample that the item is "a necessity i.e., something which every household should have, and no-one should have to do without". There are 26 such items in the 'Poor Britain' study.
- (ii) The correlations between the lack of an item and income are calculated, and only those items with a significant negative coefficient are retained. This leaves 22 items in the basic scale.

Townsend's rejection of the use of public opinion to select items for inclusion is consistent with his attempt to represent customary behaviour; while Mack and Lansley's use of public opinion is consistent with their attempt to identify socially defined necessities. While Townsend's approach is based on more objective data, his method may be less objective, since it may leave more scope for the researcher's judgement in the selection of items. There is some scope for this even in the Mack-Lansley approach, because the items about which respondents' opinions are solicited must be generated by the researcher.

If there is not a widespread consensus on what constitutes a necessity, it may not be meaningful to speak of a socially acceptable minimal standard of living, or socially defined necessities. Mack and Lansley found that there was

substantial homogeneity of views throughout society. They conclude, therefore, that the concept of a minimum standard applicable to all groups does make sense.

Even if the two approaches resulted in the same list of life-style indicators, there would be very substantial differences in the indices of deprivation. Townsend uses simple possession or non-possession of an item as an indicator of deprivation, while Mack and Lansley attempt to control for taste differences by using only those items which respondents "would like, but can't afford" as indicators.

As was outlined earlier, Townsend uses the deprivation index in order to identify a threshold income below which deprivation increases rapidly: this is taken as an income poverty line which is used to identify those in poverty. Mack and Lansley, by contrast, choose a critical level of the deprivation index, and use the information on deprivation to distinguish between the poor and the non-poor.

The starting point for Mack and Lansley's attempt to identify those in poverty counts as poor those adults who "would like but can't afford" three or more items from the list of 22 socially defined necessities which have a significant negative correlation with income. The rationale for this starting point is that three is the lowest number of items lacking for which the lack is judged to be overwhelmingly an enforced one. (This rationale for the drawing of the basic poverty line resembles Townsend's definition of an income poverty line in terms of a threshold income, below which deprivation increased more rapidly. Mack and Lansley have drawn their standard of living based poverty line at a threshold lack of items; if more items than this

are lacking, the lack is almost certain to be an enforced one.) The definition of an "enforced" lack is one associated with income in the lower half of the distribution, and cutbacks in spending on other areas, which are not clearly specified.

The starting point is interpreted as a minimal estimate of the number in poverty because:

1. Some people may be too embarrassed to admit they lack a necessity
2. Some people may claim to have a necessity, when it falls far below the general minimum standard for the item. (As against this, some people may claim not to be able to afford a necessity, when what they have in mind is far above the general minimum standard for the item.)
3. Some people may say they choose to go without when in fact the choice is a highly constrained one; as people get used to doing without, they may no longer perceive themselves as forced to do without for lack of money. (As against this, some people may claim not to be able to afford necessities although they have high incomes, and high spending on non-necessities: this may not be considered an enforced lack).

Mack and Lansley propose certain adjustments to the basic operational definition in order to exclude cases where people lacking three or more items are not suffering from an enforced lack, and include people who say they lack fewer than three items, but who are suffering an enforced lack of three or more necessities. The main adjustments are:

*a) adjustments for high income or high spending*

This adjustment is designed to check that the lack of these items is indeed enforced, and affects the household's way of life. The household's overall spending pattern must therefore reflect financial difficulty rather than high spending on other goods. Apparently this has been interpreted as meaning that households in the top half of the income distribution, or which are not cutting back in other ways are excluded.

*b) adjustment for low expectations*

Those who go without three or more necessities, but say they choose to do so, are

counted as poor if they are in the bottom 4 deciles i.e., instead of measuring deprivation as "would like but can't afford" it is measured by "has/does" for those in the bottom 4 deciles. The rationale for this is that even if they did want these necessities they would probably not be able to afford them.

Approaches based on style of living indicators such as those used by Mack and Lansley have been criticised, (e.g. by Hagenaars, 1987) on the grounds that there are systematic biases in, for example, possession of durables, related to age, household size, family cycle and health, which make these items inappropriate as indicators of poverty: controlling for taste with the 'would like the item but cannot afford it' is not sufficient to meet this criticism.

