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# Income, Deprivation and Economic Strain: An Analysis of the European Community Household Panel

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## 1. Introduction

This paper is concerned with the relationship between household income and life-style deprivation, and how they impact on households' perceptions of economic strain. We take as our point of departure findings for Ireland showing that the relationship between income and deprivation is weaker there than widely assumed, as well as the importance of taking into account the way non-monetary indicators cluster systematically into different dimensions of deprivation (Callan *et al* 1993, Nolan & Whelan 1996[a&b]) . In this paper we examine how far these conclusions about income and deprivation can be generalised to other European Union countries, using data on twelve countries from the first wave of the ECHP. Our central finding is that there are striking similarities across countries in the structuring of deprivation. However, the extent to which income-deprivation correlations are similar or different across countries depends on the particular dimension being considered. We also use this important new dataset to explore the value of knowing both income and deprivation levels through an analysis of their impact on households' subjective assessments of how difficult it is to make ends meet. Once again we find a remarkable degree of uniformity across countries.

We provide a discussion of the theoretical context for the paper in Section 2, and describe the data in Section 3. In Section 4 we analyse the structure of deprivation in terms of the way indicators cluster into different dimensions, and the extent of cross-national variation in the number and nature of such dimensions. We use the results in Section 5 to inform construction of a set of summary indices of deprivation, and then assess whether these constitute measures that are reliable across the range of countries. In Section 6 we analyse the manner in which deprivation indices for the different dimensions are related to household income. Focusing on a measure we label "current life-style deprivation", we consider in Section 7 the implications of the income/deprivation relationship we find for the use of relative income poverty lines. In Section 8 we explore the nature of the underlying distinctions between income and

deprivation by examining the manner in which they relate to households' subjective assessments of economic strain – how difficult they find it to make ends meet. Finally, Section 9 brings together the main findings.

## *2. Theoretical background*

Poverty is now widely conceptualised in terms of exclusion from the life of society because of a lack of resources, and being excluded in this context is generally taken to mean experiencing various forms of what that society regards as serious deprivation, both material and social (Townsend, 1979). In relying on income poverty lines to make statements about poverty defined in this way, it is necessary to assume that those falling below the specified income poverty line are unable to participate fully in the life of the community. However, Ringen (1987, 1988) argued that low income is quite unreliable as an indicator of poverty, because it fails to identify households experiencing distinctive levels of deprivation. Various studies of different industrialised countries have indeed found a substantial proportion of those on low incomes not to be suffering from deprivation – as measured by various non-monetary indicators - while some households above income poverty lines are experiencing such deprivation. These include Townsend (1979), Mack and Lansley (1985) and Gordon *et al* (1996) with British data, Mayer & Jencks (1988) for the USA, Callan, Nolan, & Whelan (1993) and Nolan and Whelan (1996)[a&b] with Irish data, (Muffels 1993) with Dutch data, and Hallerod (1995) for Sweden. Even where a variety of deprivation dimensions are distinguished and one focuses on those which might be expected to relate most closely to current income, major discrepancies between income and deprivation are still found (Muffels 1993, Nolan & Whelan 1996[a&b]).

Apart from measurement error (both for income and deprivation), there are several explanations for this loose relationship. First, the impact of low income on living standards depends on the length of time low income persists, and the availability of other resources (such as savings or help from family and friends) to supplement current income. Secondly, those with adequate resources do not always use these to obtain the items deemed necessities by the researcher and/or the general population. Thus, even if we try to exclude taste and preference in the measurement of deprivation by focusing on what respondents say is absence due to lack of resources, it may be

that the net level of resources left to a household after their 'preferred' purchases is still inadequate (Piachaud 1987). Finally, one would expect current life-style and deprivation to be influenced by many factors other than current income. Levels of deprivation will be influenced by a range of social and economic processes, and households at similar levels of current income will have arrived at that position from a variety of different trajectories.

Given how routinely relative income line measures are employed as a method of operationalising exclusion through lack of resources, it is remarkable that a decade after Ringen's radical critique there appears to be relatively little interest in the nature of the relationship between income and deprivation. In this paper we intend to extend our earlier work on the Irish situation and provide such an analysis for a range of European countries.

Central to the approach we adopt is a particular understanding of deprivation. Like poverty, deprivation is a widely used term that is often applied without definition of the underlying concept. Consequently, significant differences can be observed in the manner in which it is interpreted. Townsend (1988:125-6) defines deprivation thus:

> *people can be said to be deprived if they lack the types of diet, clothing, housing, household facilities and fuel, environmental, educational, working and social conditions, activities and facilities which are customary, or at least wisely encouraged or approved in societies to which they belong.*

In our view this understates a central element in the concept of deprivation, as it is widely understood: that it refers to being *denied* the opportunity to have or do something. To constitute deprivation, lack of the item or failure to participate in the activity must reflect what most people would regard as *inability to participate*. This inability could be attributable to various different factors such as lack of resources, ill health, or discrimination, but it is not simply a matter of choice. We therefore take deprivation to mean an inability to obtain the goods, facilities and opportunities to participate identified generally as appropriate in the community in question. It refers to the results of constraints on people's choices not simply the outcomes themselves. While the later are much easier to observe, the impact of constraints from choices must remain a central objective in measuring deprivation. In doing so we will be

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 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.[1]

## 3. Data

In this paper we use data from the first wave of the European Community Household Panel Study (ECHP), which was conducted for Eurostat in twelve European Union member states in 1994. Eurostat's aim in developing the ECHP was to have a survey in which the questions, data collection, coding, and reweighting were harmonised to the greatest extent possible. The ECHP was designed to collect detailed information on the income of each household member, and on various aspects of the material and demographic situation of households, which means that it is ideal for analyses of the type undertaken in this paper. While the panel survey will in time provide the basis for analysis of changes from one wave to the next, the first wave provide very valuable harmonised cross-sectional information for the participating countries which this paper seeks to exploit. Throughout we use the version of the ECHP data released for general use in the form which Eurostat describe as the User Data Base (UDB), and our analysis is conducted at the household level.

