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Using Non-Monetary Deprivation Indicators to Analyse Poverty and Social Exclusion in Rich Countries: Lessons from Europe?

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1. Introduction

Most research on poverty in rich countries still relies primarily on household income to capture living standards and distinguish those in poverty, and this is also true of poverty measurement and monitoring for policy-making purposes. As the other contributions to this conference bring out, there has been increasing awareness of the need to improve the measurement of income, to broaden the measure of financial resources, and to capture the dynamics of income over time, and significant progress has been made in research, statistical practice and data availability in those areas. At the same time, there has been a good deal of interest in exploring how non-income information can also be used to improve the measurement and understanding of poverty in rich countries. Such information may relate to consumption; to wealth and assets; to how people regard and report on their own situation; or to the types of non-monetary indicators of living standards and material deprivation on which this chapter focuses.

Such non-monetary indicators are increasingly used in individual European countries as well as at European Union level in measuring poverty and exclusion.[1] One may see this as reflecting some distinct but inter-related concerns about relying solely on income. The first is that the concrete realities of the experience of poverty can be brought out starkly by specific measures of deprivation, illustrating what poverty/low income actually means. The second is that low income may in fact be unreliable as an indicator of poverty, failing in practice to identify those experiencing deprivation and exclusion. Finally, focusing simply on income may miss an important part of the picture, namely the multidimensional nature of poverty and social exclusion.

A very valuable and comprehensive review of measures of material deprivation in OECD countries is available in an OECD Working Paper (Boarini and Mira d'Ercole,

[1] Various measures of material hardship have also employed in studying poverty in the USA, e.g. Mayer and Jencks (1988, 1993) and Mayer (1997), and studies exploring how they might best be used there include Bauman (1998, 1999, 2003), Short (2003) and Ouellette,et al (2004); our focus here, though, is on the European experience and the lessons to be drawn from it.

2006). This chapter aims more briefly to bring out the rationales behind their increasing use, and how they are generally employed in research and monitoring poverty. We look at some key patterns revealed by deprivation indicators, notably how they relate to one another and to income, and then discuss how these findings can be interpreted and their implications for how such indicators can best be used to capture poverty and multidimensionality. Finally, we highlight some important conclusions and challenges in the further development and use of such measures.

2. Why Should Non-Monetary Deprivation Indicators be Used to Study Poverty and Social Exclusion?

Most research on poverty in Europe takes as point of departure the definition that people are in poverty when "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" – the influential formulation by the sociologist Peter Townsend (1979, p. 31). Such a definition has also been adopted whole-heartedly by politicians and policy-makers in a European Union context.[2] So poverty from this starting-point has two core elements: it is about inability to participate, and this inability to participate is attributable to inadequate resources.[3] Most quantitative research then employs income to distinguish the poor, with a great deal of research and debate on how best to establish an income cut-off. In parallel, though, relying purely on income for this purpose has also been questioned. This was first of all from the perspective that low income could be used to identify the poor, but did not tell us all we needed to know about what it was like to be poor, and how people arrived in and coped with that situation. This is exemplified by Townsend's (1979), pioneering work on the use of non-monetary indicators of deprivation in the context of poverty measurement, He used these indicators both to derive and validate an income poverty

[2] The EC Council adopted the following definition in the mid-1980s:

"The poor shall be taken to mean persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member State in which they live".
This now firmly underpins the EU Social Inclusion process, although the way in which it is actually applied in that process is still evolving as we shall see later in this paper.

[3] This is echoed in the definition put forward by an influential expert panel in the USA as insufficient resources for basic living needs, defined appropriately for the United States today (Citro and Michael, 1995).

threshold, and to bring out graphically what it meant to be poor in Britain at the time in terms of deprivation of everyday items and activities widely regarded as essential.

As these deprivation indicators started to become more widely available, they were used to underpin a more radical critique of reliance on income: that low income fails in practice to identify those who are unable to participate in their societies due to lack of resources. This argument was put forward most emphatically by Ringen (1987, 1988), who asserted that income was both an indirect and unreliable measure of the underlying concept of poverty. In a similar vein, Mack and Lansley (1985) used deprivation indicators directly to identify those experiencing exclusion in Britain, and a number of subsequent British studies (Gordon et al 2000, Pantazis et al, 2006) have done so with a more extensive set of indicators. By contrast, studies for Ireland (Callan, Nolan and Whelan, 1993, Nolan and Whelan, 1996), identified the "consistently poor" – those both on low income and reporting deprivation in terms of specific "basic" items – as meeting both elements of the underlying concept, inability to participate and inadequate financial resources. A similar approach has been applied in some other countries (for example Forster, 2005), and the UK has announced its intention of using a combined measure of low income and material deprivation in monitoring progress towards its target of eradicating child poverty by 2020 (DWP, 2003). Other studies have looked at those reporting not only low income and deprivation but also a subjectively bad financial situation – what Bradshaw and Finch (2003) term "core poverty". Non-monetary indicators of deprivation have by now been used in various ways in measuring poverty in many European countries, for example Muffels and Dirven (1998) with Dutch data, Hallerod (1996) for Sweden, Kangas and Ritakallio (1998) for Finland, Bohnke and Delhey (1999) for Germany, and Tsakloglou and Panopoulou (1998) for Greece.

Rather than (or as well as) the more accurate identification of the poor, a further argument for the use of non-monetary indicators is that they can help to capture the multidimensionality of poverty and social exclusion. It has long been said that poverty is "not just about money", and the widespread adoption of the terminology of social exclusion/inclusion in Europe reflects *inter alia* the concern that focusing simply on income misses an important part of the picture. Social exclusion may involve not only poverty as low income/financial resources, but also educational disadvantage, poor

health and access to health services inadequate housing, and exclusion in the labour market. Reflecting such concerns, a multi-dimensional approach to capturing exclusion is being adopted in many of the EU member states and other developed countries (as well as in measuring progress in alleviating poverty in developing countries, notably by the Millennium Development Goals). This can reflect the view that conceptually social exclusion is distinct from and broader than poverty, or that the underlying notion of poverty that evokes social concern is itself (and always has been) intrinsically multi-dimensional and about "more than money" (see for example Nolan and Whelan, 2007, Burchardt, Le Grand. and Piachaud, 2002.) In either case, a variety of non-monetary indicators come into play in seeking to capture such multidimensionality.

So, in sum, the case for using non-monetary indicators is that they can bring out what it means to be poor, help to do a better job than income on its own in identifying the poor, and also directly capture the multifaceted nature of poverty and exclusion. We now proceed to describe the types of indicators that are most commonly used, and then look at their relationship with low income.

3. Non-Monetary Deprivation Indicators

If one accepts that measuring material deprivation is of value, how does one go about it? Development has been rather *ad hoc*, with different countries learning from each other while having their own preoccupations.[4] Scandinavian countries were to the forefront, in particular Sweden with its Level of Living Surveys. Townsend's pioneering British work was also influential. He developed a set of 60 indicators designed to capture what was conceived as 11 different types or aspects of deprivation. Subsequent national studies have sought to expand the set of items used and aspects covered, sometimes drawing on the results of in-depth qualitative research on people's everyday consumption and activities and what they regarded as important. Comparative studies, on the other hand, often have to rely on a limited set of items, and also face problems of ensuring the relevance and comparability of those items from one country to another.

[4] Our focus here, as in the literature being discussed, is on measures obtained at micro-level for individuals and households, which can be related to their other characteristics - rather than to aggregate-level stand-alone indicators for the country as a whole.