The choice of a cut-off point on the deprivation scale can also be criticised as rather arbitrary. The argument that there is a threshold in the number of items lacking is not entirely convincing. The questions which they seem to regard as rendering Townsend's definition of the poverty line dubious ("Would you say there is no poverty if there is no threshold income, or where would you then draw the line?") could, however, be applied to their operational definition, *mutatis mutandis*. Other methods of defining a cut-off number of items can be explored e.g. using the number of items lacking by those with incomes within 5% of an income poverty line, and then exploring the characteristics of those who are poor by both income and standard of living criteria, not poor by either, or poor by one but not by the other.

Even if one regards real income as the most appropriate scale on which to measure poverty, the fact that there may be significant discrepancies between the ideal real income concept and that measured in a survey suggest that standard

of living indicators may provide additional information which may be useful in distinguishing between the poor and the non-poor. For instance, measured income may not include the benefits of owner occupied housing, or may fail to distinguish between the circumstances of a household which rents its accommodation in the private sector, and one which rents similar accommodation at a lower cost from a local authority. Measured income may also miss certain direct supports to living standards, from relatives or statutory or voluntary agencies.

Even apart from such issues in the measurement of real income, it can be argued that a wider concept of command over resources is relevant. Calculations of the annuitised value of wealth, such as those made by Townsend, provide one response to this problem, but the use of indicators of living standards may also capture the difference between households with similar incomes, but different strengths in command over resources.

#### 4.3: The Rasch/Luxembourg Method

The Rasch model was developed initially for educational and psychological tests, where the results of applying a set of items to a set of subjects could be described by a dichotomous variable (e.g., "success" or "failure"). Basically it can be regarded as an alternative method of selecting the items which enter the poverty scale: its proponents do not claim that it provides a method of defining a poverty line, but do claim that it has certain other advantages in measuring poverty. Income related information may be used in the form of dichotomous items, but has no special role.

The application of the model to the measurement of poverty is described by Schaber *et al.* (1980) and Dickes (1983). The subjects are households or individuals, and the items are necessities or other style of life indicators which can be represented by dichotomous variables. The method can be applied, therefore, to the dichotomy based simply on possession versus going without, or based on "would like but can't afford" versus "not lacking" the items. The main assumptions are as follows:

1. The probability of a given household lacking a particular item depends only on two parameters:
  - a) one specific to the individual, which is labelled the parameter of poverty,  $Z_i$ : the higher is this parameter, the poorer is the individual. The assumption that poverty can be measured on a one-dimensional scale can be falsified by the data; the ways in which this can arise are described below.
  - b) one specific to the item, labelled the parameter of disadvantage,  $S_j$ : if  $S_i > S_j$  then for any given person, it is less likely that they will lack item  $i$  than item  $j$ .
2. The two parameters measure the same thing i.e. are on the same one-dimensional scale.
3. All the items must elicit from all the subjects a response based on the same trait.
4. For a given parameter of poverty (e.g., for a given

household) the probability of the lack of a particular item must be independent of the probability of the lack of any other item. This means that knowing that a given household lacks a particular item tells us nothing about the probability of its lacking another item if we already know the poverty parameter for that household. It is possible that if we do not know this poverty parameter, knowing whether an item is lacking will tell us something about the probability of the household also lacking other items; but if we do know  $Z_v$ , there must be no additional relationship between any pair of items.

5. The number of items lacked by a given household must be a sufficient statistic for the parameter of poverty; it should not matter which items are lacking.

The sample can be divided into sub-groups, on criteria which are either internal (e.g., above average vs. below average gross score of items lacking) or external (e.g., above average income vs. below average income) to the model estimated. The parameters of difficulty for each item can then be estimated using each sub-sample. If the model is valid, the estimates of the parameters for the different sub-samples and the whole sample should be close. Some informal "tests" are proposed to judge which items should be dropped from the model for violating this condition.

Dickes (1983) states that if the non-rejected items cover all the main areas of poverty, it is possible to speak of poverty as a uni-dimensional concept. If instead the tests suggest that one should estimate several models, with one model for each area of poverty (housing, food, clothing etc.) one must regard poverty as a multi-dimensional concept, and speak of housing poverty, food poverty etc.

Given the selection of items, the definition of the poverty line is equivalent to selecting a critical gross score for the number of items lacking. The choice of the exact number of items lacking which constitutes poverty is



recognised as rather arbitrary. The claims for the method are not so much that it provides a way of drawing a poverty line, but that it provides a useful way of selecting the items to be considered, and allows the gross score on a deprivation index to be translated into a measure of poverty which has the property of an interval scale: equal steps along it can be interpreted as equal increments of poverty, which is not the case for the gross score.

