

PERSISTENT AND CONSISTENT POVERTY IN THE 1994
AND 1995 WAVES OF THE EUROPEAN COMMUNITY
HOUSEHOLD PANEL SURVEY

BY RICHARD LAYTE, BERTRAND MAÎTRE, BRIAN NOLAN,
AND CHRISTOPHER T. WHELAN

The Economic and Social Research Institute, Dublin

This paper focuses on the mismatch between income and deprivation measures of poverty. Using the first two waves of the European Community Household Panel Survey, a measure of relative deprivation is constructed and the overlap between the relative income poor and relatively deprived is examined. There is very limited overlap with the lowest relative income threshold. The overlap increases as the income threshold is raised, but it remains true that less than half those below the 60 percent relative income line are among the most deprived. Relative deprivation is shown to be related to the persistence of income poverty, but also to a range of other resource and need factors. Income and deprivation measures each contain information that can profitably be employed to enhance our understanding of poverty and a range of other social phenomena. This is illustrated by the manner in which both income poverty and relative deprivation are associated with self-reported difficulty making ends meet.

1. INTRODUCTION

A large body of comparative research on poverty employs relative income poverty lines. This is, for example, the approach adopted in various studies for the EU Commission or Eurostat (O'Higgins and Jenkins, 1990; Eurostat, 2000), and figures on that basis are also regularly produced in many European countries, including the U.K., France, and Germany (see, for example, DSS, 2000). This practice is based on the notion that poverty has to be assessed *vis-à-vis* the standard of living of the society in question, and represents inability to participate in the ordinary life of that society due to lack of resources. The broad rationale for relative income poverty lines, set at a particular percentage of mean or median income in the country in question, is then that those falling more than a certain "distance" below the average or normal income are unlikely to be able to participate fully in the society.

However, as Ringen (1987, 1988) argued some years ago, (relatively) low income may in fact be quite unreliable as an indicator of poverty, failing in practice to identify those experiencing what are distinctively high levels of deprivation in their own country. It is this mismatch between low income and deprivation—*both defined in relative terms*—which is the focus of this paper. Using data for 11 European countries from the harmonized European Community Household

Note: Data from the European Community Household Panel survey are used with the permission of Eurostat, who bear no responsibility for the analysis or interpretations presented. The research was carried out as a part of the work of the European Panel Analysis Group (EPAG) on a Targeted Socio-Economic Research project (CT96-3023) under the Training and Mobility of Researchers Programme of the EC's Fourth Framework. Helpful comments from two referees are acknowledged.

Panel Survey, we explore the extent of this mismatch and the role which persistence of income poverty over time and a range of other factors play in producing the income–deprivation relationship observed at a point in time. The results demonstrate that the mismatch, while substantial, can be understood in terms of factors affecting the accumulation and erosion of resources in the longer term, and that both income and deprivation contain valuable information about current living standards and poverty. We bring out that this has implications both for poverty measurement and for policy-making.

The structure of the paper is as follows. Section 2 discusses at a theoretical level the relationship between current income and deprivation, and the complexities underpinning it. Section 3 describes the data employed and the construction of income poverty and deprivation measures. In Section 4 we examine the relationship between relative income poverty and deprivation at a point in time. Section 5 focuses on income poverty persistence and the extent to which a dynamic perspective on income poverty helps to explain the cross-sectional pattern observed. Section 6 deals with the relationship between current, persistent and consistent poverty and economic strain. Section 7 extends the argument by providing a multivariate analysis of the determinants of deprivation, which takes into account the role of current income, persistent poverty and a range of household characteristics reflecting command over resources and demands on such resources. Finally Section 8 brings together the conclusions.

2. INCOME, DEPRIVATION, AND POVERTY

Do measures of low income in relative terms identify people who are deprived relative to prevailing standards in the society? To assess whether this is the case, deprivation has to be measured directly. Exploration of the value of non-monetary indicators of deprivation in measuring and understanding poverty was pioneered by Townsend in Britain (Townsend, 1979). Subsequent work in this growing area includes Townsend and Gordon (1989) and Gordon *et al.* (2000) for Britain, Mayer and Jencks (1988, 1993) for the U.S., Muffels (1993) and Muffels and Dirven (1998) for the Netherlands, Callan, Nolan, and Whelan (1993) and Nolan and Whelan (1996a, 1996b) for Ireland, Halleröd (1995, 1998) for Sweden, and Kangas and Ritakallio (1998) for Finland. Mayer (1993) looks at the U.S., Canada, Sweden and Germany. These studies have consistently shown that there is a substantial mismatch between poverty measured indirectly in terms of relative income lines and poverty measured directly in terms of observed deprivation. Even where a variety of deprivation dimensions are distinguished and one focuses on those dimensions which might be expected to relate most closely to current income, major discrepancies between income and deprivation measures are still found (Muffels, 1993; Nolan and Whelan, 1996a, 1996b).

To provide a framework within which to understand this mismatch and its implications, it is necessary to incorporate both theoretical considerations and the very real difficulties in measuring the theoretical concepts involved (see the discussions in, for example, Atkinson *et al.*, 2002 and Mayer, 1993). Focusing first on the key relationships at the conceptual level, a household's level of relative deprivation will depend crucially on its command over resources and its needs

compared with others in the same society. (While our focus here is on deprivation rather than living standards more generally, similar arguments apply.)

While disposable cash income is a key element in the resources available to a household, it is by no means the only one. Savings accumulated in the past add to the capacity to consume now, and servicing accumulated debt reduces it. Similarly, the level of past investment in consumer durables influences the extent to which resources must be devoted to expenditure on such durables now. The most substantial investment made by many households is in owner-occupied housing, and the flow of services from this investment—the imputed rent—should in principle be counted among available resources but very often is not. Non-cash income—in the form of goods and services provided directly by the State, notably health care, education and housing—may also comprise a major resource for households.

The importance of the time dimension for resources has become clear from the way income is seen to fluctuate over time in panel data sets (for example, Jarvis and Jenkins, 1998). Income measured over a number of years is thus likely to be a better indicator of long-term or “permanent” income than a measure for one year only. Since consumption cannot always be fully smoothed over time and households take time to adjust to income “shocks,”¹ shorter-term income is still important but needs to be set in the context of the way income has evolved over time.

Turning to needs, these also differ across households, in a manner which is difficult to capture adequately at the conceptual, much less empirical level. Most obviously, differences in household size and composition, in terms of numbers of adults and children, affect the living standards a particular level of income will support. It is customary to seek to take this into account by dividing household income by the number of “equivalent adults” in the household, but the equivalence scales employed may or may not satisfactorily achieve this objective. Households may also vary in a variety of other ways that affect the demands on their income, such as the ages of the adults and children and their health status. 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.²

Turning to measurement, we first of all cannot of course be confident that income itself has been measured comprehensively and accurately at a point in time. 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 home-owners. 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. As far as the level of deprivation is concerned, measurement

¹Households’ expectations may also adjust, albeit with a lag, as income changes—a point to which we return in discussing the measurement of deprivation.

²Mayer (1993) is concerned with absolute living standards rather than relative deprivation, and thus also includes average income and prices in her discussion.

also raises a host of difficult issues which we discuss in the next section in introducing our own approach.

These various factors can be identified *a priori* as likely to lead to some mismatch between relative income poverty and levels of relative deprivation. One can also hypothesize that this mismatch may vary across countries, depending for example on the extent to which income is required to access health care, education and housing as well as on the accuracy of the available national survey data. Exploring the relationship between income poverty, persistent income poverty, resources, needs and deprivation across a range of countries using a harmonized data set offers the possibility of clarifying the nature and implications of this mismatch, and that is the aim of this paper. The first two waves of the European Community Household Panel Study provide such a data set. It contains information on income on a harmonized basis across countries for two years (1993 and 1994), so measures of persistent as well as current income poverty—if only for a short time scale—can be derived. The availability of life-style deprivation measures means that one can examine whether those falling below relative income poverty lines—in one or both years—are those experiencing relatively high levels of deprivation.