The results we report are based on the overall sample of 60,227 households. In conducting our analysis we employ the household weights designed to ensure representativeness across countries for descriptive purposes and within countries for analytic purposes. However, in pursuing such an analysis the nature of the ECHP sampling procedures dictates that we proceed in a particular fashion. Samples sizes in the individual countries are not proportionate to population. If one merely requires descriptive statistics it is a simple procedure to apply an appropriate proportionate weighting factor. Something more is required if one wishes to test hypotheses and apply tests of significance. It would be possible to apply the proportionate weighting factor while also re-scaling to the overall sample size. However, this would mean that

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[1] For a more detailed discussion see Nolan and Whelan (1996[a]:71-74)

in the case of each of the individual countries the sample sizes on which our significance test would be based would differ from the actual sample sizes. Since this appears unsatisfactory we have proceed by weighting by the population proportionate weighting factor for descriptive purposes i.e. where we report across countries frequency distributions or means and individual country weights for the analytic portion of our investigation. In the latter case results reported for the overall European sample are valid only if there are no interactions between our independent variables and country. Thus the null hypothesis must be that country effects do exist.[2]

In the first wave of the panel we identified twenty-five household items which could serve as indicators of concept of life-style deprivation outlined above. The format of the items varied but in each case we seek to use measures which can be taken to represent enforced absence of widely-desired items. Respondents were asked about some items in the format employed by Mack & Lansley (1985): for each household it was established if the item was posessed/availed of, and if not a follow-up question asked if this was due to inability to afford the item. The following seven items took this form:

- A car or van.

- A colour TV.

- A video recorder.

- A micro wave.

- A dishwasher.

- A telephone.

- A second home.

In these cases we consider a household to be deprived only if absence is stated to be due to lack of resources.

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:

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[2] The same principle holds in the case of analysis using unweighted data as with the confirmatory factor analysis reported later in this paper .

- 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.

Three items relate to absence of housing facilities so basic one can presume all households would wish to have them:

- A bath or shower.

- An indoor flushing toilet.

- Hot running water.

A further set of items relating to problems with accommodation and the environment contained the implicit assumption that households wish to avoid such difficulties. These include the following eight items:

- Shortage of space.

- Noise from neighbours or outside.

- Too dark/not enough light.

- Leaky roof.

- Damp walls, floors, foundation etc.

- Rot in window frames or floors.

- Pollution, grime or other environmental problems caused by traffic or industry.

- Vandalism or crime in the area.

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 twelve months.

This gives us a total of twenty-five items. In each case we assign a score of one to a household where deprivation is experienced and a score of zero where it is not. It is worth emphasising that these items were included in the ECHP to serve as indicators of deprivation, not broader measures of general living standards. No information is

obtained on the quality or cost of particular items, and the only item likely to be considered a genuine luxury in the more affluent countries is a second home. Depending on the particular set of items one employs, many households in the better-off countries may simply register zero deprivation although their living standards vary. Given that our interest is in deprivation rather than standard of living this does not constitute a problem, but conclusions relating to deprivation cannot be generalised to measures of living standards more generally, which will have quite different distributions within the richer countries.

## 4. Dimensions of Deprivation

One way to proceed would be to construct a summary index of deprivation employing all twenty-five items. However, our earlier work with Irish data suggests that this might well be unsatisfactory (Nolan and Whelan, 1996). In particular, aggregating the items into a single index ignores the fact that different items may reflect different dimensions of deprivation, and adding them together may lose valuable information. The fact that relatively little attention has been paid to the manner in which items hang together and whether it is appropriate to combine them in a single index is unfortunate. The enforced absence of particular items is of interest in so far as it reflects what Ringen (1987) refers to as a state of generalised deprivation. The first stage therefore, in an analysis of life-style deprivation, is to examine systematically our range of deprivation items to see whether the items cluster into distinct groups. Factor analysis allows us to identify such clusters of interrelated variables.

Our earlier analysis of Irish data employing a somewhat different but overlapping set of items identified three such dimensions that we labelled basic, secondary and housing deprivation. That data included more items relating to extreme deprivation than the ECHP, while the latter contains a much wider range of items relating to housing and environmental deprivation. We therefore hypothesised a more complex factor structure, and an exploratory factor analysis suggested that a five-factor solution was optimal. We then proceeded to make use of confirmatory factor analysis to compare goodness of fit for three to six-factor solutions. For the preferred solution

we proceed to compare models for the twelve countries taken as a whole with those which allow parameters to vary across country.[3]

In Table 1 we compare measures of fit for three, four, five and six factor solutions where the factors are allowed to correlate. Following Kelloway (1998) we report measures of absolute, relative and parsimonious fit, as follows:[4]

- The Root Mean Squared Error of Approximation (RMSEA) is based on the analysis of residuals with smaller values indicating a good fit. Values below 0.1, 0.05 and 0.01 indicate a good, very good and outstanding fit respectively.

- The Adjusted Goodness of Fit Index (AGFI) is based on the ratio of the sum of the squared discrepancies to the observed variances, but adjusts for degrees of freedom. The AGFI ranges from 0 to 1 with values above 0.9 indicating a good fit.

- The Normal Fit Index (NFI) indicates the percentage improvement in fit over the baseline independence model.

- The Comparative Fit Index (CFI) is based on the non-central $X^2$, and is given by 1- [($X^2$ model –df model)/($X^2$ independence –df independence)]. The CFI ranges between 0 and 1, with values exceeding 0.90 indicating a good fit.

- The Parsimonious Goodness of Fit Index (PGFI) adjusts GFI for the number of estimated parameters in the model and the number of data points. The values of the PGFI range from 0 to 1 but it is unlikely to reach the 0.09 cut-off used for other indices and is best used to compare two competing models.

The results show that across the range of indicators there is a consistent improvement in fit as one moves from the three to four to five factor solutions. For the five and six factor solutions the PGFI and CFI indices, although having very similar values, offer different evaluations. Although all the indices apart from the PGFI show the six-factor solution to be slightly superior to the five, the latter still provides an excellent fit with an RMSEA of 0.05, an AGFI of 0.927 and an NFI of 0.887. Given this, and the fact that the six-factor solution involves specifying a factor with only two items, we opt in what follows for the five-factor solution.