Dickes (1983) and Schaber et al. (1980) both emphasise that the Rasch method leads to an objective measure of poverty. It is not entirely clear what is meant by this claim, since the selection of items is not based on formal tests and appears to leave much to the discretion of the researcher. Other advantages are claimed for the model in respect of its ability to relate measures of poverty from different samples: this is important in the context of international comparisons, since this method avoids the problems associated with the choice of an appropriate exchange rate. However, this advantage could be regarded as of the second order of importance, since it depends on the usefulness of a once-off measure of poverty based on this scale.

## 5. Income Poverty Lines based on the Subjective Evaluations of the Population

### 5.1 *The Leyden Poverty Line*

The simplest version of the Leyden method uses only the 'minimum income question' (MIQ): 'What is the lowest income on which your household could just manage to make ends meet?' This is generally referred to as the Subjective Poverty Line (SPL) or Kapteyn method. Given the ambiguities which arise over the use of the term 'subjective', it will be referred to here as the Kapteyn method. There is also a more complex method, called the Leyden Poverty Line (LPL) or van Praag method. It is based on the income evaluation question (IEQ), in which respondents are asked to give six income figures corresponding to their opinions of a range from a very bad income to a very good income. The basic structure and rationale of the method will be outlined for the Kapteyn method; the additional assumptions and benefits of the more complex LPL will be discussed very briefly. (See Hagenars and van Praag, 1985 or Hagenars, 1986 for details of the more complex LPL method).

If we designate  $y_{min}$  as the answer to the MIQ, the Kapteyn method is based on a regression of the following form (a logarithmic transformation is included, because it has been found preferable on statistical grounds in application; it is not essential to the structure of the method):

$$\log y_{min} = a + b \log y + c \log fs + e$$

where  $y$  is actual household income,  $fs$  is family size, and  $e$  is an error term. This relationship is illustrated for a given family size in figure 1 overleaf. The poverty line is the point (marked on the diagram) at which  $y_{min}$  equals actual

income,  $y$ . Algebraically it is defined by  $\log y^* = (a+c \log fs)/(1-b)$ . Other classificatory variables may also be included in the regression, but we defer consideration of that issue until later.