Here, in seeking to illustrate the types of indicator commonly employed and how they are framed and used, we draw on both national and cross-country studies. Data for the latter come most often from the European Community Household Panel Survey (ECHP) organised by Eurostat and carried out in most of the (then) EU member states from the mid-1990s to 2001 (Eurostat, 1996 has technical details). This included a substantial number of non-monetary indicators covering a wide range of areas (see for example Eurostat, 2000, 2003; Whelan et al 2001). The ECHP was discontinued after 2001 and core data for the EU on poverty and social exclusion is now being collected under the EU Statistics on Income and Living Conditions (EU-SILC) framework. This includes a more limited but still substantial number of non-monetary indicators (mostly a sub-set of those in the ECHP), and Table 1 shows a selection of these.[5] (A special module being included in EU-SILC in 2009 is investigating a broader set of indicators to inform the selection of items for inclusion in the future.) They cover a considerable range - from durables such as a TV or a washing machine, to meals, heating, arrears on regular bills, and problems with housing such as damp, leaks or rot – and serve to illustrate the types of items commonly used in such research.

Table 1*: Selection of items included in EU-SILC used as indicators of material deprivation*

Afford to pay unexpected required expenses
Weeks holiday away from home.
Meals with meat, chicken, fish (or vegetarian)
Can afford a PC
Arrears relating to mortgage payments, rent, utility bills, hire purchase
Inability to keep home adequately warm
Household can afford to have a car
Bath or shower in dwelling
Indoor toilet
Can afford a telephone
Can afford a colour TV
Can afford a washing machine
Pollution, grime or other environmental problems in the area
Noise from neighbours or noise from the street
Crime, violence or vandalism in the area
Rooms too dark, light problems
Leaking roof, damp walls/ceilings/floors/foundations, rot in doors, window frames

[5] Some other variables included in EU-SILC can also potentially be used as non-monetary deprivation indicators, in particular ones focused on subjective assessments of financial difficulties.

If such items are to be used as indicators of deprivation in measuring poverty, it is important that insofar as possible they capture situations where the person is doing or going without due to lack of financial resources, rather than because of other constraints or because they do not actually want the item or activity in question. This is generally addressed in one of two ways. The first is to select it seems likely most people would be doing without only if they really have to (e.g. adequate heating, hot running water). The second, pioneered by Mack and Lansley (1985) and widely copied subsequently, is to build into the question whether in the respondent's view they are doing without an item because they cannot afford it.[6] These subjective evaluations of affordability do seem to help in capturing resource constraints (see for example the analysis in Mack and Lansley, 1985, and Nolan and Whelan, 1996), but the issue of choice versus constraint remains an important one, to which we return in the context of the observed relationship between deprivation and income. First, though, we look at the broad patterns of deprivation shown by these indicators.

While the individual deprivation indicators available are of interest in themselves – knowing for example how many people, and which types of household, are unable to heat their house or are in arrears on their rent or utility bills – most often the aim is to combine them into some overall measure of deprivation, or sets of measures capturing different aspects or dimensions. The simplest approach to using the 17 items listed in Table 1, for example, would to assign each item a value of 1 where the household reports enforced deprivation and zero where it does not, and simply aggregating those scores into a summary index of deprivation. To illustrate the results this produces, we have derived mean deprivation scores for each country from EU-SILC for 2006 and these are shown in Table 2; these are of particular interest because unlike the ECHP the enlarged EU, with a much wider span in terms of average income per capita, is now being covered. We see that this does indeed lead to considerably more variation in mean deprivation levels. The range within the "old" EU 15 is from about 1.5 in the case of Denmark, the Netherlands and Luxembourg up to 2.5-2.75 in Greece and Portugal, but in Latvia and Lithuania the mean deprivation score reaches 4-4.75.

6 In some instances, the respondent is first asked if they possess or avail of the item, and if they said they did not then a follow-up question probes whether this was due to inability to afford the item. In others, absence and affordability elements are incorporated into one question, for example: "There are some things

Table 2: *Household mean deprivation scores on a 17 items deprivation index by country, EU-SILC 2006*

	mean deprivation score
Austria	1.43
Belgium	1.82
Cyprus	2.90
Czech Rep.	2.23
Germany	1.94
Denmark	1.31
Estonia	2.95
Spain	1.89
Finland	1.55
France	1.78
Greece	2.50
Hungary	3.20
Ireland	1.63
Italy	2.02
Lithuania	3.95
Luxembourg	1.14
Latvia	4.70
Netherlands	1.51
Poland	3.72
Portugal	2.77
Sweden	0.97
Slovenia	2.10
Slovakia	2.90
UK	1.65

So non-monetary indicators, used in this fairly straightforward way, allow for a comparison of the extent of deprivation across countries that gives a very different picture to the "at risk of poverty" rates based on relative income poverty lines that are widely used in comparative poverty research in Europe and form a central component of the set of common indicators adopted to monitor progress in the EU's Social Inclusion Strategy (see Atkinson *et al*, 2002, Marlier *et al*, 2007).

However, their use is not confined to such an "absolute" comparison, where doing without or being unable to afford a particular item or activity is in effect taken to represent the same level of deprivation irrespective of how many other people in the same country are in that situation. If instead one wishes to look at deprivation in

many people cannot afford even if they would like them. Can I just check whether your household can afford these if you want them?".

relative terms and use the country as the frame of reference, one can weight each item by its prevalence in the country – so doing without something that almost everyone in the country has is given much more weight than something many others cannot afford. Alternative, the views of the population about which items or activities represent "necessities", as revealed for example in survey responses, can serve as the basis for differentially weighting different items – so doing without items overwhelmingly nominated as necessities will be given the highest weight. We return to the issues associated with weighting by prevalence or "consensual necessities" below, but the point to make at this stage is that constructing summary indices with differential weighting in this manner will generally lead to narrow gaps in mean deprivation scores between countries, since in general it involves weighting items more heavily in countries with lower levels of "absolute" deprivation.

4. Dimensions of Deprivation

While a summary deprivation index including all the available items has its uses, research on material deprivation at both national and cross-country levels has shown the value of investigating and incorporating into the analysis the manner in which the available items hang together. A systematic examination to see whether the available items cluster into distinct groups can be done in various ways, most often via exploratory or confirmatory factor analysis. Analysis of data from the ECHP, for example, distinguished five dimensions:[7]

- Basic life-style deprivation - comprising inability to afford items such as food and clothing, a holiday once a year, replacing worn-out furniture, and avoid arrears for regular utilities etc.
- Secondary life-style deprivation - comprising inability to afford items such as a car, a phone, a colour television, a video, a microwave and a dishwasher.
- Housing facilities - such as not having a bath or shower, an indoor flushing toilet, and hot and cold running water.
- Housing deterioration – having problems such as a leaking roof, dampness and rotting in window frames and floors.
- Environmental problems – having problems such as noise, pollution, vandalism and inadequate space and light.

Other studies using the ECHP have come up with quite similar findings. (The first two dimensions have been combined as "economic strain" in research published by Eurostat – see for example Guio, 2005.) What is perhaps most striking is that this pattern seemed to fit not just for the entire sample of countries included, but for each of the countries individually. This is substantively very interesting, since there is no reason to expect *a priori* that deprivation indicators would cluster together in the same way in different countries. It is also clearly very convenient analytically, since it means that one can employ the same dimensions for each country in making cross-country comparisons.