While we expect that shifting from a cross-sectional measure of income to an over time measure will help to reduce the degree of mismatch, we anticipate that other factors will play an important role. We distinguish once again between factors relating to “needs” and those relating to resources. The former seek to capture the material obligations imposed on households by household structure, marital status, number of children, stage of the life cycle and key life events. In other words, we seek to tap characteristics that increase the level of resources necessary to a household to maintain any given standard of living. As far as resources are concerned, social class, educational qualifications and labor market experience are key indicators of ability to command remuneration in the labor market, the main element of current income, the most general form of resource. Our analysis is guided by the hypothesis that the apparent paradox presented by the scale of mismatch between income poverty and corresponding measures of relative deprivation can to a large extent be resolved by taking into account other factors which contribute to the accumulation and erosion of resources.

A particular understanding of deprivation is central to this analysis, and it is important to be clear about that from the outset. Like poverty, deprivation is a widely used term that is often applied without definition of the underlying concept, so it can be employed in rather different ways (Townsend, 1988). A core element in the concept of deprivation, as widely understood, is that it refers to being *denied* the opportunity to have or do something which is widely regarded as a necessity in the society: it refers to the results of constraints on people’s choices, not simply the outcomes themselves. While the latter are much easier to observe, distinguishing between the impact of constraint and choice must remain a central objective in measuring deprivation. In doing so we are interested in indicators where one might reasonably expect *a priori* that absence will most often be attributable to limited resources rather than other constraints such as ill health, accidents of location, or differences in taste. This helps to restrict the areas one

seeks to cover in selecting indicators by allowing a concentration on those that are likely to be directly affected by access to financial resources.

3. DATA AND MEASUREMENT OF DEPRIVATION

The European Community Household Panel Survey (ECHP) has been organized by Eurostat—the Statistical Office of the European Communities—and carried out in most member states since 1994. The results presented in this paper are based on the User Data Base (UDB) released for public use by Eurostat containing data from Wave 1 and Wave 2.³ Our analysis relates to 11 countries.⁴ The income measure employed is total disposable income, including transfers and after deduction of income tax and social security contributions, with the household taken as the income recipient unit. The principal accounting period for income employed in the ECHP is the previous calendar year: with the Wave 1 survey carried out in 1994 and Wave 2 in 1995, this means the income measures relate to calendar 1993 and calendar 1994 respectively.

Since a given level of household income will support a different standard of living depending on the size and composition of the household, we adjust for these differences using equivalence scales. The scale employed here is the one now generally used by Eurostat, often termed the “modified OECD” scale: where the first adult in a household is given the value 1, with this scale each additional adult is given a value of 0.5 and each child a value of 0.3.⁵ The number of equivalent adults in each household is calculated using this scale, and equalized income derived by dividing household income by this number. Equalized income of the household is then attributed to each member, assuming a common living standard within the household, and our analysis is carried out using the individual as the unit of analysis.

The ECHP contained 25 items that conform to requirements for an indicator of deprivation. We have excluded items such as central heating, which may count as a deprivation in one country but not another. The notion of enforced absence is crucial since we are interested in the operation of constraints arising from lack of resources and not simply the effect of factors such as location, ill health, or preference.⁶ Applying confirmatory factor analysis to the set of 25 items, Whelan *et al.* (2001) have demonstrated that a common set of five dimensions of life-style of deprivation exist across the countries of the European Union. Thus while there is no need to assume that each deprivation item is experienced in an identical manner, the *relationship* between items is common across countries. This allows us to construct indices with a high level of reliability across countries, thus ensuring that cross-country variation is not an artefact of the measurement procedure.

³For detailed descriptions of the ECHP data set, including assessment of the income data, see Eurostat (1999a, 1999b, 2000) and Watson and Healy (1999).

⁴For the purposes of the present analysis we have excluded Luxembourg because it must frequently be treated as an exceptional case.

⁵The same broad pattern of relative income poverty across EU countries is found with alternative scales, though the profile of the poor can be significantly affected.

⁶Thus we avoid items where it appeared particularly difficult to distinguish the impact of tastes vs. financial constraints, and those, such as “having a second home,” where possession of the item is a relatively rare phenomenon in all of the countries covered.

We could proceed by constructing a summary index of deprivation employing all 25 items. However, ignoring the dimensionality of deprivation would obscure the nature of the relationship between income and deprivation. Whelan *et al.* (2001), also show that items tapping housing facilities, housing deterioration and environmental factors bear an extremely weak relationship to income.⁷ Stronger correlations were observed for items constituting what were labeled as basic and secondary deprivation. For the purposes of the current analysis we focus on the 13 household items constituting these latter dimensions. These items are considered to cover a range of what we term Current Life-Style Deprivation (CLSD). The further 11 items relating to housing and the environment, which in principle meet our definition of deprivation, have been excluded because they form quite distinct clusters to the CLSD measure and have significantly weaker correlations with income. The exclusion of these items will, if anything, minimize the extent of mismatch between income and our measure of deprivation.

For some of these items, the survey question was posed in the format developed by Mack and Lansley (1985): respondents were first asked if they had/availed of the item and, if not, a follow-up question asked whether this was because they could not afford it. The following six items took this form:

- a car or van;
- a colour TV;
- a video recorder;
- a microwave;
- a dishwasher;
- a telephone.

In these cases we consider a household to be deprived only if absence is stated to be due to lack of resources. These subjective assessments might be affected by lowered expectations, where respondents on low incomes over a period of time come to accept the lack of certain items as normal, while others for whom the situation is more recent have not made such an adjustment. However, analysis elsewhere suggests that ignoring these subjective assessments and simply taking into account whether the household has the item would produce a less satisfactory deprivation measure, once again with a lower correlation with income (Nolan and Whelan, 1996a, pp. 74–80).

For some items the absence and affordability elements were incorporated in one question, as follows: “There are some things many people cannot afford even if they would like them. Can I just check whether your household can afford these if you want them.” The following six items were administered in this fashion:

- keeping your home adequately warm;
- paying for a week’s annual holiday away from home;
- replacing any worn-out furniture;
- buying new, rather than second hand clothes;
- eating meat, chicken or fish every second day, if you wanted to;
- having friends or family for a drink or meal at least once a month.

⁷This is related to the role of factors such as urban–rural location, life-cycle phase and location in public vs. private sector housing.

The final item relates to arrears; we consider a household as experiencing deprivation in terms of this item if it was unable to pay scheduled mortgage payments, utility bills or hire purchase instalments during the past 12 months. Our assessment of affordability is based on the reports of respondents. We have made no attempt to exclude cases where respondents report deprivation on a particular item but have possession of an apparently more expensive item. Thus “mismanagement” of resources is one factor that could contribute to the mismatch between income and deprivation measures. This is one of the reasons why one might wish to combine income and deprivation measures in construction of a poverty index. However, our conclusions relating to the role of persistent income poverty and resource and need factors are unlikely to be undermined by the operation of this factor. Finally, it should be clear that the set of items included in the ECHP allows one to construct measures of deprivation but, since no information is obtained on the quality or cost of particular items, not a broader based measure of general living standards.