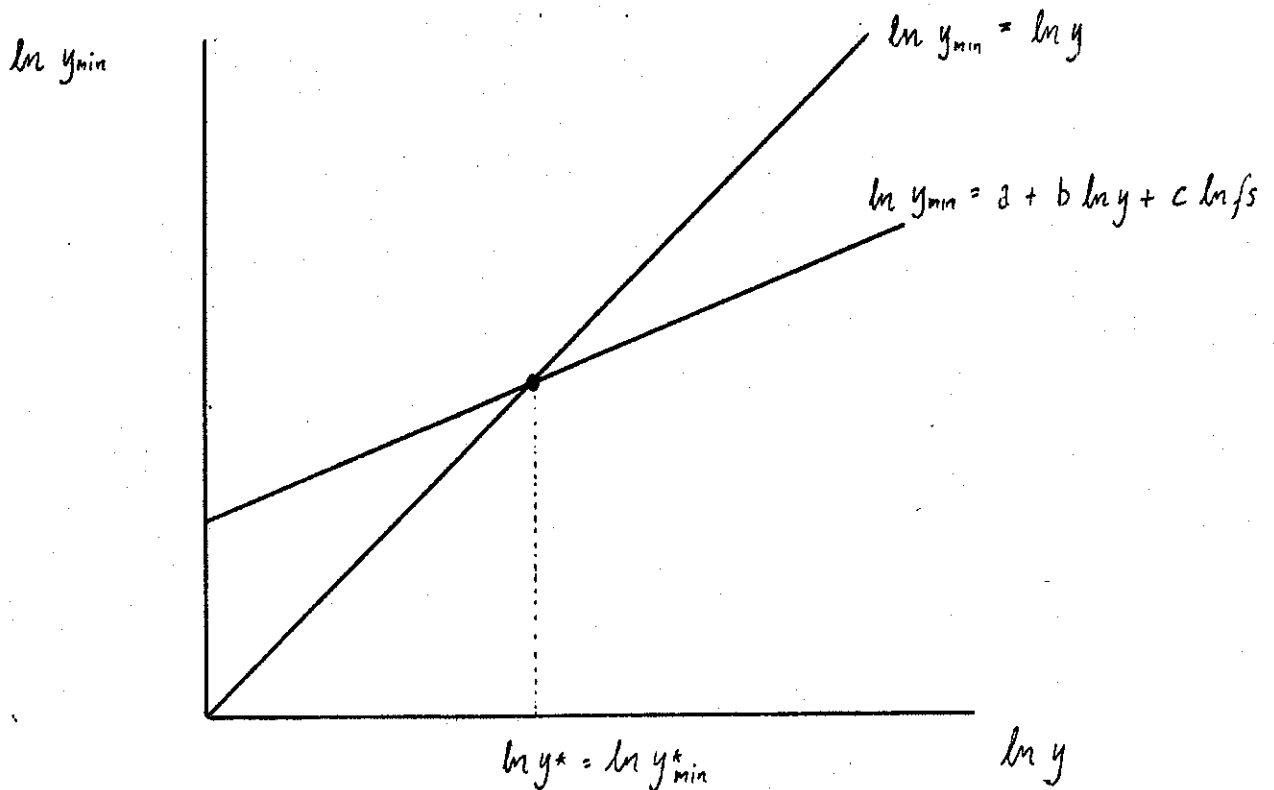


Fig. 1 : The Relationship between  $\ln y_{\min}$  and  $\ln y$  for a given family size

The method of establishing a single poverty income standard (or one for each family size or household type) treats the minimum income figures given by those with high incomes as rather high, and those given by respondents with very low income figures as rather low. Relative to a simple average of the minimum income figures, the Kapteyn method gives less weight to those with incomes far from the poverty line: the exact weighting implied is, however, not easy to interpret, even if no logarithmic transformation is applied.

The more complex LPL approach is based on estimating

individual 'welfare functions of income' (WFI). The WFI indicates, on a scale from 0 to 1, what level of welfare an individual derives from particular levels of income. Using the six levels of income the individual has rated as very bad to very good, the relationship between welfare and income is estimated. The estimating method assumes

- (a) that people try to maximise the information given by their responses to the questions, so that each person's answers are equally distributed along the full range from 0 to 1 on the welfare scale.
- (b) that the relationship between income and welfare has the same shape as a cumulative lognormal function.

The WFI is thus estimated for each individual. One must then choose a welfare level corresponding to the poverty line: this is equivalent to choosing one of the points (or some intermediate point) on the six point scale used in the income evaluation question e.g., if a welfare level of 0.4 is chosen, this sets the poverty line as an income between 'bad' and 'inadequate'. The individual WFI's can then be used to estimate the level of income corresponding to this welfare level for each individual. Then the same technique as was applied before in Kapteyn method comes into play: one solves for the value of income at which actual income equals the income evaluation of the chosen welfare level.

The Kapteyn method can be interpreted in terms of the WFI used in the LPL approach. The welfare level chosen for the poverty line is that level at which a household can just make ends meet; the income evaluations corresponding to this level of welfare are sought; and the relationship between these income evaluations and income is used to define a unique income poverty line.

In interpreting the meaning of the Leyden poverty lines, one must examine the questions they are based on. The exact wording of the MIQ, as translated from the Dutch Socio-Economic Panel questionnaire, is

Which net income do you consider is the minimum required in your circumstances? (This means that you would not be able to manage on less)

The LPL method uses a question which also asks about evaluation of incomes "for your household" and "in your circumstances". It is clear from the wordings given that the respondent is being asked to adjust for more than household size, and may quite reasonably answer in terms of the minimal income necessary to maintain the household's own existing standard of living; this might be taken as income less net savings. The respondent might not regard such an income as the poverty line for a household of the same size. It seems, however, that  $y_{min}$  is regarded as the individual's perceived poverty line:

Apparently a respondent's perception of the poverty line is distorted by the fact that his actual income level is not equal to his minimum income level. There is only one income level,  $y^*_{min}$ , where this misperception does not obtain. Therefore, we take  $y^*_{min}$  as our definition of the poverty line. (Goedhart et al., 1977, p514).