The more limited set of indicators available from EU-SILC allow fewer dimensions to be distinguished, for example:

- *Consumption deprivation* – items relating to food, heat, a holiday, a car or a PC, and avoiding arrears on rent or utilities.
- *Household facilities* – such as bath or shower and indoor toilet, a telephone, a colour TV and a washing machine.
- *Neighbourhood environment* - noise, pollution, crime and violence.[8]

This serves to highlight the obvious but important point with respect to material deprivation that the analysis that can be carried out is constrained by the number of items available. In a comparative context, the constraint is even more binding since items must not only be available across different countries on a common basis (in measurement terms), they should also be substantively comparable.[9] A variety of national studies have investigated dimensionality using similar statistical methods (see for example Saunders and Adelman, 2006; Gordon *et al* 2000); depending on the range of items available, such studies may be able to distinguish more sub-dimensions. However both national and comparative studies bring out that the value of deprivation indicators in analysing poverty and exclusion is enhanced if one takes into account the way items cluster into distinct dimensions.

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[7] See Layte, Whelan, Maitre and Nolan (2001)

[8] The results of factor analysis with EU-SILC 2005 are described in Whelan, Nolan and Maitre, (2008); analysis of 2006 data produces similar results. Guio and Engsted-Maquet (2007) ??

[9] For example, not being able to afford heating would represent a rather different level of material hardship in Sweden compared with Greece or Spain simply because of the climate.

Having identified distinct clusters, items may be combined into scales of deprivation in different ways - for example using factor scores as weights. However, simpler scales summing the number of items on which the household is deprived have the benefit of transparency, with the options noted earlier of applying weights reflecting prevalence of the item or the proportion regarding it as a necessity (these alternatives are discussed below). Standard statistical tests of reliability for these scales can provide reassurance about the extent to which the individual items are tapping the same underlying phenomenon.[10]

5. Deprivation and Low Income

The relationship between deprivation measures and household income is clearly of central importance in thinking about how the deprivation measures are best interpreted and used. It makes sense, in looking at this relationship, to use the income measures that are conventionally employed in analysing poverty. So the income recipient unit is the household and household income is adjusted to take differences in size and composition into account by equivalisation. The equivalence scale chosen can obviously affect the results: again it makes sense to focus primarily on the one now most commonly used in European comparative poverty measurement – somewhat misleadingly termed the "modified OECD scale" - where the first adult in the household is attributed a value of 1, each additional adult is given a value of 0.5 and each child a value of 0.3. The accounting period for income could also make a difference to the strength of the relationship: the ECHP and EU-SILC, for example, concentrate mostly on income received in the previous calendar year (not the twelve months prior to the date of interview, much less last week or month).

Choices on how to use the available non-monetary indicators to capture and summarise deprivation will also make a difference to the observed relationship with income. To illustrate, we take the overall summary deprivation index constructed using the 17 items in Table 1; Table 3 shows how the average score varies with income decile for participating countries. We see that mean deprivation levels generally decline as one moves up the distribution, but even towards the top some

[10] Standard statistical tests for the EU-SILC results suggest that the first two dimensions are reasonably reliable but suggest that for the environmental dimension some additional items may be required to improve reliability (Whelan, Nolan and Maitre, 2008).

deprivation is being reported; substantial differences between the richer and poorer countries persist right across the distribution.

Table 3: *Household Mean deprivation on a 24 items deprivation index by deciles across countries, EU-SILC 2006*

	Bottom	2	3	4	5	6	7	8	9	Top
Austria	2.8	2.3	1.8	1.5	1.3	1.1	1.1	0.9	0.9	0.7
Belgium	3.5	3.1	2.4	1.9	1.8	1.5	1.2	1.1	1.0	0.9
Cyprus	4.3	4.1	3.6	3.4	3.0	3.0	2.6	2.1	1.6	1.3
Czech Rep.	4.7	3.2	2.8	2.3	2.1	2.0	1.6	1.4	1.2	0.9
Germany	3.4	3.0	2.4	1.9	1.8	1.6	1.6	1.5	1.3	1.1
Denmark	2.6	1.9	1.6	1.7	1.5	1.0	0.9	0.8	0.7	0.5
Estonia	5.0	4.4	4.0	3.5	3.2	2.9	2.4	1.9	1.5	1.0
Spain	2.8	2.5	2.4	2.3	2.0	1.9	1.5	1.5	1.2	1.0
Finland	3.0	2.8	2.1	1.8	1.4	1.2	1.1	0.9	0.8	0.6
France	3.2	2.8	2.4	2.1	1.9	1.6	1.2	1.0	0.9	0.7
Greece	4.0	3.6	3.4	3.0	2.7	2.6	2.2	1.5	1.2	0.8
Hungary	5.6	4.6	4.0	3.6	3.3	2.9	2.6	2.2	1.8	1.4
Ireland	3.1	2.5	2.2	1.9	1.8	1.4	1.1	0.8	0.8	0.7
Italy	3.6	3.0	2.5	2.1	2.0	1.7	1.6	1.4	1.2	1.1
Lithuania	7.2	5.5	5.1	4.3	4.1	3.9	2.9	2.9	2.1	1.5
Luxembourg	2.4	1.8	1.5	1.1	1.0	0.9	1.0	0.6	0.6	0.6
Latvia	7.4	6.2	5.8	5.5	5.1	4.6	4.0	3.5	2.8	2.1
Netherlands	2.5	2.6	1.9	1.8	1.4	1.3	1.1	0.9	0.9	0.8
Poland	6.1	5.2	4.9	4.4	3.9	3.6	3.1	2.6	2.1	1.4
Portugal	4.3	3.8	3.5	3.4	2.9	2.8	2.4	1.9	1.5	1.1
Sweden	1.6	1.6	1.5	1.2	0.9	0.9	0.7	0.6	0.6	0.4
Slovenia	3.7	3.1	2.6	2.4	2.0	1.9	1.7	1.5	1.2	0.9
Slovakia	4.4	3.6	3.3	3.4	3.1	2.8	2.7	2.2	2.0	1.5
UK	2.5	2.4	2.0	1.9	1.7	1.5	1.4	1.2	1.1	0.9

For the reasons already discussed, simply aggregating items into a single index regardless of their inter-relationships may not be the most satisfactory or revealing way to employ them, so it is also important to examine the relationship between dimensions of deprivation and income. Various (comparative and national) studies have found that the relationship with income is consistently stronger for some dimensions than others. When the five dimensions detailed in Section 4 are employed using ECHP data, for example, one finds that basic and secondary deprivation are a good deal more strongly correlated with income than housing conditions and facilities, with the local environmental dimension having the lowest correlation. This is the case across all the countries included, but the relationship between basic deprivation and income is stronger in the less affluent countries compared with those

with higher average income per head. There is also some consistency in pattern when countries are categorised in terms of welfare "regime": those with the highest levels of income and more generous welfare states tend to display the weakest degree of association between current income and relative deprivation.[11] But even at its highest, selecting the types of indicators/aspects of deprivation that are most strongly associated with income and the countries where this is most pronounced, the correlation between income and deprivation does not exceed -0.5.

What then is the extent of overlap between poverty measured in terms of low income and deprivation captured using these types of indicators? Given the variation across dimensions in the strength of the relationship with income, this will clearly depend on which indicators/dimensions are used. It is of particular interest to focus on the dimensions which are most strongly related to income, so we use data from EU-SILC relating to the "consumption" dimension described above. Table 4 shows the percentage of those below the conventional 60% of median income poverty threshold who also have high deprivation scores (of 3 or more) on this index, and we see that this ranges from about 33% to 50%.