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[3] The analysis was conducted using Amos 3.6 (Arbuckle 1997).
[4] Our discussion of the properties of these indices which is set out below draws on Kelloway (1998) Chapter 3

*Table 1: Twelve Country Constrained Confirmatory Factor Analysis of Four Alternative Oblique Factor Solutions for the Deprivation Items*

| Oblique Model | $X^2$ | df | RMSEA | AGFI | NFI | PGFI | CFI |
|---|---|---|---|---|---|---|---|
| 3 Factors | 67460.8 | 272 | 0.066 | 0.871 | .800 | 0.747 | 0.801 |
| 4 Factors | 58125.7 | 269 | 0.061 | 0.891 | .828 | 0.753 | 0.829 |
| 5 Factors | 38120.5 | 265 | 0.050 | 0.927 | .887 | 0.767 | 0.888 |
| 6 Factors | 31645.1 | 260 | 0.046 | 0.939 | .906 | 0.761 | 0.907 |

We now need to evaluate how well the fit of the five-factor model constraining parameters to be equal across countries compares to one that allows parameters to vary across country. The results of the analysis presented in Table 2 show that for the orthogonal solution the indices of fit tend to be slightly better for the unconstrained solution. However, for the oblique solution the constrained model performs as well as the unconstrained. Since the oblique solution provides a better fit for both the unconstrained and constrained solutions, we are justified in proceeding on the basis of the constrained oblique five-factor solution.

*Table 2: Unconstrained and Constrained Oblique and Orthogonal Five-Factor Deprivation Solutions*

| Model | $X^2$ | df | RMSEA | AGFI | NFI | PGFI | CFI |
|---|---|---|---|---|---|---|---|
| Orthogonal | | | | | | | |
| Unconstrained | 60459.8 | 3300 | 0.017 | 0.890 | .778 | 0.767 | 0.787 |
| Constrained | 74322.0 | 275 | 0.068 | 0.866 | .780 | 0.750 | 0.781 |
| Oblique | | | | | | | |
| Unconstrained | 35732.5 | 3180 | 0.013 | 0.932 | .869 | 0.770 | 0.879 |
| Constrained | 38120.5 | 265 | 0.050 | 0.927 | .887 | 0.767 | 0.888 |

Table 3 presents the details of our preferred factor solution, in terms of the indicators falling into each dimension and their loading on that dimension. The dimensions identified are as follows:[5]

- Basic life-style deprivation - comprising items such as food and clothing, a holiday at least once a year, replacing worn-out furniture and the experience of arrears for scheduled payments.

- Secondary life-style deprivation - comprising items that are less likely to be considered essential such as a car, a phone, a colour television, a video a micro wave, a dish-washer and a second home.

- Housing facilities - housing services such the availability of a bath or shower, an indoor flushing toilet and running water likely to be seen as essential.

- Housing deterioration - the existence of problems such as a leaking roof, dampness and rotting in window frames and floors

- Environmental problems - problems relating to noise, pollution, vandalism and inadequate space and light.

It is worth noting that if one adopted a two-factor solution, it would combine the basic and secondary dimensions and contrast these with all the housing and environment indicators. A three-factor option would distinguish basic, secondary and housing/environment dimensions. Extending to four factors involves distinguishing the housing facilities items from the other housing/environment items. Finally, the six factor solution goes beyond the five-factor one in separating the space and light items from those relating to noise, pollution and vandalism

Our analysis therefore identifies a set of dimensions of deprivation that are consistent across countries as indicated by the fact that allowing the parameters to vary across countries provides no appreciable improvement in the indices of goodness of fit.

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[5] The content of the basic and secondary dimensions differs slightly from the corresponding ones in the Irish context described in Nolan and Whelan (1996)[a].

Table 3: *Confirmatory Factor Analysis Oblique Five-Factor Solution*

| | Components | | | | |
|---|---|---|---|---|---|
| | *Basic* | *Secondary* | *Housing Facilities* | *Housing Deterioration* | *Environ ment* |
| Replacing any worn-out furniture | 0.734 | | | | |
| A weeks annual holiday away from home | 0.734 | | | | |
| Buying new, not second hand clothes | 0.649 | | | | |
| Having friends or family for a meal once a month | 0.643 | | | | |
| Keeping home adequately warm | 0.635 | | | | |
| Meat, chicken or fish every second day | 0.510 | | | | |
| In arrears on rent, utilities and HP | 0.364 | | | | |
| Microwave Oven | | 0.699 | | | |
| Dish washer | | 0.676 | | | |
| Video Recorder | | 0.634 | | | |
| Car | | 0.494 | | | |
| Telephone | | 0.414 | | | |
| Second Home | | 0.399 | | | |
| Colour TV | | 0.351 | | | |
| Bath or shower | | | 0.853 | | |
| Indoor flushing toilet | | | 0.764 | | |
| Hot running water | | | 0.729 | | |
| Damp home | | | | 0.653 | |
| Rot in home | | | | 0.569 | |
| Leaking roof | | | | 0.578 | |
| Noise from neighbours | | | | | 0.458 |
| Pollute | | | | | 0.414 |
| Shortage of space | | | | | 0.385 |
| Not enough light | | | | | 0.373 |
| Vandalism | | | | | 0.319 |

## 5. Summary Deprivation Indices

In combining items into scales of household deprivation a number of options remain. Among these is the use of factor scores, weighting each item by the extent to which deprivation of that kind is experienced in the country in question, and a straightforward additive procedure where the number of items on which the household is deprived is simply summed. Compared with the additive procedure, weighting by

the extent of deprivation appeared to have almost no effect on our results. We therefore concentrate here on simple additive scales, which have the benefits of simplicity and transparency in the cross-national comparisons.

Before proceeding to make use of scales constructed in this manner, it is useful to provide a statistical estimate of their reliability - the extent to which the individual items are tapping the same underlying phenomenon. To do so we make use of Cronbach's coefficient alpha[6] Table 4 shows reliability coefficients for each of the five dimension of deprivation, for a measure combining the basic and secondary items which we label 'current life-style deprivation' (CLSD), and for a measure incorporating all 25 items. We see that the alpha level is extremely high for both the basic and housing services dimensions, exceeding 0.80. The coefficient for the secondary dimension reaches 0.71 while for the housing deterioration dimension it is slightly lower at 0.63. The lowest value of 0.47 is observed for the environmental dimension suggesting that this area would benefit from further attempts at scale development. Both the CLSD measure and the overall 25-item index have highly satisfactory values of over 0.80.