The rationale for using answers of this type to estimate a poverty line is not clearly spelled out. The most likely explanation seems to be that respondents are only considered capable of evaluating incomes close to their own with any degree of accuracy: it might be impossible for respondents to give reasonable answers to questions which did ask them for their estimate of the income poverty line for a household of the same size. This is not, however, a conclusive argument

in favour of the approach underlying the Kapteyn method or LPL. The approach interprets the answers to the questions as the respondents' views of a poverty line, when respondents themselves might reasonably interpret the question in a different way. Hagenaars and van Praag (1985) state that the LPL is "based on the perception of poverty in the population, instead of on the researcher's perception of poverty"; one might argue that it is based instead on the researcher's interpretation of the public's perception of what would be an adequate income given their circumstances. It may be that this interpretation is designed to avoid the problem that people would find it impossible to give reasonable answers to direct questions on the poverty line, or would be based on a distinction between what was an adequate income for the poor versus what was an adequate income for their own household: if so, this means that the element of interpretation by the researcher is worthy of greater elaboration.

Clearly both Kapteyn method and LPL are subjective in the sense of being based on public opinion. But how do the Leyden approaches relate to the subjectivist view that the poor are those who consider themselves poor? The degree of overlap is a matter for empirical investigation, but conceptually there is not necessarily any overlap between those who consider themselves poor and those who are defined as poor by the Kapteyn or LPL poverty lines.

One must also distinguish between two types of application of the Kapteyn method or LPL. The first uses only income and family size to explain minimum income, as in the equation quoted above. This leads to a social standard, differentiated only by family size. A second class of

application uses many other variables, such as the occupation or level of education of the main breadwinner to explain the answers to the minimum income question. This may lead to a better estimate of the augmented relationship between minimum income, actual income and these variables. It may also change the nature of the poverty line, if it is used, as by van Praag; Hagehaars and van Weeren (1982), to calculate poverty lines differentiated by these additional variables, which imply different poverty lines for different reference groups or social classes. A national poverty line can still be calculated, however, by taking what amounts to a geometric weighted mean of the class-differentiated poverty lines.

#### 5.2 *The CSB (Antwerp) Method*

The Centrum voor Sociaal Beleid (Antwerp) method attempts to use just the opinions of those near the poverty line in a more direct way. It makes use of the minimum income question as used by Kapteyn, and a further question on the household's 'subjective security of subsistence' (SSS): is the household able to make ends meet 'with great difficulty' or on one of six points in all, on a scale up to 'very easily'. A poverty line is derived for several family types as follows (see Deleeck, 1985, for details):

1. First, those households which regard themselves as making ends meet "with some difficulty" are selected; those on any other point on the SSS scale are disregarded in drawing up the CSB poverty line.
2. Necessary income is taken as the lower of the answer to the MIQ and total available household income.
3. Extreme values of necessary income (more than 2 standard deviations from the mean) are excluded.
4. For any given household type, an estimated poverty line can now be obtained by taking the mean of necessary incomes. 30 cases is regarded as a minimum for a reliable measure for a particular household type.

The poverty line obtained in this way is called a Socio-Vital Minimum. SVMs are calculated directly for the most common household types. Marginal SVMs for additional adults or additional children of different ages may then be calculated from the differences between these directly estimated SVMs, to give indirect estimates of the SVMs for the less common household types, where there are too few cases for a reliable direct estimate. Whether or not a household is regarded as being objectively in poverty depends not on its subjective assessment, but on a comparison with the SVM for that type of household.

The CSB procedure has something in common with the Leyden approach, in that it looks to those who are in some sense "close" to the poverty line for a more reliable estimate of a minimum adequate income. The sense of closeness used by the CSB method is a purely subjective one, and the opinions of those who are not close are totally disregarded: the Leyden method differs on the latter count, because it is influenced by all the opinions expressed. The sense of closeness to the poverty line may, however, still be regarded as subjective, even if it is based on the difference between the answer to the MIQ and the actual household income, rather than the answer to the subjective security of subsistence question.



## 6. Different Poverty Concepts and the Data in the ESRI Survey

Having discussed the various approaches to poverty measurement which have been developed elsewhere, the possibilities which the survey data currently being gathered for Ireland will provide for applying different approaches here may be described. A very wide range of information is in fact being gathered. This will not only greatly enrich the analysis of poverty in Ireland, but will also allow a comparison of the various approaches when applied empirically to a single data set, and thus contribute to the development of the conceptual framework for the study of poverty generally.