As well as looking at how many of those "at risk of poverty" in income terms are highly deprived using a common deprivation standard across countries, one can assess their deprivation levels relative to others in the same country. A useful approach adopted in some studies it to identify a group in each country that is equal in size to the income-poor but instead comprises the households with the highest deprivation scores. These two groups - of the same size by construction - may then potentially comprise all the same households, or two completely different sets. In fact, it has been found that between one-third and one-half of those identified as poor using the income poverty threshold in a given country would also be distinguished by an equally demanding deprivation threshold as among the most deprived. The extent of overlap tends to be higher in the countries with relatively low average income and those with high income poverty rates, but a range of national studies confirm that no more than about half the income-poor are among the most deprived (see for example Nolan and Whela, 1996; Bradshaw and Finch, 2003; Perry, 2002.)

[11] See Layte et al, 2001; Whelan et al, (2001).

Table 4*: Percentage of those below 60% median with consumption deprivation score of 3+, EU-SILC 2006*

	%
Austria	33.3
Belgium	44.8
Cyprus	32.2
Czech Republic	38.7
Germany	33.3
Denmark	34.7
Spain	33.0
Greece	43.2
Estonia	45.2
Finland	40.6
France	38.6
Hungary	41.3
Ireland	47.8
Italy	45.9
Latvia	41.7
Lithuania	46.8
Luxembourg	40.2
Netherlands	27.8
Poland	43.4
Portugal	41.2
Sweden	31.7
Slovakia	32.1
Slovenia	37.3
UK	47.0

The proportion of low-income households not reporting high levels of deprivation is particularly pronounced right at the bottom of the income distribution. Levels of deprivation are often much lower for those in the bottom 2% or 5% than the rest of the bottom decile, for example. However, the mis-match between income and deprivation is by no means confined to such very low-income households: while average derivation levels are often at their highest for the households with incomes between say 40% and 60% of the median, a significant minority of these households still report intermediate or even low levels of deprivation compared with others in the country in question.

While a substantial proportion of the income-poor may not register as highly deprived, it is also the case that a substantial proportion of those reporting high deprivation – compared with others in their country – are often not below conventional relative income poverty thresholds. While many of these are on incomes not far above the poverty thresholds – for example between 60% and 80% of the median - some are well above (as illustrated in Table 3). It should be recalled that this is despite the widespread use of questions about deprivation which seek to focus the respondent's mind on things they have to do without because they cannot afford them. We go on in the next section to consider the factors that seem to underpin this degree of non-overlap between low income and deprivation, before turning to the implications.

6. Understanding the Mismatch

We have seen that the overlap between low income and deprivation is rather more limited than many would have expected, and that this is a consistent finding across many different countries and deprivation measures, reflecting both the substantial proportion of low-income households not showing up as highly deprived and vice versa. To understand why this might come about one must look at the measures of low income and deprivation, and how these relate to living standards and poverty.

As made abundantly clear in other chapters, it is not surprising that current income has serious limitations in capturing poverty. A household's standard of living depends on its command over resources and its needs, and neither would be adequately reflected in current (equivalised) income even if it were measured with perfect accuracy.[12] While disposable cash income is a key element in the resources available to a household, it is by no means the only one. Savings add to the capacity to consume now, and servicing accumulated debt reduces it; past investment in consumer durables influences the extent to which resources must be devoted to such expenditure now; the flow of services from owner-occupied housing – the imputed rent – is often not included; and non-cash income in the form of goods and services provided directly by the State, notably health care, education and housing, also comprise a major resource for many households. Cash income itself may fluctuate from month to month and year

[12] See the discussions in for example Atkinson *et al*, 2002 and Mayer, (1993).

to year, so current income is an imperfect indicator of long-term or "permanent" income which will influence ability to consume. Needs also differ across households in ways that conventional equivalence scales will not capture. These are usually based simply on the number of persons or the number of adults and children in the household, and there is little basis for confidence that they accurately reflect even the impact that has. Furthermore, households also vary in a variety of other ways that affect the demands on their income, notably with respect to health status and disability. Work-related expenses such as transport and child-care may also affect the net income actually available to support living standards and avoidance of deprivation. Finally, geographical variation in prices may mean that the purchasing power of a given income varies across households depending on their location.

Turning to measurement, one first of all cannot be confident that income itself has been measured comprehensively and accurately. Household surveys – on which poverty research generally relies – face (intentional or unintentional) mis-reporting of income. They also find it particularly difficult to adequately capture income from self-employment, from home production, from capital, and from the imputed rent attributable to homeowners. One would be particularly concerned about the reliability of very low incomes observed in surveys - particularly in countries with what are thought to be effective social safety-nets – but other incomes may also be mis-measured to an unknown extent. A good deal of effort has been going into improving the depth and accuracy of measurement of resources and needs to address such issues, as detailed in other papers here, for example by measuring stocks of assets and liabilities as well as income flows, incorporating non-cash benefits into "income", and exploring ways of capturing needs associated with for example disability. There has also been substantial investment in panel surveys to obtain a dynamic rather than static picture of income, so it is particularly important to consider the relationship between income and deprivation over time that these reveal.

One can first of all use panel data to derive average income over a number of years, and see whether this is much more strongly associated with (current or average) deprivation than current income. One interesting point to note is that the persistence of high levels of deprivation seems to be similar in scale to that of low income - deprivation levels are not much more stable from year to year. When the relationship

between the two was examined for ECHP countries, we found that about 45-55% of the persistently income poor were also "persistently deprived" – that is, had high levels of consumption deprivation throughout. If we add the further proportion of the persistently poor who were recurrently deprived (that is, deprived for most but not all the years covered) this rose to 65%-75%.

So even when one extends the income measurement period the mis-match with deprivation is still substantial. Why is this? One contributory factor is clearly mis-measurement in both income and deprivation. It has been shown that failure to take this into account in a panel context leads to underestimation of the persistence of both income poverty and severe deprivation, and of the extent to which such persistence is influenced by socio-economic variables reflecting long-term command over resources (Breen and Mosio, 2004 and Whelan and Maitre, 2007). Measurement issues almost certainly contribute to the finding that short-term changes over time in deprivation (at the individual/household level) are very weakly related to corresponding variation in income. In contrast, mean deprivation over a period is highly correlated with income averaged over a number of years (Whelan and Maitre, 2008; Berthoud *et al*, 2004). While it may be difficult to link short-term deprivation dynamics to specific events or influences, there is ample evidence that both income and deprivation are strongly influenced by factors affecting the longer term accumulation and erosion of resources (including labour market experience, education and social class). Having controlled for persistent low income, individual and household characteristics such as education, labour market experience and social class, marital status and household structure are significant in explaining deprivation levels (Whelan *et al* 2002). The evidence also shows that there are significant differences in the determinants of persistent income poverty versus persistent deprivation (e.g. Berthoud *et al*, 2004; Whelan, Layte, and Maître, 2004).

Some households, even if genuinely on low income for several years, may be able to avoid severe deprivation – for example by drawing on assets, borrowing, and receiving support from extended family. Furthermore, some people may be exceptionally good managers of their limited resources, and succeed in maintaining essentials even where most people on that income could not. However, another point to note is that some persistently low income households may report little or no

enforced deprivation but still be doing without. As described earlier, some deprivation measures in common use go beyond whether the person lacks the item or the activity to incorporate a subjective evaluation as to whether they are doing without due to inability to afford. While they may be helpful in trying to capture the impact of financial constraints rather than preferences, there is cause for concern that such responses may be influenced by adaptation to economic circumstances, rather than just tastes (McKay, 2004; Dominy and Kempson, 2006; Hallerod, 2006). There are structured differences across age groups or urban-rural location in the extent to which particular items are seen as necessities. - older people may place less value on having a holiday, or urban dwellers on having a car. Where the deprivation measures are constructed that way, one may also have particular concerns about certain types of household becoming habituated to doing without, or having different expectations from the majority (Hallerod, 2006). Where the formulation of the questions allow, it is therefore useful to look both at what people report as enforced deprivation and what they simply lack.