Examining the interrelationships between these 13 items, we find a highly satisfactory degree of reliability as indicated by a value of 0.80 for Cronbach’s alpha.⁸ These items are used to construct a summary deprivation index, in which each individual item is weighted by the proportion of households possessing that item in the country in question. As a consequence, deprivation of an item such as a video recorder will be counted as a more substantial deprivation in Denmark than in Greece. This would clearly be unsuitable for the purposes of comparison of absolute levels of deprivation across countries.⁹ However, our focus here is explicitly on relative deprivation.¹⁰ In each country we wish to identify for each income poverty line a corresponding deprivation threshold cutting off the same proportion of the sample. This allows us to assess the mismatch between poverty defined in relative income and in relative deprivation terms—which could then vary from zero to 100 percent. We proceed in the next section to carry out such an assessment, using cross-sectional relative income poverty lines and the weighted CLSD deprivation measure.

4. RELATIVE INCOME POVERTY AND DEPRIVATION

We start by documenting the variation in relative income poverty across poverty lines and countries. Table 1 shows poverty rates using thresholds set at 40, 50 and 60 percent of the median in each country. While the pattern of variation in risk of poverty across countries is broadly as we would expect, it does depend to some extent on the specific poverty line under consideration. For all three lines Denmark has the lowest poverty rate and Greece and Portugal the

⁸ $\alpha = Np/[1 + p(N - 1)]$, where N is equal to the number of items and is equal to the mean inter-item correlation. Alpha can be considered as a unique estimate of the expected correlation of one test with an alternative form containing the same number of items (Carmines and Zeller, 1979, pp. 44–7).

⁹For such an analysis, see Layte *et al.* (2001).

¹⁰Alternative approaches to deriving weights appropriate for this purpose could involve looking at levels of possession/absence in the middle ranges of the distribution to capture “ordinary” living standards, or using survey respondents’ evaluations of what items represented “necessities” which no-one should have to do without due to lack of money (see Nolan and Whelan, 1996a, Gordon *et al.*, 2000).

TABLE 1
 PERCENTAGE OF PERSONS PRESENT IN BOTH
 WAVES BELOW MEDIAN-BASED RELATIVE
 INCOME POVERTY LINES MODIFIED OECD
 EQUIVALENCE SCALE, WAVE 1

	Percentage of Persons Below Proportion of Median		
	40%	50%	60%
Germany	7.5	11.7	15.9
Denmark	1.7	4.1	8.3
Netherlands	3.2	5.9	10.3
Belgium	5.7	10.5	17.1
France	4.6	8.6	15.0
U.K.	5.5	12.8	20.8
Ireland	2.3	6.6	17.1
Italy	8.2	12.5	18.8
Greece	11.3	15.6	22.1
Spain	7.3	12.4	20.1
Portugal	11.7	17.0	23.6

highest, although the (proportionate) gap between them falls as the threshold is raised. Spain and Italy consistently have relatively high poverty rates though lower than Greece and Portugal. The Netherlands and France consistently have the lowest poverty rates after Denmark, followed by Belgium. The U.K. occupies an intermediate position with the 40 percent line, but with the 50 and 60 percent lines its rate is one of the highest. Ireland has relatively low rates with the 40 and 50 percent lines but its ranking deteriorates sharply with the 60 percent line.

In order to examine the degree of mismatch between relative income poverty and relative deprivation, we want to distinguish groups in each country identified as worst off in terms of income vs. deprivation but equal in size, so we can see how much they overlap. To do this, we establish three deprivation thresholds for the weighted CLSD measure in each country, such that the percentages above those thresholds correspond to the percentage falling below the 40, 50, and 60 percent relative income lines respectively. Table 2 shows the degree of consistency between the income-poor and the deprived at each of the three poverty lines.¹¹

We see that at the 40 percent income line the degree of consistency is remarkably low. This is most pronounced in the countries with low relative income poverty rates. Thus in Denmark only 4 percent of those below 40 percent of median income are also above the corresponding deprivation threshold—the degree of mismatch is 96 percent. For Belgium the overlap is only 6 percent, and for Ireland, the U.K., Germany, and the Netherlands it is 15 percent or less. The degree of consistency is higher in the other countries, rising to approximately one in four for France, Italy, and Spain and one in three in Greece and Portugal.

At the 50 percent line the degree of consistency or overlap between the income-poor and deprived increases significantly but still remains low. In

¹¹Variations in consistency capture something different from the overall association between income and deprivation poverty as reflected in, for example, an odds ratio. A very low level of consistency would still be consistent with a strong degree of association as long as those who are income poor are significantly more likely to be found above the deprivation threshold.

TABLE 2
 PERCENTAGE OF PERSONS ABOVE CORRESPONDING DEPRIVATION
 THRESHOLD BY MEDIAN-BASED INCOME LINE

	40% Median Income	50% Median Income	60% Median Income
Germany	12.5	21.4	31.9
Denmark	4.4	13.4	17.0
Netherlands	15.3	22.7	39.2
Belgium	6.4	20.1	33.3
France	22.4	29.0	39.3
U.K.	11.6	33.9	47.2
Ireland	9.5	22.2	44.3
Italy	25.5	34.4	42.2
Greece	33.8	39.3	45.7
Spain	25.6	32.3	46.1
Portugal	34.4	45.0	52.2

Denmark it is only 13 percent and in Germany, the Netherlands, Belgium, and Ireland, it hardly rises above 20 percent. The overlap rises to 29–34 percent for France, the U.K., Italy, and Spain, and once again is highest in the countries with the highest poverty rates, reaching 39 percent in Greece and 45 percent in Portugal. Even in those countries, however, this means that less than half those falling below the relative income line are also to be found in the (same-sized) group with highest deprivation levels.

Consistency between income and deprivation measures increases once more when we move to the 60 percent income line, but is still rather low. Denmark again exhibits the lowest level of consistency with only 17 percent overlapping, and in the Netherlands and Germany it is one-third. The other countries are found in the range 39–46 percent, except Portugal which is the only country for which the degree of overlap gets over 50 percent.

It is clear that at the 40 percent and to a lesser extent the 50 percent income line, low income vs. deprivation—indirect vs. direct—methods of measuring poverty are identifying quite different groups and tapping quite different phenomena. The degree of mismatch is such that the socio-demographic profiles of the groups are likely to be radically different—an issue to which we return shortly. Nor is it the case that those below these income thresholds fall just outside the corresponding high-deprivation group, with deprivation levels almost as high. This is brought out in Table 3, which takes those at different income levels, and compares their risk of being among the most deprived, above the deprivation threshold corresponding to the 60 percent income line. This is done by presenting odds ratios from a series of logistic regressions where being above the deprivation threshold corresponding to the 60 percent income line is the dependent variable, and those above the 60 percent income line are the reference category. It is striking that in many countries the risk of being in that most deprived group is greatest not for those below the 40 percent income line, but for those between 40 and 50 percent or even between 50 and 60 percent. In Belgium, France, the U.K., Ireland, and Portugal it is greatest for those between the 40 and 50 percent and 50 and 60 percent income lines, and in Germany and the Netherlands for those between

TABLE 3
 ODDS RATIOS ON BEING ABOVE THE
 DEPRIVATION THRESHOLD CORRESPONDING TO
 THE 60 PERCENT INCOME LINE BY INCOME
 POVERTY LOCATION (ABOVE 60 PERCENT
 MEDIAN INCOME IS THE REFERENCE
 CATEGORY)

	<40%	40–50%	50–60%
Germany	2.09	4.15	4.64
Denmark	4.71	1.81	2.15
Netherlands	6.91	7.58	9.81
Belgium	2.04	3.93	3.58
France	5.82	6.35	4.64
U.K.	3.88	7.74	5.20
Ireland	2.11	8.82	6.34
Italy	5.41	4.86	3.90
Greece	6.00	4.07	3.13
Spain	6.75	5.31	3.89
Portugal	6.84	6.92	4.97

All coefficients are significant at the 0.001 level
 except that for 40–50 percent for Belgium.

the 50 and 60 percent lines. In every country there is indeed a clear contrast between those above the 60 percent income line (the reference group) and all others. Below that line, however, progressive lowering of the income poverty line does not systematically lead to the identification of increasingly deprived groups.