*Table 4: Reliability Analysis for Deprivation Dimensions*

| *Dimension* | *Alpha Coefficients* |
|---|---|
| Basic | 0.81 |
| Secondary | 0.71 |
| Housing Services | 0.82 |
| Housing Deterioration | 0.63 |
| Environmental Problems | 0.47 |
| Current Life-Style Deprivation | 0.83 |
| Overall 25 Item Index | 0.82 |

Thus, although we can identify distinct dimensions of deprivation, which suggests that rather different processes are involved in generating different types of deprivation, it is possible to construct aggregate indices with high levels of reliability. However, the multi-dimensionality of deprivation is reflected in the fact that increasing the number of items in the indices has only a modest impact on the level of reliability whereas if

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[6] a =Nρ[1+ρ(N-1)] where N is equal to the number of items and ρ is equal to the mean inter-item correlation.

the items came close to being equally good measures of one underlying dimension we would expect an increase in alpha as the number of items increased .

It is also useful to look at the relationships between the deprivation dimensions, so Table 5 presents the correlations between them. By far the highest correlation, of 0.52, is between the basic and secondary dimensions. The basic and secondary dimensions each correlate more moderately with both of the housing dimensions, but their correlation with environmental problems is a good deal lower. The housing services dimension correlates with the housing deterioration dimension at a level of 0.29 but is almost entirely independent of the environmental problems dimension. On the other hand, housing deterioration and environmental problems correlate at a level of 0.33. Thus the basic and secondary indices (and the "current life-style" measure that is produced by combining them) are only loosely correlated with the housing and environment indices, which in turn are only modestly correlated with each other.

*Table 5: Correlation Between Deprivation Dimensions*

|  | *Basic* | *Secondary* | *Housing Services* | *Housing Deterioration* | *Environmental Problems* |
|---|---|---|---|---|---|
| Basic |  |  |  |  |  |
| Secondary | 0.52 |  |  |  |  |
| Housing Services | 0.29 | 0.24 |  |  |  |
| Housing Deterioration | 0.31 | 0.26 | 0.29 |  |  |
| Environmental Problems | 0.18 | 0.15 | 0.04 | 0.33 |  |

## 6. Income and Deprivation

We now examine the relationship between the deprivation measures we have constructed and household income. In measuring income in the ECHP an annual accounting period is adopted, covering income received in the previous calendar year (not the twelve months prior to the date of interview). Thus the income data in the wave 1 survey refer to 1993. The deprivation data on the other hand relate to the date of the interview in 1994.The income recipient unit we employ is the household.[6] Household income is adjusted to take differences in size and composition into account by equivalisation, that is by dividing income by the number of "equivalent adults" in the household. The equivalence scale employed in calculating the number of equivalent adults is widely known as 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.

Table 6 shows the correlation between (the log of) equivalised household income and household scores on the deprivation indices for each country. We see first that the degree of correlation between income and basic deprivation, secondary deprivation, CLSD and the 25-item index varies a good deal across countries. Although the rank order correlation is not perfect, there is a pronounced tendency for the correlation to be higher in the less affluent countries and weaker in the more affluent. For the CLSD measure the lowest level of correlation is observed in Denmark, Belgium, the Netherlands and Luxembourg, where it is only between –0.26 and –0.30. An intermediate level, between –0.38 and –0.40, is found in France, the UK, Ireland and Italy, while the highest level is found in Spain, Portugal and Greece, of between –0.48 and –0.54.

Precisely because the measures are constructed to tap deprivation they have rather different distributions across countries, and in countries where large numbers of households score zero on a particular deprivation index then its variation with income - particularly in the upper ranges - will be modest. On the basic dimension, the

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[6] This is defined in the ECHP as comprising "either one person living alone or a group of persons, not necessarily related, living at the same address with common housekeeping-i.e. sharing a meal on most days or sharing a living or sitting room".

percentage scoring zero ranges from 73% in the Netherlands to 15% in Greece. This pattern is still found when the number of items is extended: with the 14 item CLSD measure the percentage scoring zero ranges from 63% in Denmark to 6% in Greece, and in the case of the 25 item overall index the corresponding figures are 32% and 3%. However, this is clearly only part of the picture and other factors such as the degree of income inequality and the broader role of the welfare state are likely to play a significant role.[7]

However, what is most striking is the fact that the correlation with income varies across the deprivation dimensions in a very similar fashion in the different countries. In all countries the correlation of income with the housing deterioration dimension and the environment dimension is extremely low, with the highest value of –0.23 being found in Greece and Portugal. Again, it is only for these two – the least affluent - countries that a substantial correlation is observed between income and the housing facilities dimension (of about -0.40). This is particularly important since housing-related indicators have tended to be among the most widely available and most often used in measuring deprivation. (Our earlier work on Ireland suggested that factors such as urban-rural, location, stage in the life cycle and housing policy are likely to be much more important factors than current income in determining housing quality). For the most part, the highest levels of correlation with income are observed with the basic and secondary dimensions, and the CLSD measure combining these two components. This high degree of uniformity across countries is both an important finding in itself, and enormously helpful in allowing us to focus from here on this common set of indicators in exploring the income-deprivation relationship further.

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[7] The rank order of these countries in terms of the Gini coefficient of income inequality is similar to that for average level of CLSD (Nolan and Maître,1999) it is therefore exceedingly difficult to disentangle such effects.