What, conversely, of the households with incomes above the poverty line who are reporting (enforced) deprivation? This is not difficult to understand when they are close to the poverty line – a few extra euro or pounds over the poverty threshold might not have a dramatic impact on living standards. Those in top half of the income distribution for some time and still reporting substantial deprivation, on the other hand, may be particularly poor managers of their income, they may have got heavily into debt, or they may have rather different priorities in allocating their spending to the norm. Deprivation conceptually relates to being denied the opportunity to have or do something; the difficulty is in empirically inferring a constrained opportunity set from what people do not have or do, as opposed to differences in preferences/tastes. As discussed below, this means that when using deprivation indicators together with income to measure poverty one may wish to exclude high-income households reporting that they cannot afford things that many lower income-households have. Still, it is of interest in itself and worth investigation that these households regard themselves as unable to afford what most others at their income level may have.

It is reasonable to conclude, then, on the basis of both comparative and national studies, that measured income and material deprivation each contain valuable

information about the situation of households, reflecting their resources and needs and how these have evolved, with income not an adequate substitute for deprivation or vice versa. This conclusion is underpinned when one looks at how income and deprivation levels relate to people's overall subjective evaluations of their own situation.[13] A widely-used measure of self-assessed economic strain, included in the ECHP and EU-SILC, is based on the following question: "Thinking now of your household's total income, from all sources and from all household members, would you say that your household is able to make ends meet?, with respondents offered responses ranging from "with great difficulty" to "very easily". Levels of self-assessed difficulty are generally found to be considerably higher for those above the deprivation threshold than for those in income poverty.[14] Having panel data on income over time helps to explain differences in self-perceived difficulty making ends meet, but deprivation levels remain significant determinants (Whelan *et al* 2004).

7. The Implications for Using Deprivation Indicators in Measuring Poverty and Exclusion

We now focus on the implications of the findings from the now substantial range of European studies using deprivation indicators for how best to employ them in measuring and monitoring poverty and exclusion and in improving our understanding of those phenomena. In considering this, we distinguish their use in measuring and understanding deprivation, in identifying the poor, and in capturing the multidimensionality of poverty/exclusion and the extent and nature of multiple deprivation.

a/ Measuring and Understanding Different Types of Deprivation

The most obvious uses for indicators designed to capture deprivation is in comparing deprivation levels over time or across countries, and in investigating the causal processes producing deprivation. In doing so, while a summary deprivation index encompassing different types of deprivation has its uses, it is generally more informative to distinguish different dimensions. The ECHP has been the main source for cross-country comparative analysis of this type (see for example Eurostat, 2003,

[13] See Van den Bosch (2001) for an in-depth discussion of subjective assessments of income adequacy.
[14] See for example Whelan et al, (2001).

2005, Whelan et al, 2001, 2006, Guio, 2005), and the European Quality of Life Survey (EQLS) organised by the European Foundation for the Improvement of Living and Working Conditions also provides some useful data covering a wider span of countries. EU-SILC now represents the primary source for such comparative analysis in Europe, so we use data for 2006 to compare mean deprivation scores by country for the enlarged EU for the three dimensions described earlier, in Table 5. Some interesting variation in the cross-country patterns between the dimensions can be seen – with much more differentiation in the consumption than the environment dimension, for example, and generally very low mean levels of deprivation in the housing facilities dimension.

Table 5: *Household mean deprivation by dimension of deprivation across countries, EU-SILC 2006*

	Consumption	Housing Facilities	Neighbourhood Environment
Austria	0.8	0.0	0.4
Belgium	0.9	0.1	0.6
Cyprus	1.7	0.1	0.7
Czech Rep.	1.4	0.1	0.5
Germany	1.1	0.0	0.7
Denmark	0.7	0.0	0.4
Estonia	1.5	0.5	0.6
Spain	1.0	0.0	0.6
Finland	0.9	0.1	0.5
France	1.0	0.1	0.5
Greece	1.6	0.1	0.5
Hungary	2.2	0.2	0.4
Ireland	1.0	0.0	0.4
Italy	1.1	0.0	0.6
Lithuania	2.5	0.7	0.4
Luxembourg	0.4	0.0	0.5
Latvia	2.8	0.6	0.8
Netherlands	0.6	0.0	0.6
Poland	2.5	0.3	0.4
Portugal	1.6	0.2	0.6
Sweden	0.5	0.0	0.3
Slovenia	1.2	0.1	0.5
Slovakia	2.2	0.1	0.5
UK	0.8	0.0	0.6

In-depth analysis focusing on the factors associated with different types of deprivation and how these vary across countries then has the potential to uncover important features of the causal processes underpinning them It is worth reiterating in this context the contrast already noted between those types of deprivation in current consumption that are strongly linked to income, versus poor housing facilities, housing deterioration, and neighbourhood environmental problems where a very weak relationship even with persistent low income has been found across countries in the ECHP (Whelan *et al* 2003). Factors such as age, household composition, urban/rural location and tenure status have been found to play an important role in predicting housing and neighbourhood-related dimensions, and this is clearly critical in thinking about how policy in those domains needs to respond.

In a cross-country perspective, such comparisons of "absolute" deprivation levels and patterns by dimension can usefully be complemented by ones where the hardship involved in doing without each specific item is allowed to vary from country to country. As already noted, this is most often done by simply weighting the item by the proportion in the country who are not doing without – prevalence weighting (see for example Tsakloglou and Papadapoulos, 2001; Whelan *et al*, 2002; Muffels and Fouarge, 2004; Förster, 2005). An alternative, initially associated with the 'Breadline Britain' studies beginning in the early 1980s (Mack and Lansley, 1985), is to weight items by how widely they are considered to be necessities in the society in question – often termed the consensual approach. However, cross-country patterns in such evaluations are not always easy to interpret – as evidenced by the results of a recent Eurobarometer-based survey on the perception of necessities (see Dickes, Fusco and Marlier, 2008) which Eurostat had hoped would inform the selection of items for inclusion in the EU-SILC 2009 special module on deprivation). In any event, most of the data sets on which comparative analyses of deprivation have been based have not contained information on evaluation of essentials, so weighting by prevalence is the most straightforward option available.

Material deprivation indicators can also be very useful in capturing trends over time. An interesting illustration is the Irish experience in the "Celtic Tiger" period, where levels of "basic" deprivation were seen to decline markedly over the period from the mid-1990s to around 2000 when economic growth reached spectacular heights and

incomes grew very rapidly. This gave a very different picture to relative income poverty rates, which actually rose over that period. The Irish experience also illustrates some potential difficulties in measurement, highlighted by the fact that the level of measured deprivation rose when EU-SILC replaced the ECHP, despite continued economic growth. This appears to reflect two distinct hazards from a measurement perspective. The first arises because of the panel nature of the ECHP: selective attrition may mean that deprivation became less well represented over time. Some other studies also suggest a tendency for deprivation measures to decline over time faster than might be expected from trends in e.g. income (Berthoud, Bryan and Bardasi, 2004); the extent to which this is due to selective attrition or other factors such as response biases[15] is not entirely clear.