The overall relationship between income and deprivation can be brought out by simply looking at the correlation between them across the sample within each country, without distinguishing between those above and below a relative income threshold. The correlation coefficients are all negative and range from a low of -0.23 in Germany up to -0.5 in Greece. Broadly consistent with the pattern shown by the analysis based on position *vis-à-vis* relative income thresholds, the lowest correlations are for Germany, Denmark, and Belgium, at around -0.23 to 0.30 . For France, the Netherlands, U.K., Ireland, and Italy the correlation is -0.35 to 0.42 , while Spain, Greece, and Portugal have the highest levels of correlation, at around -0.47 to 0.50 . There is some tendency for countries with the highest levels of income and more generous welfare state arrangements to display the weakest degree of association between current income and relative deprivation.¹² However, perhaps what is more important for our present purposes is that, despite the assumption implicit in relative income measures of poverty that low income suffices to distinguish those experiencing exclusion from ordinary living patterns, even at its highest the correlation between income and deprivation does not exceed -0.5 .

We now want to focus on those who are both on low (relative) income and experiencing high (relative) levels of deprivation. It is only with the 60 percent

¹²It is necessary to keep in mind that we have applied differential weights to deprivation items so our conclusions are valid only in relation to *relative* deprivation. Where equal weights are applied a more striking pattern of cross-national variation in the income deprivation relationship and more systematic variation in the impact of socio-demographic factors on deprivation is observed (see Layte *et al.*, 2001).

TABLE 4
 PERCENTAGE BELOW 60
 PERCENT INCOME LINE AND
 ABOVE THE CORRESPONDING
 DEPRIVATION THRESHOLD

	%
Germany	5.1
Denmark	1.4
Netherlands	4.0
Belgium	5.7
France	5.9
U.K.	9.8
Ireland	7.6
Italy	7.9
Greece	10.1
Spain	9.2
Portugal	12.3

relative income line that the combination of substantial numbers under the line and some degree of consistency between the income and deprivation categorizations actually offers the possibility of sensibly combining the two approaches. In Table 4 we show for each country the percentage both below the 60 percent income line and above the corresponding deprivation threshold—which we will term the “consistently poor.” Since the degree of consistency or overlap between income and deprivation approaches is higher in countries with higher income poverty rates, this combined approach shows much sharper disparities between Northern European and Southern European countries. At one extreme, Denmark has both a very low relative income poverty rate and a very high degree of mismatch between income and deprivation, and thus has only 1.4 percent of individuals “consistently poor.” For the Netherlands, Germany, Belgium, and France this figure is between 4 and 7 percent. For Ireland, Italy, and Spain it lies between 8 and 9 percent. About 10 percent are “consistently poor” in the U.K. and Greece, peaking at 12 percent in Portugal. Although there are some small shifts, the rank ordering of countries remains similar to that shown by relative income lines.

5. PERSISTENT INCOME POVERTY AND DEPRIVATION

In order to enhance our understanding of the mismatch between income poverty vs. deprivation, we now direct our attention to income poverty persistence. For this purpose we make use of information from Waves 1 and 2 of the ECHP to examine the degree to which those who were income poor in calendar year 1993 were also income poor in 1994—which we will call persistently poor. While two years represents only a short longitudinal window, nonetheless as we will see this does add significantly to our understanding.

It is by now increasingly well understood that cross-sectional analyses do not give a representative picture of all those who ever experience poverty. Those observed as poor at a particular point in time will display significantly longer spells of poverty than those ever in poverty. Bane and Ellwood (1986) make the

distinction between an *ever begun* sample and a *point in time* sample. The example of a hospital is frequently used to illustrate what is at stake. If one visits a hospital on any particular day one will encounter a high proportion of long-term patients, but such patients, while constituting a high proportion of the existing stock of patients, comprise a much smaller fraction of the flow of patients during any specific period of time, as one set of short-term patients replaces another. The main contrast here is between those poor in 1993 and 1994 and those poor in either of those years. This is likely to involve something more than a comparison between those poor at one vs. two points in time, because we do not know when the income poor in 1993 entered that state.¹³ This means that the persistently poor will include those poor for exactly two years alongside those whose experience of poverty is much longer term. Indeed, some of those who exit from poverty in 1994 and are not counted as consistently poor will actually have experienced longer spells of poverty than some of the persistently poor. However, for the most part those who exit poverty in 1994 are likely to have had shorter durations than those who remain.

TABLE 5
PERCENTAGE OF RESPONDENTS POOR IN 1993
WHO REMAIN POOR IN 1994

	<40%	<50%	<60%
Germany	59.4	60.7	70.2
Denmark	33.0	42.0	57.6
Netherlands	41.7	41.0	52.2
Belgium	36.2	50.2	57.6
France	36.2	50.7	64.5
U.K.	24.4	44.8	59.9
Ireland	34.6	57.8	74.0
Italy	43.3	50.5	60.3
Greece	52.1	56.6	63.5
Spain	45.1	48.7	61.5
Portugal	47.7	67.5	74.1

Table 5 shows the percentage of those who were income poor in calendar year 1993 who were also income poor in 1994, for each country and for the three relative income lines. It shows that poverty persistence increases in each country as the relative income threshold is raised from 40 to 60 percent. At the 40 percent line, the proportion of the 1993 poor still in poverty in 1994 ranges from a low of less than one in four in the U.K. to a high of six out of ten in Germany. For the 50 percent line the lowest level of persistence—about four out of ten—is found in the Netherlands, Denmark, and the U.K. For most of the other countries 40 to 60 percent of those below the 50 percent line in 1993 are below that line in 1994, while for Portugal the figure approaches 70 percent. The degree of poverty persistence is greatest at the 60 percent income line, where in all cases more than half those below the line in 1993 were still there in 1994. The highest persistence levels with this line are in Portugal, Ireland, and Germany where they exceed seven out of ten.

¹³See the discussion in Leisering and Liebfried (1999, pp. 65–8).

The fact that income poverty persistence is generally higher with the higher poverty lines may well contribute to the lower degree of income–deprivation mismatch observed at these lines in the previous section. However, variation in persistence across countries appears unrelated to differences in national poverty rates, and as a consequence the latter cannot account for the tendency for countries with higher poverty rates to exhibit a significantly lower level of income–deprivation mismatch. More detailed analysis of poverty dynamics shows that cross-national variation in poverty persistence between Waves 1 and 2 of the ECHP is largely accounted for by structural or shift effects reflecting the net effects of changes in the poverty distribution when the role of other factors affecting the pattern of association have been taken into account (Whelan *et al.*, 2000).

TABLE 6
DISTRIBUTION OF PERSISTENT INCOME POVERTY 1993–94 AT THE
60 PERCENT INCOME LINE

	Poor in Neither Year (%)	Poor in Either 1993 or 1994 Only (%)	Poor in Both Years (%)
Germany	77.9	11.0	11.2
Denmark	85.8	9.5	4.8
Netherlands	85.7	8.9	5.4
Belgium	75.1	15.0	9.9
France	78.9	11.4	9.7
U.K.	71.3	16.3	12.4
Ireland	75.6	12.7	11.7
Italy	74.7	14.0	11.3
Greece	71.1	14.9	14.0
Spain	73.5	14.2	12.3
Portugal	69.7	12.8	17.5

In Table 6 we focus on the 60 percent median income line, and show the percentage in each country who were below that line in neither year, in one year, and in both years. In each country the percentage persistently below that line is of course lower than the cross-sectional poverty rate with the 60 percent income line in 1994 (shown in Table 1). However, it is higher than the “consistent poverty” rate at this line, in other words the percentage below that income line and above the corresponding deprivation threshold (shown in Table 4). With the exception of a slight deterioration in the position of Germany, the rank ordering of countries in terms of persistent poverty is similar to that seen with consistent poverty. The percentage persistently poor is lowest in Denmark and the Netherlands at 5 percent, it rises to 10 percent for Belgium, to 11–12 percent for Germany, Ireland, the U.K., and Spain before rising to 14 percent in Greece and, finally, 18 percent in Portugal. By contrast, the variation across countries in the percentage income poor in either Wave 1 or 2 is relatively modest, ranging only from 9 percent in the Netherlands to 15 percent in Belgium.