*Table 6: Correlation of Deprivation Indices with (Log of Equivalent) Household Income*

| | Basic | Secondary | Housing Facilities | Housing Deterioration | Environmental Problems | Current Life-Style Deprivation | Overall 25 Item Index |
|---|---|---|---|---|---|---|---|
| | | | | *Correlation coefficient* | | | |
| Germany | -0.27 | -0.13 | -0.11 | -0.07 | -0.05 | -0.27 | -0.25 |
| Denmark | -0.23 | -0.18 | -0.14 | -0.02 | -0.07 | -0.26 | -0.25 |
| Netherlands | -0.37 | -0.28 | -0.07 | -0.09 | -0.12 | -0.41 | -0.37 |
| Belgium | -0.24 | -0.19 | -0.16 | -0.04 | -0.03 | -0.26 | -0.24 |
| Luxembourg | -0.23 | -0.27 | -0.11 | -0.13 | -0.10 | -0.30 | -0.31 |
| France | -0.41 | -0.24 | -0.15 | -0.14 | -0.03 | -0.40 | -0.36 |
| UK | -0.39 | -0.24 | -0.05 | -0.11 | -0.05 | -0.38 | -0.34 |
| Ireland | -0.40 | -0.26 | -0.13 | -0.18 | -0.10 | -0.38 | -0.37 |
| Italy | -0.38 | -0.22 | -0.09 | -0.12 | -0.10 | -0.39 | -0.35 |
| Greece | -0.51 | -0.25 | -0.41 | -0.23 | 0.07 | -0.48 | -0.48 |
| Spain | -0.48 | -0.40 | -0.12 | -0.16 | 0.02 | -0.50 | -0.44 |
| Portugal | -0.54 | -0.38 | -0.39 | -0.23 | 0.04 | -0.54 | -0.51 |

In our work on Ireland we have found the distinction between basic and secondary deprivation to be a useful one for a variety of purposes (Whelan 1992, 1994). The results of our factor analysis suggest that this may also be true for other countries. However, given the extremely low levels of basic deprivation in some of the richer countries and the rather high correlation between the basic and secondary deprivation dimensions,[8] for the purposes of the present analysis we now focus on the fourteen-item CLSD index which combines basic and secondary items.

Table 7 we look at the mean scores on this current life-style deprivation index by equivalent income decile for each country. We see that mean deprivation scores do generally decline as one moves up the income distribution. However, in the richer countries where the correlation between income and current life-style deprivation was relatively low, the variation in mean deprivation scores across the top three deciles is often rather limited. This is true for Germany, the Netherlands, Belgium and Luxembourg, though less so for the Netherlands. For the remaining countries the degree of differentiation in the top half of the distribution is greater. However, the lower correlation between income and deprivation in the richer countries is not simply a consequence of a plateau effect in those countries. We also see from the table that in Germany, Denmark, Belgium and the UK, very little differentiation in mean deprivation scores is observed among the lower deciles. In some instances, mean deprivation levels are in fact higher in the second decile from the bottom than in the bottom decile[10].

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[8] That correlation is generally higher than it was in the Irish case with the basic and secondary deprivation indices employed in Nolan and Whelan (1996).

[10] In the final row of Table 7 we report the eta[2] statistic indicating the proportion of variance in CLSD accounted for by between decile variation. The pattern is very similar to that reported earlier for

*Table 7: Mean Scores on Current Life-Style Deprivation Index by Equivalent Income Decile*

| Decile | Mean score | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *GER* | *DK* | *NL* | *BE* | *LU* | *FR* | *UK* | *IRL* | *IT* | *ES* | *GR* | *PT* |
| Bottom | 2.1 | 2.1 | 2.7 | 2.6 | 2.7 | 3.7 | 3.3 | 4.3 | 4.0 | 6.2 | 7.9 | 7.9 |
| 2 | 2.5 | 2.1 | 2.3 | 2.9 | 1.6 | 3.3 | 3.8 | 3.7 | 3.4 | 5.7 | 7.4 | 7.7 |
| 3 | 2.2 | 1.9 | 1.4 | 2.3 | 1.3 | 2.9 | 3.5 | 2.9 | 2.8 | 5.4 | 7.1 | 7.2 |
| 4 | 1.8 | 1.7 | 1.1 | 1.8 | 1.1 | 2.6 | 3.1 | 3.0 | 2.7 | 4.7 | 6.5 | 6.4 |
| 5 | 1.4 | 1.5 | 0.9 | 1.7 | 1.1 | 2.1 | 2.5 | 2.6 | 2.3 | 4.1 | 5.9 | 6.2 |
| 6 | 1.3 | 1.2 | 0.6 | 1.5 | 0.5 | 1.7 | 1.9 | 2.3 | 1.8 | 3.7 | 5.4 | 5.9 |
| 7 | 1.2 | 1.3 | 0.4 | 1.3 | 0.7 | 1.4 | 1.5 | 1.9 | 1.8 | 3.2 | 4.9 | 5.2 |
| 8 | 0.9 | 1.0 | 0.3 | 1.0 | 0.6 | 1.2 | 1.1 | 1.4 | 1.5 | 2.7 | 4.3 | 4.6 |
| 9 | 0.9 | 0.7 | 0.2 | 1.0 | 0.4 | 0.8 | 0.9 | 1.2 | 1.1 | 2.0 | 3.6 | 3.3 |
| Top | 0.6 | 0.5 | 0.3 | 0.7 | 0.3 | 0.5 | 0.7 | 0.8 | 0.8 | 1.1 | 2.3 | 1.4 |
| Total | 1.5 | 1.4 | 1.0 | 1.7 | 1.0 | 2.0 | 2.2 | 2.4 | 2.3 | 3.9 | 5.5 | 5.6 |
| $Eta^2$ | .106 | | | | | | | | | | | |
| $Eta^2$ | .106 | .084 | .233 | .091 | .152 | .199 | .190 | .174 | .168 | .258 | .272 | .322 |

A detailed analysis of the determinants of the way deprivation varies across countries is beyond the scope of this paper. However, in the section that follows we will attempt to deepen our understanding of life-style deprivation by extending our analysis to consider the implications of the relationship between income and deprivation for the validity of the relative income line approach to poverty.

## 7. The Implications of the Income-Deprivation Relationship for Income Poverty Lines

Relative income poverty lines are commonly used in measuring poverty in industrialised countries, as discussed in Section 2. Since there is no rationale within that approach for selecting a particular relative line, often a range of thresholds is used - for example 40%, 50% and 60% of mean equivalised income. In Table 8 we distinguish three groups of households for each of the countries in the ECHP: those falling below the 40% relative income line, those falling between the 40 and 50% poverty lines, and those located between the 50 and 60% lines. The table then shows the mean score on the 14-item deprivation index for each of these groups.