The second potential problem is that apparently insignificant changes in the survey instrument – in the way the questions are worded, framed and located in the questionnaire – may also have affected the level of deprivation reported. This is of particular concern, and highlights the need to carefully monitor the precise way deprivation is being measured to ensure that lack of consistency – over time or across countries – in the measurement instrument is not responsible for changes in the figures.

In capturing changes over time, as well as using a fixed set of indicators there is also a role for deprivation measures that seek to reflect the changing nature of exclusion. As in the comparative context, the most straightforward approach is to retain a fixed set of items but allow the weights applied to each to change over time in line with its prevalence in the population. A more full-blown approach is to change the items themselves by dropping ones that have became ineffective in distinguishing the excluded, and replacing them by ones that capture emerging types of deprivation as general living standards rise. This requires on-going testing of both existing and new items to assess their relevance and value. Changing perceptions about what constitute necessities are an important consideration from a conceptual point of view, but it is less clear how best to take this into account in practice. Several studies have found

[15] It has been suggested, for example, that some survey respondents might be reluctant to continue reporting that they cannot afford items year after year, particularly to the same interviewer.

only limited agreement across groups (distinguished by for example age or social class) on which items families everyone should be able to afford (see McKay, 2004, Dominy and Kempson, 2006, Halleröd, 2006). Recalibration of the set of items used to capture poverty and exclusion over time poses technical challenges, but may also be problematic in terms of transparency from the perspective of policy-makers and official indicators and targets. In the Irish case, for example, it was only after considerable debate that the deprivation items incorporated into the officially-adopted "consistent" poverty measure (to be described below) were changed to reflect generally higher living standards (see Maitre, Nolan and Whelan, 2006).

It is worth noting that both in order to facilitate cross-country comparisons and more particularly to allow progress over time to be monitored, indicators of material deprivation and housing deprivation based on EU-SILC are being actively developed for use in the EU Social Inclusion Process. (For discussion of the issues involved see Atkinson et al, 2002; Marlier et al, 2007; and the paper to this conference by Cantillon et al, 2009). Eurostat has carried out a significant body of analysis of the available data from EU-SILC and alternative ways of configuring summary measures have been considered by a task force from the Member States, making recommendations to the Social Protection Committee and its Indicators Sub-Group. This means that indicators of material deprivation will play an important role in the future in the way the EU measures and monitors social progress.

b/ Identifying the Poor

If non-monetary indicators can be used to capture deprivation, does this help in measuring poverty? The conceptual and measurement problems in relying on income alone to identify the poor (discussed earlier) suggest that incorporating deprivation into the measurement process could have significant potential. Where income is genuinely low but this is unusual for the household and it has savings to run down, for example, or where income has been mis-reported as low, non-monetary indicators might correctly suggest a higher standard of living than income. Where the household benefits from non-cash support from the state, this should enable them to attain a higher standard of living, again reflected in lower levels of deprivation, ceteris paribus. Where a household faces particular needs which act as a drain on income, due to disability for example, then deprivation levels should be higher than for others

on the same income. Where prices are considerably higher in one part of the country than another, lower levels of deprivation in the low-cost regions could be captured by non-monetary indicators.

This does not mean that a convincing case can be made for ignoring income and focused simply on deprivation in measuring poverty. We have seen that some middle- and even high-income households report deprivation with conventional measures. While this seems to be telling us something (which may be quite important) about such households, it does not seem a reliable basis for concluding that they are poor according to the widely-used definition discussed earlier. Given two relevant pieces of information about a household - income and deprivation - each with limitations from both conceptual and measurement perspectives, incorporating both into the measurement process is one way to seek to improve reliability in identifying the poor.

A relatively straightforward way of incorporating deprivation is to focus on those who are both on low (relative) income and experiencing high (relative) levels of deprivation. This approach was developed and applied to Irish data to distinguish those "consistently poor" – that is, poor both when assessed by income and by deprivation - from the late 1980s through the Celtic Tiger boom, and officially adopted as the basis on which the Irish government's anti-poverty strategy set a global poverty reduction target. Such an approach has also be applied in some other countries (see for example Forster, 2005) and in making comparisons across EU countries. Broadly speaking, the rank ordering of countries remains similar to relative income lines, but the degree of overlap between income and deprivation is greater in countries with higher income poverty rates, so the disparities across countries are generally sharper. This is an approach which has also received some attention in EU circles and may be considered suitable for incorporation into the suite of common indicators at some point in the future. For the present, it remains a valuable approach from a research perspective and in focusing attention on a group within each country that should accorded very high priority for anti-poverty policy.

c/ Capturing Multidimensionality and Cumulative Disadvantage

Finally, as well as helping in identifying the poor, deprivation indicators may be of considerable value in capturing the multidimensionality of poverty and exclusion and

the extent of cumulative disadvantage. A multi-dimensional approach, using non-monetary indicators as well as income and distinguishing among different dimensions of deprivation can deepen our understanding of poverty and social inclusion. Deprivation indicators allow the relationship between different aspects or types of deprivation at the individual/household level, so that we see for example where absence of basic necessities, poor housing, bad local environment, social isolation and ill-health are found together.[16] The correlation between dimensions is often quite low – for the "consumption" and "household facilities" dimensions in EU-SILC described earlier, for example, it is only 0.3. It is not surprising, then, that both national and cross-country studies suggest that the numbers experiencing high levels of deprivation across a number of dimensions are often quite modest. If we look at the five dimensions distinguished in the ECHP as described earlier, for example, the number reporting deprivation in four out of the five is modest except in Spain, Portugal and Greece.

Using the number of dimensions in which a person is deprived – see Vranken (2002). Atkinson (2003) refers to this as the "counting approach". Tsui (2002) provides an axiomatic justification for aggregating across different deprivation dimensions into a single cardinal index, and distinguishing the poor as those above some threshold score on that index. Bourguignon and Chakravarty (2004), on the other hand, provide a framework for counting the number of poor in different dimensions and combining that information into a statistic summarising the overall extent of poverty, and how this can be linked to assumed properties of the social welfare function. Atkinson (2003) brings out how the "counting approach" can be seen within the same framework, and also highlights the role of assumptions made regarding the degree of concavity of the social welfare function and the weighting of different attributes or dimensions. A dominance approach - familiar from comparison of income inequality – seeks to identify circumstances under which one can then say that "multidimensional deprivation in Country A is lower than in country B".[17]

[16] Such aggregation at the level of the individual is to be distinguished from combining what are already aggregate indicators - such as the unemployment rate, the poverty rate and average life expectancy – to produce summary measures such as the Human Development Index.
[17] See also Brandolini and D'Alessio (1998).

Implicit in the notion of multi-dimensional measurement of exclusion is the assumption that there is no one 'true' indicator of the underlying concept. Instead what is measured is a sample of indicators that tap different aspects of a complex phenomenon. There is considerable appeal in trying to move beyond rather *ad hoc* approaches to develop a measurement model that enables us to understand the manner in which the indicators are related to the latent concept. One way of doing so is by employing the methodology of latent class analysis (see Moisio, 2004; for applications to comparative European data see Whelan and Maitre, 2005 a & b; Nolan and Whelan, 2007; Dewilde, 2004; see also the discussion in Grusky and Weeden, 2007). An alternative (applied by Tomlinson *et al*, 2008) is via structural equations modelling, while Capellari and Jenkins (2007) employ item response theory. Unresolved conceptual and measurement issues remain to be addressed in teasing out how best to implementing multidimensional measures (Thorbecke, 2007), and this is likely to be a fruitful area for future development. However, there will continue to be a tension between the power of sophisticated methods in summarising and analysing the range of indicators available and the transparency required to serve the needs of policy-makers and inform public debate.