To bring out the relationship between income poverty persistence and deprivation, Table 7 shows how the odds of being above the deprivation threshold (corresponding to the 60 percent income line) vary with income poverty persistence. Being income poor in neither year is the reference category. Apart from Denmark and Germany, the odds of being deprived rise steadily as the degree of

TABLE 7
ODDS RATIOS ON BEING ABOVE THE CORRESPONDING
DEPRIVATION THRESHOLD BY INCOME POVERTY PERSISTENCE
AT THE 60 PERCENT MEDIAN INCOME LINE (INCOME POOR
AT NEITHER TIME IS THE REFERENCE CATEGORY)

	Poor in 1993 or 1994	Poor at Both Times
Germany	3.49	4.13
Denmark	2.54	2.49
Netherlands	5.70	9.88
Belgium	2.45	4.09
France	4.29	8.70
U.K.	4.59	8.73
Ireland	3.70	10.10
Italy	3.14	6.89
Greece	2.89	6.88
Spain	3.75	8.16
Portugal	4.29	8.88

All coefficients are significant at the 0.001 level.

poverty persistence increases. The odds of being above the deprivation threshold for those income poor in only one wave relative to those poor in neither year ranges from 2.45 in Belgium to 4.59 in the U.K. For those poor on both occasions the odds ratio is higher, ranging from 4.09 in Belgium to 10.1 in Ireland. For Germany and the Netherlands, the significant contrast is between those poor on neither occasion and all others.

Thus for all countries we observe clear differences in the risk of being above the deprivation threshold between those income poor at neither time and all others. For nine of the eleven countries we observe a further significant differentiation in the risk of deprivation between those found to be income poor in one of the waves and those persistently income poor in both.

6. CURRENT, PERSISTENT AND CONSISTENT POVERTY AND ECONOMIC STRAIN

Transient and persistent income poverty and deprivation are clearly measuring rather different phenomena, so it is worth examining their impact on variables which, on the grounds of construct validity, we would expect them to affect. One such variable is the degree of economic strain experienced by a household. *A priori*, we would expect the extent to which households feel under economic strain to be related to both income poverty and deprivation. Current income would be expected to have an impact both through constraints on current consumption and perceptions of future difficulties and opportunities. The constituent items of our deprivation measure, capturing as they do both failure to fulfill current consumption aspirations and the consequences of past successes and failures in accumulating items, should also be strongly related to economic strain.

To examine this empirically, we use a measure of self-assessed economic strain based on the following question asked in the ECHP: "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?" Respondents were offered six response categories ranging from "with great difficulty" to "very

TABLE 8
 PERCENTAGE EXPERIENCING ECONOMIC STRAIN AMONG THOSE
 FALLING BELOW THE 60 PERCENT MEDIAN INCOME LINE IN 1993
 AND ABOVE THE CORRESPONDING DEPRIVATION THRESHOLD

	Below 60% Income Line in 1993	Above Corresponding Deprivation Threshold in 1994
Germany	16.4	32.3
Denmark	22.5	55.4
Netherlands	40.8	65.5
Belgium	28.0	47.1
France	42.3	61.0
U.K.	43.1	61.8
Ireland	53.8	69.6
Italy	44.5	59.6
Greece	78.1	91.5
Spain	62.3	74.5
Portugal	57.0	71.5

easily.” Here we distinguish between those who experienced “great difficulty” or “difficulty,” and all others. In Table 8 we compare the percentage reporting such difficulty among those below the 60 percent relative income line in 1993 with the figure for those above the corresponding deprivation threshold. Keeping in mind that (by construction) these represent equally sized groups, it is interesting to see that in every country levels of self-assessed economic strain are considerably higher for those above the deprivation threshold than for those in income poverty.

For those below the 60 percent income line, the percentage experiencing great difficulty or difficulty in making ends meet ranges from 16 percent in Germany to 78 percent in Greece. For those above the deprivation threshold the range is from 32 percent in Germany to 92 percent in Greece. In Denmark, the rate of economic strain is almost two and a half times as high among those above the deprivation threshold as among those below the 60 percent income line, while for Germany the corresponding ratio is two to one. Among the Southern European countries and Ireland this ratio falls to between 1.1 and 1.3, while for the remaining countries values in the range 1.4 to 1.7 are observed.¹⁴

We now look at the joint impact of income poverty, income poverty persistence and deprivation on economic strain. Table 9 shows the odds of experiencing economic strain, categorizing by above vs. below the deprivation threshold and number of times income poor (with those income poor on neither occasion and below the deprivation threshold as the reference category). The results confirm the independent effects of both income poverty and deprivation. Focusing first on those below the deprivation threshold, we find that for Germany and Denmark the pronounced contrast is again between those income poor in one or both years and those not income poor in either. For the other countries, the risk of economic strain rises sharply as the number of years in income poverty rises. For those

¹⁴Once again note that economic strain does not vary substantially when we distinguish between those below the 40 percent line, those between the 40 to 50 percent lines and those between the 50 to 60 percent lines. This is yet another instance where those below the 60 percent income line are sharply differentiated from those above the line, but further differentiation among those below the line is not seen.

TABLE 9

ODDS RATIOS ON EXPERIENCING ECONOMIC STRAIN BY POVERTY PERSISTENCE AT THE 60 PERCENT INCOME LINE AND DEPRIVATION THRESHOLD WITH INCOME POOR AT NEITHER TIME AND BELOW THE DEPRIVATION THRESHOLD AS THE REFERENCE CATEGORY

	Below Deprivation Threshold		Above Deprivation Threshold		
	Income Poor at One Time	Income poor at Both Times	Income Poor at Neither Time	Income Poor at One Time	Income Poor at Both Times
Germany	2.53	2.18	12.20	24.17	27.99
Denmark	1.95	1.48	11.34	22.20	13.60
Netherlands	3.22	6.17	27.54	66.85	35.03
Belgium	1.20	2.17	9.99	20.51	28.62
France	2.35	3.87	10.46	19.94	22.40
U.K.	2.33	2.95	13.58	24.11	23.50
Ireland	2.31	4.33	10.48	14.79	10.56
Italy	2.29	5.55	11.59	20.44	30.18
Greece	2.19	3.17	11.71	16.17	35.25
Spain	2.43	3.11	6.29	10.00	15.1
Portugal	1.81	2.39	6.45	9.05	9.11

All coefficients are significant at the 0.001 level, with the exception of being income poor twice and being poor in both years and below the deprivation threshold in Denmark, and being poor once and below the deprivation threshold in Belgium.

income poor in one year the odds ratio varies from 1.2 to 3.2, while among those poor on both occasions the range is from 2.2 to 6.2.