Table 8: *Mean Score on Current Life-Style Deprivation by Income Poverty Lines*

| Countries | Mean Score 40% Mean | Between 40-50% of Mean | Between 50-60% Mean |
|---|---|---|---|
| Germany | 2.1 | 2.4 | 2.7 |
| Denmark | 2.1 | 2.1 | 2.0 |
| Netherlands | 2.7 | 2.8 | 2.2 |
| Belgium | 2.4 | 3.0 | 2.7 |
| Luxembourg | 2.3 | 2.4 | 1.5 |
| France | 3.7 | 3.4 | 3.1 |
| UK | 3.4 | 3.8 | 3.3 |
| Ireland | 4.3 | 3.7 | 2.9 |
| Italy | 4.0 | 3.6 | 2.9 |
| Greece | 7.7 | 7.2 | 6.9 |
| Spain | 6.2 | 5.7 | 5.4 |
| Portugal | 7.8 | 7.5 | 6.4 |

We see that for five of the twelve countries, no trend towards increased deprivation is observed as one moves from below the 40% line up through the other two relative income ranges. As one would anticipate from our earlier findings, these are Germany, Denmark, Netherlands, Belgium and the UK. Thus a policy of targeting resources at

those falling below the lowest income lines would be successful in reaching the most deprived households only in what are predominantly the less affluent societies.

Of course, the percentage falling below these poverty lines varies greatly across countries. For example, in the ECHP 3.6% of households fall below the 40% relative income poverty line in Denmark compared to 19% in Portugal. Thus, we are not comparing similar-sized groups. In Table 9 we distinguish instead those in the bottom 2% of the equivalent income distribution, those between 2% and 5% cut-offs, and those between the 5% and 10% cut-offs. We see that it is most often the group between the 2% and 5% cut-offs, or even between 5% and 10%, which has the highest mean score, rather than the bottom 2%. Only in the case of Greece do we see a consistent fall in mean current life-style deprivation as one goes up from the lowest income group.

Table 9: *Mean Score on Current Life-Style Deprivation Index by Lower Bands Of the Equivalent Income Distribution*

|  | Mean Score | | |
|  | *Bottom 2% of Equivalent Income Distribution* | *Bottom 2-5% of Equivalent Income Distribution* | *Bottom 5-10% of Equivalent Income Distribution* |
| --- | --- | --- | --- |
| All Countries | 5.1 | 5.1 | 4.9 |
| Germany | 2.0 | 2.3 | 2.8 |
| Denmark | 2.5 | 2.4 | 2.5 |
| Netherlands | 2.9 | 3.5 | 3.3 |
| Belgium | 2.6 | 2.3 | 4.1 |
| Luxembourg | 1.3 | 2.9 | 3.9 |
| France | 3.8 | 4.8 | 4.6 |
| United Kingdom | 3.2 | 3.6 | 4.2 |
| Ireland | 3.5 | 5.9 | 4.9 |
| Italy | 4.3 | 5.0 | 4.3 |
| Greece | 10.8 | 10.2 | 9.7 |
| Spain | 6.8 | 7.5 | 6.8 |
| Portugal | 10.9 | 9.7 | 10.7 |

Thus targeting solely on the basis of low income is even more problematic than the results in Table 9 suggest. The greater discriminatory power across poverty lines observed among the less affluent countries appears to be a direct result of the higher percentages falling below such lines. In general current income among those in the lowest regions of the income distribution appears to be a poor indicator of command over the resources necessary to avoid deprivation. The implicit assumption that

income poverty lines identify thresholds below which households are excluded from society receives a great deal more support in countries such as Ireland, Italy, Greece, Spain and Portugal than in countries such as Germany, Denmark, the Netherlands and Belgium. However, even in the former attempts to identify particularly deprived sets of households by differentiating by income within the lowest decile proves to be singularly unsuccessful.

## 8. Income, Deprivation and Economic and Strain

We have found that income and deprivation are significantly related, but that the relationship is far from perfect and varies substantially across European Union countries. These findings point to the need to go beyond income poverty lines in measuring exclusion from customary life-styles. Without addressing here the complex issues doing so involves, we can use the ECHP to enhance our understanding of the distinctive roles played by income and current life-style deprivation by examining their relationship with self-assessed economic strain. In this section we investigate the nature of these relationships and the manner in which they vary across countries, in order to elucidate the somewhat different contributions which income and current life-style deprivation measures make to our understanding of the economic well-being of households.

The measure of economic strain we employ is based on the following question asked of all households in the ECHP:
"Thinking now of your household's total income, from all sources and from all household members, would you say that that your household is able to make ends meet?"[11]
Respondents were offered six response categories ranging from "with great difficulty" to "very easily". In Table 10 we look at the relation between responses to this question and household deprivation in terms of our 14-item CLSD index. For ease of presentation we report the total percentage experiencing either "great difficult" or "difficulty".

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[11] The reference person in the household responds to the household questionnaire.

Table 10: *Percentage of Households Experiencing Great Difficulty or Difficulty in making Ends Meet by Current Life-Style Deprivation by Country*