The survey aims to get comprehensive information on income from different sources for all respondents. This will enable income-based poverty lines to be applied, including the 'official' line approach used in most previous Irish studies.<sup>12</sup> Purely relative poverty lines related to mean or median income, or the bottom x% of the income distribution, can also be readily used. Some limited information on expenditure is being gathered, including the amounts spent on groceries and on particular food items, so that some approximation of a food ratio approach (using ratio of food expenditure to total income rather than expenditure) could be applied. Given the range of other information being sought in an extremely lengthy questionnaire, it was decided that detailed expenditure data would not be included, since this is already the primary focus of the CSO's Household Budget Survey

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12. The use of this approach in Irish studies, and some of the problems which arise in actually implementing it, have been examined in our Working Paper No. 1.

involving the keeping of expenditure diaries over a two week period. It should be possible to use the detailed expenditure information in the HBS (with a survey also being carried out in 1987) to supplement the data in our survey.

Considerable detail on life style and possessions is also being gathered, allowing the Townsend-type approach to be applied. Townsend's own methodology can be used, with information on eleven of the twelve items in his summary index being included.<sup>13</sup> Further information is gathered for a range of items/activities on which the respondents consider to be necessities that everyone should be able to have. Where a household does not have/do a particular item/activity they are also asked whether this is something they would like but can't afford. This will allow a number of different lines of development of the life-styles approach to be followed.

First, the selection of items to be included in an overall index of 'relative deprivation' can be related to views in the population as to what constitutes necessities.<sup>14</sup> This index can then be either used itself to identify poverty, as Mack and Lansley do, or can be related to income a la Townsend to see whether a threshold can be discerned. Alternatively, absence of one or more item/activity which the household *itself* perceives to be a necessity could be used to indicate poverty. Another approach which does not use people's views, but purely relies on the presence/absence of an item/activity, is to apply the Rasch method to derive poverty indicators from this information.

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13. The exception is whether the respondent "has not had a cooked breakfast most days", which was true of 67% of Townsend's sample anyway.

14. Though the list of items included is more limited than the extended set which Townsend, for example, started with, the choice has been based on those which studies such as Townsend, Mack and Lansley and those based on the Rasch model found most useful.

Turning from life-style to opinion-based income poverty lines, the current survey also includes the individual's assessment of

- (a) the difficulty/ease with which the household is unable to make ends meet (on a six-point scale);
- (b) the very lowest net weekly income that the household would have to have in order to just make ends meet;
- (c) what level of net total weekly household income they would, in their circumstances, consider very bad/bad, etc., up to very good on a six-point scale, i.e., the Leyden approach Income Evaluation Question.

The responses to these questions will permit both the Leyden and the Antwerp/CSB approaches to deriving an income poverty line from respondents' opinions to be applied.

Other questions will shed further light on views about the minimum adequate level of income and social security rates of payment. Respondents are asked whether they feel that five different categories of social welfare recipient - deserted wife, old age pensioner, unemployed etc., - should receive the same weekly payment (assuming an adult without dependents in each case). If so, they are asked the appropriate amount, if not they are asked which category should get the lowest/highest amount and how much these should be. Those who are actually currently in receipt of social welfare or were in receipt at some time during the previous year, are also asked whether they think the amount they receive(d) was adequate (enough to live on), and if not how much would be enough to live on. Thus, the views of both the general population and of those directly concerned as to the adequacy of current social welfare payments of various types will

be available.<sup>15</sup>

In addition to this wide range of conceptual and methodological approaches, the survey is also attempting to supplement household income with information on assets (and liabilities). This will allow a focus on wider resources rather than purely income, advocated strongly by Townsend, to be included. Information on debts and financial stress (such as arrears) will be of particular value in assessing how different households are making ends meet. The experience of social welfare administrators and charitable organisations has highlighted the prevalence of debts to moneylenders and arrears on rent/mortgage and electricity/gas bills among those seeking support. Particular emphasis is also put on the questionnaire on those going into debt to meet ordinary living expenses. More information on annual and lifetime experiences is being gathered than is usual in such surveys, to explore the nature and duration of poverty over the life cycle and intergenerationally.

Here only a brief description of the data which the survey will make available, and confined to that directly relevant to the measurement of poverty, has been given. Given the range of questions which it has been possible to include, the full exploitation of this data should greatly increase understanding of the nature as well as the extent of poverty in Ireland, and in addition contribute to the clarification of the conceptual issues which arise in the measurement of poverty generally which have been the focus of this paper.

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15. For those in receipt of social welfare, the responses on the adequacy of their actual payment will thus serve as a useful cross-check on the income levels which they specify as the minimum required.

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