Among those above the deprivation threshold, there is a clear contrast in every country between those never income poor and all others. For those not income poor in either year the odds ratios range from a low of 6.3 to a high of 27.5. For those poor in one or both years the figures are higher, often much higher. As one moves from those poor on one occasion to those poor on both, risk of experiencing economic strain increases in six countries, in two others little difference is seen, and in three it declines. Thus the persistence of income poverty has a weaker effect on economic strain among those above the deprivation threshold than it did among those below it. The major contrast, in term of economic strain, is between those above and below the deprivation threshold rather than in terms of degree of poverty persistence.

The combined impact of income poverty and deprivation is striking, as best seen simply by reference to the percentages reporting economic strain underlying these odds ratios. Leaving aside Germany (which has a particularly low rate of economic strain) and Greece (which has a particularly high rate), for those who are income poor on both occasions and above the deprivation threshold the percentage reporting economic strain ranges from 55 to over 80 percent. For those who are income poor at neither point in time and are below the deprivation threshold the corresponding range is from only 5 to 25 percent. In the absence of income poverty, deprivation still has a significant impact, as revealed by a level of economic strain ranging from 38 to 68 percent. Similarly, persistent income poverty still has an effect in the absence of deprivation, with the percentage reporting economic strain now running from 12 to 51 percent (the corresponding figures for those income poor in only one of the two waves go from 7 to 44 percent). Thus, income and deprivation clearly both contribute to explaining self-assessed economic strain.

7. EXPLAINING THE INCOME–DEPRIVATION MISMATCH

So far, we have examined the relationship between deprivation and current and persistent income poverty. However, as we noted earlier, one might also expect a variety of other factors to influence deprivation. In analyzing the determinants of deprivation in each country in a regression framework, we make use of the distinction referred to earlier between “needs” and resources. Thus we see factors such as household structure, marital status, number of children, stage of the life cycle and key life events as increasing the material obligations imposed on households. Similarly we take factors such as social class, educational qualifications and labor market experience as key indicators of one’s ability to command remuneration in the labor market. Our central argument is that we can make considerable progress in understanding the scale of mismatch between income poverty and corresponding measures of relative deprivation by taking into account other factors which contribute to the accumulation and erosion of resources.

The distinction between needs and resources being made here is a rather crude one. Indeed this is perfectly illustrated by the final variable we include which distinguishes between tenants and others. These groups are likely to have different housing costs and thus “needs.” However, the variable is included in our analysis primarily because we expect that it will serve as measure of resources, not only because it serves as a crude index of housing capital but also because it should serve as a proxy for unmeasured resources. More broadly, some of the household characteristics we include under the heading of “needs” also affect one’s ability to generate resources in the market—conflict between household/family responsibilities and ability to participate in the market is often important. Furthermore, resources other than those generated in the market may be significant in determining deprivation outcomes. However, within the limitations of the data available we will seek to demonstrate that the distinction does enable us to make significant progress in understanding the determinants of deprivation.

With the dependent variable being the score on the weighted CLSD summary deprivation index, we employ the following set of independent variables in our multivariate analysis:

- **Resources**

- *Log equivalent income in 1993.*
- *Persistent relative income poverty.* Distinguishes those below 60 percent of median income in both years, in one year, and (the reference category) in neither year.
- *Present and recent employment status.* Current employment status of the household head or reference person¹⁵ is likely to be one of the best predictors of deprivation, but past employment record is also likely to be important. We therefore distinguish among currently employed between those who experienced unemployment in 1993, those with no unemployment in 1993 but some in the five years before interview, and those with no unemployment experience in the past five years. Among the currently

¹⁵In the ECHP, Eurostat define the household reference person as the owner or tenant, or the older of a jointly-responsible couple.

unemployed, we distinguish between those who were unemployed for more than six months in 1993 and others. Finally, we distinguish those currently defining themselves as inactive. The reference category in the regression is where the household reference person is currently in employment with no experience of unemployment in the past five years.¹⁶

- *Highest education level.* In the ECHP, educational level is coded using the International Standard Classification of Education (ISCED) grouped into third level (ISCED 5–7), second stage of secondary education (ISCED 3–4) and all those with less than second stage of secondary level (ISCED 0–2). In our analysis the two lower categories are compared to having third level, and once again the characteristics of the reference person are attributed to the household as a whole.
- *Social class position.* Here we use a highly aggregated version of the CASMIN class scheme (Erikson and Goldthorpe, 1992), which distinguishes between manual workers, farmers, and all others, and focuses on the reference person.
- *Tenure.* Distinguishes between tenants and others.

- **Needs**

- *Household type.* Distinguishes between couples with three or more children, lone parents, and all others.
- *Age.* Differentiates between those in households where the reference person is aged under 24, 25–44, 45–64 and (the reference category) 65 or over.
- *Marital status.* Distinguishes between those in households where the reference person is separated or divorced and all others.
- *Lone parent.*
- *Couple 3+ children.*

Table 10 now shows results from the OLS regression predicting standardized deprivation within each country, using these resources and needs variables. The results reported are partial coefficients with all other variables simultaneously included. The first point to highlight is that even having controlled for all the other variables, current income continues to be a significant predictor of deprivation in all countries. However, having controlled for the need and resource variables there is no particularly clear pattern of cross-country variation. The coefficients for the income poverty persistence terms are also significant across the range of countries, with the predicted level of deprivation as one moves from poor in neither year through to poor in both years.

Turning to the resource variables, we find that their impact also tends to be highly significant across all of the countries. There is a clear pattern of rising deprivation as the degree of employment precarity, as captured by our employment status variables, increases. The strength and general uniformity of the relationship is what is most striking, though the impact of inactivity does vary

¹⁶In the case of the Netherlands, because of the absence of calendar information for 1993 relating to unemployment experience, the distinction between short and long-term unemployment cannot be made and the coefficient therefore relates simply to unemployment.