| | Current Life-Style Deprivation Score | | | | | | | |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6+ | All |
|---|---|---|---|---|---|---|---|---|
| Germany | 1.2 | 2.5 | 6.2 | 11.4 | 24.2 | 33.3 | 56.7 | 8.2 |
| Denmark | 2.0 | 8.2 | 17.8 | 23.9 | 36.5 | 46.2 | 65.8 | 13.4 |
| Netherlands | 1.4 | 11.0 | 30.9 | 45.6 | 57.8 | 70.7 | 80.7 | 14.9 |
| Belgium | 1.6 | 6.5 | 15.0 | 30.5 | 45.8 | 43.3 | 53.5 | 14.4 |
| Luxembourg | 0.8 | 4.1 | 9.2 | 7.8 | 22.5 | 52.0 | 39.5 | 6.1 |
| France | 2.4 | 7.2 | 18.1 | 27.3 | 38.3 | 45.9 | 68.0 | 19.1 |
| UK | 1.6 | 4.4 | 13.7 | 23.2 | 33.5 | 39.0 | 67.1 | 18.2 |
| Ireland | 6.4 | 11.9 | 23.5 | 35.1 | 43.4 | 52.1 | 69.1 | 26.8 |
| Italy | 1.0 | 6.2 | 15.9 | 24.2 | 35.6 | 44.7 | 67.0 | 20.0 |
| Greece | 6.6 | 11.3 | 22.5 | 31.1 | 39.4 | 52.3 | 80.7 | 55.3 |
| Spain | 2.6 | 10.5 | 18.5 | 33.1 | 39.5 | 50.6 | 66.9 | 36.2 |
| Portugal | 2.1 | 4.9 | 10.5 | 14.7 | 25.1 | 39.0 | 59.2 | 38.8 |
| Total | 1.6 | 5.5 | 14.2 | 23.6 | 34.6 | 43.4 | 66.8 | |

We see first that the overall numbers reporting economic strain varies across country much as we would expect from their mean income levels. The lowest level is experienced in Luxembourg and Germany, where under 10% report difficulty making ends meet. This rises to around 14% for Denmark, the Netherlands and Belgium before increasing to approximately 18% for France, the UK and Italy. The level for Ireland is somewhat higher at 27%, higher figures are observed for Spain and Portugal, while in Greece more than half of all households report difficulty.

While there are therefore substantial cross-national variations in the degree of economic strain experienced by households, in every country it is strongly related to current life-style deprivation. We see the percentage reporting economic strain rising with increasing deprivation in every country with remarkable consistency – invariably, as the level of deprivation rises from 1 through each level up to 6 or more, the percentage reporting difficulty increases. Within deprivation levels, there is thus much less variation across countries in the percentage reporting difficulty. For those with deprivation scores of six or more, for example the percentage reporting difficulty making ends meet ranges from 55% for Belgium to 81% in Greece and the Netherlands. The rate at which the percentage reporting difficulty increases as deprivation rises differs across countries. For the Netherlands it increases particularly

sharply, from 1% for those reporting no deprivation up to 80% for those with scores of 6 or more. For Portugal, on the other hand, it goes only from 2% to 39%. Since these two countries are the ones with the highest and the lowest average CLSD scores respectively, this suggest that the impact of any absolute difference in the degree of deprivation is dependent on the overall level of deprivation – a point to which we return.

In Table 11 we show the distribution of economic strain across equivalent income decile by country. There is a clear relationship between income and economic strain for each country. Again leaving Luxembourg on one side, we find that in the top decile the percentage experiencing difficulty varies from 1.8% in Germany to 19% in Greece. In the fifth decile it goes from 5.5% to 57.2% for the same countries. Finally in the bottom decile it ranges from 17% to 83% with Germany and Greece again representing the extremes. However the degree of variability within deciles suggests that income is a significantly less important factor than deprivation in explaining cross-country variation. In what follows we look more systematically at variation in economic strain within and between countries and the role played by household income and deprivation.

*Table 11: Percentage of Households Experiencing Difficulty or Great Difficulty in Making Ends Meet by Equivalent Income Decile*

| | Equivalent Income Decile | | | | | | | | | |
| | *Top* | *9* | *8* | *7* | *6* | *5* | *4* | *3* | *2* | *Bottom* |
|---|---|---|---|---|---|---|---|---|---|---|
| GER | 1.8 | 4.3 | 2.9 | 4.6 | 7.8 | 5.5 | 6.9 | 13.9 | 16.7 | 17.2 |
| DK | 5.5 | 4.9 | 9.3 | 13.5 | 11.5 | 13.5 | 16.8 | 19.0 | 22.1 | 18.3 |
| Nl | 3.3 | 4.1 | 3.5 | 3.7 | 5.9 | 12.4 | 17.1 | 24.2 | 36.9 | 37.7 |
| BE | 3.9 | 7.2 | 6.9 | 9.4 | 9.6 | 12.9 | 14.9 | 24.3 | 29.8 | 26.4 |
| LU | 0.0 | 2.0 | 1.0 | 3.0 | 3.0 | 6.8 | 8.0 | 6.8 | 11.3 | 22.1 |
| FR | 2.3 | 6.1 | 8.9 | 10.4 | 14.0 | 16.7 | 26.6 | 31.2 | 36.9 | 27.9 |
| UK | 3.9 | 5.6 | 6.8 | 10.5 | 13.8 | 20.3 | 23.9 | 29.5 | 34.3 | 32.8 |
| IRL | 6.5 | 8.7 | 16.5 | 18.9 | 22.0 | 30.1 | 37.0 | 34.5 | 43.5 | 52.4 |
| IT | 5.0 | 7.2 | 10.2 | 12.5 | 13.0 | 17.9 | 21.1 | 25.3 | 33.5 | 45.3 |
| GR | 19.4 | 31.1 | 40.0 | 48.8 | 56.3 | 57.2 | 67.5 | 74.4 | 74.5 | 83.2 |
| ES | 9.9 | 17.9 | 27.4 | 30.4 | 32.4 | 34.7 | 42.2 | 47.4 | 57.2 | 61.8 |
| PT | 4.8 | 19.7 | 26.4 | 34.3 | 35.0 | 42.9 | 46.6 | 52.0 | 60.7 | 63.6 |
| Total | 2.9 | 2.7 | 5.6 | 9.9 | 13.4 | 17.0 | 23.4 | 29.2 | 35.0 | 41.9 |

Reference group theory would suggest that, in evaluating their economic situation including the degree of economic strain, respondents would be influenced most by

their perception of how they are doing compared with others in their own country (Runciman 1966). However, particularly in the European Union it is also perfectly possible that comparisons will extend beyond national boundaries. The data we have presented suggest, for example, that the Greek sample as a whole report much higher levels of economic strain than the German one, and in that sense may feel relatively deprived. To investigate systematically the way economic strain varies within and between countries and the role played by household income and deprivation, we move on to regression techniques. The questions we wish to address are as follows:

- How important are between country differences in economic strain compared to within country variation?