8. Conclusions

Non-monetary indicators of deprivation are now widely used in studying poverty in Europe. Measuring financial resources and their evolution remains central, but having indicators of deprivation adds to our ability to capture poverty and social exclusion even when information on income over time is available. Non-monetary indicators can add substantially to our ability to identify those experiencing poverty in rich countries and to our understanding of the phenomenon. They are most productively used when multidimensionality is explicitly taken into account, both in framing the question and in empirical application. There are different ways to employ them, but used with care non-monetary indicators contain valuable information which, together with data on financial resources, can improve our measurement and understanding of poverty in rich countries.

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References

Atkinson, A.B. (2003). "Multidimensional Deprivation: Contrasting Social Welfare and Counting Approaches", *Journal of Economic Inequality*, 1 (1), 51-65.

Atkinson, A.B., Cantillon, B. Marlier, E and Nolan, B. (2002), *Social Indicators: The EU and Social Inclusion*, Oxford University Press: Oxford.

Bane, M. H. and Ellwood, D.T. (1984), "Slipping into and out of Poverty: the Dynamics of Spells". *Journal of Human Resource*, vol. 21, pp. 1-23.

Bauman K. (1998),. *Direct Measures of Poverty as Indicators of Economic Need: Evidence from the Survey of Income and Program Participation*, Population Division Technical Working Paper No.°30, US Census Bureau.

Bauman K. (1999), *Extended Measures of Well-Being: Meeting Basic Needs*., Current Population Reports, U.S. Census Bureau, P70-67.

Bauman K. (2003), *Extended Measures of Well-Being: Living Conditions in the United States.*, Current Population Reports, U.S. Census Bureau, P70-87.

Berthoud, R. (2004) *Patterns of Poverty in Europe*, Policy Press: Bristol.

Berthoud, R., Bryan, M. and Bardasi, E. (2004). *The dynamics of deprivation: the relationship between income and material deprivation over time*, Research Report Number 219, Department for Work and Pensions: London.

Bohnke, P. and Delhey, J, (1999) *Poverty in a Multidimensional Perspective: Great Britain and Germany in Comparison*, FS III 99 – 413, WZB: Berlin

Bossert, W., C. D'Ambrosio and V. Peragine (2007) "Deprivation and Social Exclusion", *Economica*, vol. 74, 296, 777-803.

Bourguignon, F. and Chakravarty, S. (2003) "The Measurement of Multidimensional Poverty", *Journal of Economic Inequality*, 1 (1), 25-49.

Bradshaw, J. and Finch, N. (2003). "Overlaps in dimensions of poverty", *Journal of Social Policy*, 32 (4), 513-525.

Bray, J. (2001) *Hardship in Australia*, Department of Family and Community Services, Canberra.

Breen, R and Moiso, P. (2004), "Overestimated Poverty Mobility: Poverty Dynamics Corrected for Measurement Error", *Journal of Economic Inequality*, 2 (3), 171-191.

Burchardt, T., Le Grand, J. and Piachaud, D. (2002), "Degrees of Exclusion: Developing a Dynamic, Multidimensional Measure", in J. Hills, J. Le Grand and D. Piachaud (eds.) *Understanding Social Exclusion*, Oxford University Press, Oxford.

Callan, T., Nolan, B., and Whelan, C. T. (1993), 'Resources, Deprivation and the Measurement of Poverty', *Journal of Social Policy*, vol. 22, no. 2, pp. 141-172.

Cappellari, L. and S. P. Jenkins (2006) *Summarizing Multiple Deprivation Indicators* ISER Working Paper 2006/40, University of Essex: Wivenhoe.

Citro, C. F. and Michael (1995), *Measuring Poverty: a New Approach*. National Academy press,: Washington D, C.

Dekkers G. (2003) *Financial and multidimensional poverty in European Countries: Can the former be used as a proxy of the latter?* IRISS Working paper series, N° 2003-13, CEPS/INSTEAD: Luxembourg.

Dewilde, K, 2004. The multidimensional measurement of poverty in Belgium and Britain: A categorical approach. *Social Indicators Research* 68, 331-369.

Dewilde, K, 2008. Multdimensional poverty in Europe: Institutional and individual determinants. *Social Indicators Research*, 83, 233-256

Dickes P., Fusco A., Marlier E. (2008), *Socially perceived necessities of life across EU countries: Structures and consensus,* Paper presented at the 30th IARIW General Conference, Slovenia, 24-30 August.

Dominy, N. and Kempson, E. (2006), *Understanding Older People's Experiences of Material Deprivation*, UK Department of Work and Pensions, Research Report No. 363.

Duncan, G. J. (1984), *Years of Poverty, Years of Plenty*, Institute for Social Research, University of Michigan: Ann Arbor.

European Commission (2004), *Joint Report on Social inclusion,* Office for Official Publications of the European Communities: Luxembourg.

European Foundation for the Improvement of Living and Working Conditions (2004), *Low income and deprivation in an enlarged Europe*.

Eurostat (1996), *European Community Household Panel: Methods Volume 1*, Luxembourg

Eurostat (2000), *European Social Statistics: Income Poverty & Social Exclusion (1st Report),* Office for Official Publications of the European Communities: Luxembourg.

Eurostat (2003), *European Social Statistics: Income Poverty and Social Exclusion* (2nd Report), Office for Official Publications of the European Communities, Luxembourg.

Förster M. (2005), "The European union social space Revisited. Comparing poverty in the enlarged European union", *Journal of Comparative Policy Analysis*, Vol 7, N°1.

Förster, M. and Pearson (2002), "Income distribution and poverty in the OECD area: trends and driving forces". *OECD Economic Studies*, No.34, pp. 7-39. Paris.

Fusco A. (2006), *On the Overlap of Multidimensional and Income Poverty*, Paper presented at the 2006 Conference of the European Panel Users Network (EPUNet), May 8-9, Barcelona (htttp://epunet.essex.ac.uk/Conf2006/papers/Fusco-paper.pdf)

Gordon, D., Pantazis, C., Townsend, P., Bramley, G., Bradshaw, J., Holmes, H., Halleröd, (1995), *Breadline Britain in the 1990s: A Report to the Joseph Rowntree Foundation*, Department of Social Policy and Planning, University of Bristol: Bristol.

Gordon, D. Adelman, L., Ashworth, K., Bradshaw, J., Levitas, R., Middleton, S., Pantazis, C., Patsios, D., Payne, S., Townsend, P. and Williams, J. (2000), *Poverty and Social Exclusion in Britain*, Joseph Rowntree Foundation: York.

Gordon, D. and P. Townsend, eds. (2001) *Breadline Europe; The Measurement of Poverty*, Policy Press: Bristol.

Grusky, D. and K. Weeden, K. (2007). "Measuring poverty: The case for a sociological approach" in: N. Kakawani and J. Silber, eds., *The Many Dimensions of Poverty*, Palgrave Macmillan: Basingstoke.

Guio, A.-C. (2005). 'Material Deprivation in the EU', *Statistics in Focus*, Eurostat, Statistics in Focus 21/2005, European Communities: Luxembourg.