TABLE 10
UNSTANDARDIZED PARTIAL COEFFICIENTS FOR OLS MODELS OF RELATIVE DEPRIVATION

	GER	DK	NL	BE	FR	UK	IRL	IT	GR	SP	PT
Log equivalent income	-0.06 (2.83)	-0.35 (11.73)	-0.21 (10.50)	-0.10 (4.30)	-0.23 (16.76)	-0.13 (8.20)	-0.11 (6.88)	-0.22 (16.89)	-0.39 (26.60)	-0.22 (18.51)	-0.22 (15.07)
Poor in one year	0.28 (8.60)	0.07 (1.80)	0.38 (12.64)	0.14 (4.45)	0.37 (16.30)	0.28 (12.25)	0.22 (9.03)	0.26 (12.29)	0.11 (4.79)	0.28 (15.06)	0.30 (12.36)
Poor in both years	0.42 (11.35)	0.26 (4.11)	0.67 (16.66)	0.28 (6.19)	0.72 (27.72)	0.32 (10.94)	0.41 (13.51)	0.55 (20.46)	0.19 (6.45)	0.60 (27.07)	0.62 (23.11)
Unemployed currently and 6+ months in 1993	1.15 (18.40)	0.52 (9.10)	0.67 (16.50)	0.87 (14.00)	0.92 (24.20)	0.89 (21.31)	0.68 (22.10)	0.53 (11.50)	0.58 (13.20)	0.60 (24.07)	0.06 (1.02)
Unemployed currently and <6 months in 1993	0.77 (10.95)	0.58 (8.61)		0.54 (5.54)	0.50 (12.88)	0.78 (16.70)	0.27 (5.31)	0.38 (7.41)	0.39 (7.71)	0.51 (16.43)	0.59 (10.28)
Employee with some unemployment in 1993	0.56 (11.47)	0.30 (7.40)		0.25 (4.27)	0.36 (10.52)	0.30 (9.40)	0.42 (11.75)	0.42 (10.08)	0.12 (3.65)	0.30 (13.07)	0.47 (11.69)
Employee with some unemployment in past 5 years	0.29 (8.38)	0.09 (3.38)	0.12 (4.19)	0.16 (4.39)	0.17 (6.15)	0.15 (6.01)	0.29 (9.54)	0.38 (14.74)	0.31 (11.10)	0.13 (6.12)	0.28 (10.41)
Inactive	0.24 (7.14)	0.14 (3.07)	0.16 (5.59)	0.07 (1.74)	0.05 (1.74)	0.51 (19.76)	0.20 (6.55)	-0.03 (1.03)	0.01 (0.20)	0.33 (14.75)	-0.06 (2.04)
Education = ISCED 3-4	0.09 (4.14)	-0.04 (1.66)	-0.03 (1.33)	0.07 (2.95)	0.09 (5.07)	0.05 (2.70)	0.05 (2.12)	0.07 (2.81)	0.15 (7.08)	0.04 (1.99)	0.08 (2.10)
Education = ISCED 0-2	0.16 (5.84)	0.11 (3.40)	0.15 (5.38)	0.17 (15.93)	0.25 (12.20)	0.18 (8.80)	0.30 (12.02)	0.22 (8.83)	0.47 (21.10)	0.31 (17.86)	0.40 (12.63)
Farmer	0.06 (0.59)	-0.03 (-5.08)	0.15 (3.08)	0.09 (1.31)	0.01 (0.13)	0.00 (0.66)	0.09 (3.53)	0.13 (3.62)	0.25 (10.57)	0.35 (13.38)	0.52 (20.43)
Manual	0.35 (17.49)	0.03 (0.97)	0.15 (8.40)	0.12 (5.06)	0.25 (16.51)	0.16 (9.38)	0.25 (13.79)	0.21 (14.36)	0.28 (16.31)	0.23 (17.06)	0.52 (32.37)
Separated/divorced	0.20 (5.49)	0.18 (4.36)	0.35 (9.39)	0.21 (5.22)	0.30 (11.51)	0.13 (4.82)	-0.01 (0.30)	0.09 (0.22)	0.12 (2.74)	0.32 (9.51)	0.03 (0.85)
Lone parent	0.29 (6.78)	0.52 (9.96)	0.57 (14.46)	0.20 (4.50)	0.17 (6.05)	0.31 (9.99)	0.21 (6.89)	0.07 (2.58)	0.20 (5.79)	-0.02 (0.67)	0.10 (3.60)
Couple 3+ children	0.31 (7.58)	0.22 (4.86)	0.13 (5.31)	0.25 (6.59)	0.16 (6.32)	0.15 (5.39)	0.06 (2.85)	0.31 (9.17)	0.21 (5.33)	0.15 (5.12)	0.16 (4.17)
Aged 17-24	0.55 (8.04)	0.64 (9.49)	0.31 (5.79)	0.13 (1.52)	0.08 (1.50)	0.57 (11.92)	0.68 (13.90)	0.01 (0.75)	-0.14 (2.28)	0.25 (5.49)	0.15 (2.78)
Aged 25-44	0.21 (4.75)	0.40 (7.86)	0.03 (0.81)	0.18 (3.41)	0.07 (2.13)	0.52 (15.82)	0.31 (8.55)	0.16 (4.60)	-0.18 (5.52)	0.19 (6.39)	0.04 (1.25)
Aged 45-64	0.17 (4.05)	0.25 (4.99)	0.05 (1.43)	0.18 (3.66)	0.12 (3.73)	0.36 (11.18)	0.25 (7.22)	0.18 (5.50)	0.07 (2.36)	0.17 (6.00)	0.02 (0.84)
Tenant	0.29 (15.24)	0.31 (11.52)	0.28 (15.81)	0.38 (14.87)	0.23 (16.22)	0.59 (31.32)	0.74 (31.26)	0.27 (16.71)	0.22 (11.40)	0.24 (14.09)	0.20 (12.25)
R^2	0.252	0.230	0.307	0.174	0.326	0.455	0.414	0.230	0.337	0.350	0.385

somewhat across countries, with a particularly strong impact in the U.K. Higher deprivation is consistently associated with lower levels of education in each country but particularly so in the poorer Southern European countries. Social class also operates broadly as we would expect: manual work is associated with greater deprivation everywhere except Denmark, while for farming the pattern is more variable, with the main impact being observed in Southern Europe. Tenancy has a substantial and rather similar effect across countries, although the effect in Ireland is much greater than in other countries.

The impact of the variables that we have thought of as reflecting demands are more variable but still of considerable significance. Having three or more children is associated with increased deprivation in all the countries, as is separation or divorce everywhere except Ireland and Portugal and lone parenthood everywhere except Spain. With the exception of Greece deprivation is lowest among those age 65 or over. In Germany, Denmark, the U.K. and Ireland, there is a trend toward greater deprivation among the younger age groups.

How important are these different sets of factors? Compared with simply predicting deprivation using current income, Table 11 shows how the proportion

TABLE 11
EXPLANATORY POWER OF OLS MODELS OF RELATIVE DEPRIVATION

Explanatory Variables	GER R^2	DK R^2	NL R^2	BE R^2	FR R^2	UK R^2	IRL R^2	IT R^2	GR R^2	SP R^2	PT R^2
Income	0.077	0.101	0.153	0.047	0.151	0.183	0.140	0.120	0.224	0.208	0.231
+ Persistent Poverty	0.095	0.102	0.194	0.061	0.217	0.233	0.209	0.156	0.230	0.250	0.252
+ Socio-demographic variables	0.252	0.23	0.307	0.174	0.326	0.455	0.414	0.230	0.337	0.350	0.385

of variance explained increases as one adds first persistent poverty and then the resource and needs variables to the equation. In every country but Denmark, moving from current income to also take persistent income poverty into account significantly increases variance explanation, with the R^2 going from a range of 7.7 percent in Germany to 23.1 percent in Portugal up to 9.5 and 25.2 percent respectively. When all the other explanatory variables are then added, the R^2 increases substantially in all cases and runs from 17.4 percent in Belgium to 45.5 percent in the U.K. This helps to bring out the range of influences on deprivation levels which underlie the mismatch between low income and deprivation at a point in time. The clear implication is that this mismatch is only a problem if we continue to assume that relative income poverty serves as an adequate indicator of relative deprivation. The extent of the mismatch reflects the reality that both income and deprivation are key but distinct indicators, each containing information which should not be ignored.

8. CONCLUSIONS

This paper has focused on the mismatch between poverty measures based on income vs. non-monetary indicators of deprivation. The aim has been to examine the extent of this mismatch and explore the hypothesis that it might, in significant part, be due to the failure of current income to capture longer-term accumulation and erosion of resources. The paper has been able to address these issues in a

comparative context by using data from the European Community Household Panel for 1994 and 1995.

In constructing a summary measure of deprivation we adopted an explicitly relative approach. Relative income poverty was measured in the now conventional way, using thresholds set at 40, 50, and 60 percent of median equivalized income in each country. To examine the degree of consistency between those identified as worst-off by income vs. deprivation, for each country we compared those falling below these relative lines with those above deprivation thresholds constructed to give the same percentage of the sample in each case.

The results showed that when the income poverty line was set at 40 percent of the median, low income and deprivation appear to be measuring quite different phenomena in that there was very little overlap between the two groups. Among those below that income line, it was only in the Southern European countries that the proportion above the corresponding deprivation threshold approached one-third. The extent of mismatch between the income and deprivation measures declined significantly as the income threshold was raised from 40 to 60 percent. Even so, only half or less of those identified as poor using the 60 percent relative income line were among the most deprived, even in Southern Europe.