Guio, A.-C. and I. Engsted-Maquet (2007), Non-Income dimension in EU-SILC: Material deprivation and poor housing, in *Comparative EU statistics on Income and Living Conditions: Issues and Challenges, Helsinki,*

Hallerod, B. (1995), 'The Truly Poor: Direct and Indirect Measurement of Consensual Poverty in Sweden', *European Journal of Social Policy*, 5 (2), 111-129.

Halleröd, B. (2006), Sour Grapes: Relative Deprivation, Adaptive Preferences and the Measurement of Poverty. *Journal of Social Policy*, *35*(3), 371-390.

Hills, J., Le Grand, J. and Piachaud, D. (eds.) (2002), *Understanding Social Exclusion,* Oxford University Press, Oxford.

Jensen, J. *et al* (2002) Direct Measurement of Living Standards: The New Zealand ELSI Scale, Ministry of Social Development: Wellington.

Kangas, O. and Ritakallio, V. (1998) "Different Methods – Different Results? Approaches to Multidimensional Poverty", in Andress, H.-J., ed., *Empirical Poverty Research in a Comparative Perspective,* Ashgate: Aldershot.

Krishnan, V., Jensen, J. and Ballantyne, S. (2002), *New Zealand Living Standards 2000*, Centre for Social Research and Evaluation, Ministry of Social Development, Wellington.

Layte, R., Maitre, Nolan, B and Whelan, C. T (2000), 'Targeting Poverty: Lessons from Monitoring Ireland's National Anti Poverty Strategy', *Journal of Social Policy*, vol. 29, no. 4, pp.553-575.

Layte, R., Maitre, Nolan, B and Whelan, C. T (2001a), 'Persistent and Consistent Poverty: An Analysis of the First Two Waves of the European Community Household Panel', *Review of Income and Wealth*, 47, 427-440.

Layte, R., Maitre, Nolan, B and Whelan, C. T (2001b), 'Explaining Deprivation in the European Union', *Acta Sociologica*, 44, 2, 105-122.

Layte R., Nolan B., Whelan C.T. (2001), "Reassessing Income and Deprivation Approaches to the measurement of poverty in the Republic of Ireland", *The Economic and Social Review*, 32, 3.

Mack, J. and Lansley, S. (1985), *Poor Britain* Allen and Unwin: London.

Maitre, B., B. Nolan and C.T. Whelan, (2006) Reconfiguring the Measurement of Deprivation and Consistent Poverty in Ireland, Policy Research Series 58. Economic and Social Research Institute: Dublin.

Mayer, S. and Jencks, C. (1989), 'Poverty and the Distribution of Material Hardship', *Journal of Human Resources*, vol. 24, no. 1, pp. 88-114.

Mayer, S., (1993). "Living Conditions Among the Poor in Four Rich Countries", *Journal of Population Economics*, 6, 261-86.

McKay, S. (2004). "Poverty of preference: what do consensual deprivation indicators really measure?" *Fiscal Studies*, 25(2), 201-224.

Mickelwright, J. (2001), "Should the UK Government Measure Poverty and Social Exclusion with a Composite Index?", in *Indicators of Progress: A Discussion of Approaches to Monitor the Government's Strategy to Tackle Poverty and Social Exclusion*, CASE Report No. 13, London School of Economics.

Moisio, P, (2004), "A latent class application to the multidimensional measurement of poverty", *Quantity and Quality* 38, 703-717.

Muffels, R. (1993), 'Deprivation Standards and Style of Living Indices,' in *The European Face of Social Security*, J. Berghman and B. Cantillon, eds., Avebury, Aldershot.

Muffels, R. and Dirven, H. (1998) "Long-term Income and Deprivation-Based Poverty Among the Elderly", in Andress, H.-J., ed., *Empirical Poverty Research in a Comparative Perspective*, Ashgate: Aldershot.

Muffels, R.J.A., Fouarge, D.J.A.G. (2004). "The role of European welfare states in explaining resources deprivation". Social Indicators Research, 68(3).

Nolan, B. and Whelan, C. T. (1996a), '*Resources, Deprivation and Poverty*', Oxford and New York: Oxford University Press, Clarendon Press.

Nolan, B. and Whelan, C. T. (1996b), 'Measuring Poverty Using Income and Deprivation Indicators: Alternative Approaches', *Journal of European Social Policy*, vol. 6, no. 3., pp. 225-240.

Nolan, B. and C.T. Whelan, (2007) "On the multidimensionality of poverty and social exclusion" in J. Micklewright and S.P. Jenkins, eds., *Poverty and Inequality: New Directions*. Oxford University Press, Oxford.

Pantazis, C., D. Gordon and R. Levitas eds. (2006) *Poverty and Social Exclusion in Britain: The Millennium Survey*, Policy Press, Bristol

Perry, B. (2002). *The mismatch between income measures and direct outcome measures of poverty*. Centre for Social Research and Evaluation, Ministry of Social Development, New Zealand.

Ringen, S. (1988), 'Direct and Indirect Measures of Poverty', *Journal of Social Policy*, vol. 17, pp. 351-366.

Saunders, P. and L. Adelman (2006), "Income Poverty, Deprivation and Exclusion: A Comparative Study of Australia and Britain", *Journal of Social Policy*, 35:4:559-584

Thorbecke, E, 2007. Multidimensional poverty: Conceptual and measurement issues. In: Kakawani, N., Silber, J. (Eds.), The Many Dimensions of Poverty. Palgrave Macmillan, Basingstoke.

Townsend, P. (1979), *Poverty in the United Kingdom* Penguin, Harmondsworth.

Tsakloglou, P. and Papadopoulous, F. (2002) 'Aggregate level and determining factors of social exclusion in twelve European countries', *Journal of European Social Policy*, 12 (3): 211-25.

Tsui, K. (2002), "Multidimensional Poverty Indices", *Social Choice and Welfare*, 19, 69-93.

Van den Bosch, K. (2001) *Identifying the Poor: Using Subjective and Consensual Measures*, Ashgate: Aldershot.

Whelan, C.T., Layte, R., Maitre, B., and Nolan, B. (2001) “Income, Deprivation and Economic Strain: An Analysis of the European Community Household Panel”, *European Sociological Review*, 17 (4), 357-372.

Whelan, C.T., Layte, R., and Maître, B., (2002), ‘Multiple Deprivation and Persistent Poverty in the European Union’, *Journal of European Social Policy*, 12 (2), 91-105.

Whelan, C.T., Layte, R. and Maître, B. (2003), “Persistent Income Poverty and Deprivation in the European Union”, *Journal of Social Policy*, 32,1:1-18.

Whelan, C.T., Layte, R. and Maître, B. (2004), “Understanding the Mismatch between Income Poverty and Deprivation: A Dynamic Comparative Analysis”, *European Sociological Review*, 20 (4), 287-302.

Whelan, C.T. and Maître, B. (2006), ‘Comparing Poverty and Deprivation Dynamics: Issues of Reliability and Validity’, *Journal of Economic Inequality*, 4: 303-323.

Whelan, C. T. and Maître, B. (2005a), "Vulnerability and Multiple Deprivation Perspectives on Economic Exclusion in Europe: A Latent Class Analysis", *European Societies*, 7 (3), 423-450.

Whelan, C. T. and Maître , B. (2005b), “Economic Vulnerability, Social Exclusion and Social Cohesion in an Enlarged European Community”, *International Journal of Comparative Sociology*, 46, 3:215-239.

Whelan, C.T., Nolan, B. and Maître, B. (2005). *Monitoring Poverty in Ireland with EU-SILC*, Dublin: Economic and Social Research Institute.