Moving beyond current income we found that across the various countries, both current and persistent income poverty were significant predictors of deprivation, but so were variables reflecting labor force status and experience, education, social class, household composition and tenure. When one moved from predicting deprivation purely on the basis of current income to incorporating both persistence of income poverty and other resource and need factors, the proportion of the variance explained rose markedly. While the factors producing cross-country variation in the relationship between income and deprivation deserve further investigation, the key finding here is the consistent presence of substantial mismatch and role of this range of factors.

This helps both in understanding the mismatch between low income and deprivation at a point in time, and in clarifying its implications. This mismatch should not be seen as a problem in itself, but rather as reflecting the reality that both income and deprivation are key but distinct indicators, each containing information that can profitably be employed to enhance our understanding of poverty and indeed of a range of other social phenomena. This point was illustrated by the fact that subjective economic strain was significantly influenced by both relative income and relative deprivation. Assessing progress in terms of relative income poverty alone, and designing policies to target on that basis, is thus likely to give a partial and potentially misleading picture. This is particularly true where a relatively low threshold such as 40 or 50 percent of median income is used: a significant proportion of those below these thresholds may not in fact be among those most in need. Even where longitudinal information on income over time is available, combining higher income thresholds with direct measures of deprivation will allow those most in need to be identified more accurately and assist in improving policy design.

REFERENCES

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

- Bane, M. J. and D. T. Ellwood, "Slipping In and Out of Poverty: the Dynamics of Poverty Spells," *The Journal of Human Resources*, 12, 1–23, 1986.
- Callan, T., B. Nolan, and C. T. Whelan, "Resources, Deprivation and the Measurement of Poverty," *Journal of Social Policy*, 22(2), 141–72, 1993.
- Carmines, G. and A. Zeller, *Reliability and Validity Assessment*, Sage, London.
- Coulter, F., F. Cowell, and S. P. Jenkins, "Equivalence Scale Relativities and the Extent of Inequality and Poverty," *Economic Journal*, 102, 1067–82, 1992.
- (DSS) Department of Social Security, *Households Below Average Income: 1994/95–1998/99*, DSS, London, 2000.
- Erikson, R. and J. H. Goldthorpe, *The Constant Flux*, Clarendon Press, Oxford, 1992.
- Eurostat, *ECHP Data Quality*, DOC.PAN 108/99, 1999a.
- , *The Effects of Attrition on Structure of the ECHP Sample*, DOC.PAN 119/99, 1999b.
- , *European Social Statistics: Income, Poverty and Social Exclusion*, Office for Official Publications of the European Communities, Luxembourg, 2000.
- Gordon, D., C. Pantazis, P. Townsend, G. Bramley, J. Bradshaw, H. Holmes, and B. Halleröd, *Breadline Britain in the 1990s: A Report to the Joseph Rowntree Foundation*, Department of Social Policy and Planning, University of Bristol, Bristol, 1995.
- Gordon, D., L. Adelman, K. Ashworth, J. Bradshaw, R. Levitas, S. Middleton, C. Pantazis, D. Patsios, S. Payne, P. Townsend, and J. Williams, *Poverty and Social Exclusion in Britain*, Joseph Rowntree Foundation, York, 2000.
- Hagenaars, A., K. Vos, and M. A. Zaidi, "Patterns of Poverty in Europe," Paper presented to the Seminar on the Measurement and Analysis of Social Exclusion, Commission of the European Communities/Department of Social Security, Centre for Research in European Social Policy and Employment Policy, Bath, 1994.
- Halleröd, B. "The Truly Poor: Direct and Indirect Measurement of Consensual Poverty in Sweden," *Journal of European Social Policy*, 5(2), 111–29, 1995.
- , "Poor Swedes, Poor Britons: A Comparative Analysis of Relative Deprivation," in H.-J. Andress (ed.), *Empirical Poverty Research in Comparative Perspective*, Ashgate, Aldershot, 1998.
- Institute of Social Studies Advisory Service (ISSAS), *Poverty in Figures: Europe in the Early 1980s*, Eurostat, Luxembourg, 1990.
- Jarvis, S. and S. Jenkins, "How Much Income Mobility is there in Britain?," *Economic Journal*, 108, 428–43, 1998.
- Kangas, O. and V. M. Ritakallio, "Different Methods—Different Results? Approaches to Multi-dimensional Poverty," in H.-J. Andress (ed.), *Empirical Poverty Research in Comparative Perspective*, Ashgate, Aldershot, 1998.
- Layte, R., B. Maître, B. Nolan, and C. T. Whelan, "Explaining Deprivation in the European Union," *Acta Sociologica*, 44(2), 105–22, 2001.
- Leisering, L. and S. Liebfried, *Time and Poverty in Western Welfare States: United Germany in Perspective*, Cambridge University Press, Cambridge, 1999.
- Mack, J. and G. Lansley, *Poor Britain*, Allen and Unwin, London, 1985.
- Marshall, G., A. Swift, and S. Roberts, *Against the Odds? Social Class and Social Justice in Industrial Societies*, Clarendon Press, Oxford, 1997.
- Mayer, S., "Living Conditions Among the Poor in Four Rich Countries," *Journal of Population Economics*, 6, 261–86, 1993.
- Mayer, S. and C. Jencks, "Poverty and the Distribution of Material Hardship," *Journal of Human Resources*, 24(1), 88–114, 1988.
- , "Recent Trends in Economic Inequality in the United States: Income vs. Expenditure vs. Material Well-being," in D. Popadimitriou and E. Wolff (eds), *Poverty and Prosperity in America at the Close of the Twentieth Century*, St Martin's Press, New York, 1993.
- Muffels, R., "Deprivation Standards and Style of Living Indices," in J. Berghman and B. Cantillon (eds), *The European Face of Social Security*, Avebury, Aldershot, 1993.
- Muffels, R. and H. J. Dirven, "Long-term Income and Deprivation-based Poverty among the Elderly," in H.-J. Andress (ed.), *Empirical Poverty Research in Comparative Perspective*, Ashgate, Aldershot, 1998.
- Nolan, B. and C. T. Whelan, *Resources, Deprivation and Poverty*, Clarendon Press, Oxford, 1996a .
- , "Measuring Poverty Using Income and Deprivation Indicators: Alternative Approaches," *Journal of European Social Policy*, 6(3), 225–40, 1996b.
- O'Higgins, M. and S. Jenkins, "Poverty in the EC: Estimates for 1975, 1980, and 1985," in R. Teekens and B. Von Praag (eds), *Analyzing Poverty in the European Community*, Eurostat, Luxembourg, 1990.
- Piachaud, D., "Problems in the Definition and Measurement of Poverty," *Journal of Social Policy*, 16(2), 147–64, 1987.

- Ringen, S., *The Possibility of Politics*, Clarendon Press, Oxford, 1987.
- , “Direct and Indirect Measures of Poverty,” *Journal of Social Policy*, 17, 351–66, 1988.
- Townsend, P., *Poverty in the United Kingdom*, Penguin, Harmondsworth, 1979.
- , “Deprivation,” *Journal of Social Policy*, 16(2), 125–46, 1988.
- Townsend, P. and D. Gordon, “What is Enough?,” in House of Commons Social Services Committee, *Minimum Income*, House of Commons 579, London, HMSO, 1989.
- Watson, D. and M. Healy, *Sample Attrition between Waves 1 and 2 in the European Community Household Panel*, Eurostat DOC.PAN 118/99, 1999.
- Whelan, C. T., R. Layte, B. Maitre, and B. Nolan, “Poverty Dynamics: An Analysis of the 1994 and 1995 Waves of the European Community Household Panel Study,” *European Societies*, 2(4), 505–31, 2000.
- , “Income, Deprivation and Economic Strain: An Analysis of the European Community Household Panel,” *European Sociological Review*, 17(4), 2001.