- What role do income and current life-style differences play in accounting for between-country differences in economic strain?

- How important are within country processes of relative deprivation and do they vary across country?

In pursuing these issues we present results employing ordinary least squares regression; multivariate analysis employing the ordered logit procedure produced an almost identical pattern of results.

From Table 12 we see first, in Section A, that within country variation in economic strain is over five times important as between country variation. The former accounts for 83.8% of the overall variance and the latter 16.2%. Comparisons with households in ones own country are a great deal more important than comparisons across countries. This kind of outcome is normally described as a case of restricted reference groups. However, the argument that subjective well being is a function of the comparative reference groups that we adopt is ultimately a circular one unless selection of narrow reference groups is seen as a *cause* of modest expectations. In that case one would expect that a more accurate appraisal of the degree of inequality would lead to changed reference groups. In fact, as Runciman (1966) himself observed in his seminal work, there is little evidence that distorted perceptions play any significant role in the generation of reference groups. It seems implausible that respondents in the ECHP survey are unaware of the broad range of European inequalities. As a consequence reference to 'restricted reference groups' must be

taken as a shorthand way of referring to a complex process of evaluation of what it is "reasonable or fair" to expect (Jasso 1978, Jasso & Rossi 1977). Restricted reference groups exist within as well as between countries and we would expect that the reference point for a particular household would not be the national average but the typical situation of households similar to themselves in class and other characteristics. For our present purposes though we ignore such internal variation since our key questions are the extent to which the impact of external comparisons can be accounted for by income and deprivation and the degree to which, on average, internal processes of relative deprivation vary across country.

Table 12:*The Role of Income and CLSD in Accounting for Between Country Variation in Household Economic Strain*

| A .Partitioning Variance in Economic Strain | |
| --- | --- |
| Within Countries | 83.8% |
| Between Countries | 16.2% |
| | |
| *B. Percentage of Between Country Variance Accounted for by*: | |
| Equivalent Household Income | 56.2% |
| Current Life-Style Deprivation | 83.4% |
| Equivalent Income and Current Life-Style Deprivation | 86.4% |

In Table 12 section B we explore the extent to which the between country component of economic strain can be accounted for by differences in mean income and deprivation levels. Income alone explains 56% of the variation across countries while current life-style deprivation alone accounts for 83%. Taking both into account raises the percentage accounted for to 86%. This means first that most of the difference across countries in the experience of economic strain is a consequence of objective differences in income and life-style deprivation. Further, income has the bulk of its effect through its relationship with deprivation, since once deprivation is included adding income accounts for only a further 3% of the variance.

While these results suggest that household reference groups are not exclusively national within the EU, it is clear that relative deprivation in comparison with households in one's own country plays the primary role in generating feelings of economic strain. We now seek to establish the importance of within country reference groups in relation to income and deprivation, and the extent to which such processes vary across country. In order to do so, we transform the household income and

deprivation variables into standardized format within country. That is, each household observation is expressed as a deviation from the national mean divided by the national standard deviation. Our dependent variable remains the unstandardized economic strain variable We then see the extent to which these independent variables explain household levels of self-assessed economic strain in a multiple regression framework.

In the first equation in Table 13 we enter only standardized income and deprivation as explanatory variables. We see that they account for 33.7% of the overall variance. Since by definition the standardised variables cannot account for between country variance, the degree of explanation achieved by them is equivalent to 40.2% of the within country variance[12]. Taking into consideration the proportion of cross country variance accounted for by income and deprivation, we can calculate that taking into account both the between and within country impact of income and deprivation allows us to account for 47.7% of the total variance[13]. The income coefficient is thirty six times its standard error while the corresponding figure for the deprivation variable is over one hundred and thirty.

Table 13: *Multiple Regression of Household Difficulty in Making Ends Meet : The Role of Standardised  Income and Current Life-Style Deprivation*

| Reference Category : Germany | B | S.E | B | S.E |
|---|---|---|---|---|
| Log of equivalent income; Standardised | -0.179 | .005 | -0.178 | |
| Current Life Style Deprivation Standardised | 0.665 | .005 | 0.667 | |
| Denmark | | | 0.240 | 0.021 |
| Netherlands | | | 0.161 | 0.019 |
| Belgium | | | 0.391 | 0.020 |
| Luxembourg | | | -0.245 | 0.032 |
| France | | | 0.723 | 0.018 |
| UK | | | 0.601 | 0.018 |
| Ireland | | | 1.038 | 0.020 |
| Italy | | | 0.892 | 0.018 |
| Greece | | | 1.697 | 0.019 |
| Spain | | | 1.268 | 0.018 |
| Portugal | | | 1.442 | 0.019 |
| Constant | 3.636 | | 2.840 | |
| $R^2$ | 0.337 | | 0.499 | |
| N | 59232 | | | |

We now include country dummy variables, as well as standardised income and deprivation, in equation two in Table 13. Incorporating these additional country effects increases the level of total variance explanation to 49.9%. However, very importantly, further analysis shows that including interaction terms between country and income or deprivation does not produce any significant further increase in variation explanation. Thus, income and current life-style deprivation appear to impact on economic strain in a uniform manner in the twelve countries in the first wave of the ECHP.

## 9.Conclusions

This paper took as point of departure findings for Ireland which suggested that the relationship between income and deprivation was weaker than generally assumed, and varied systematically across different dimensions of deprivation. Income poverty lines may then be problematic in identifying those excluded from their society because of lack of resources; income and non-monetary deprivation indicators provide rather different types of information that can be fruitfully combined for analytic and policy purposes. In this paper we have examined how far these conclusions can be generalised to other European Union countries, using data on twelve countries from the first wave of the ECHP.

Factor analysis showed that five distinct dimensions of deprivation emerged in the overall European analysis, and cross-country analysis confirmed the consistency of this structure of deprivation across individual countries. The first crucial finding was thus that it is possible to make European comparisons across different dimension of deprivation with confidence that we are measuring the same phenomena. The levels of reliability for the different dimensions were generally very satisfactory, with the exception of the environmental problems dimension where further exploration would be desirable .

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[12]33.7/83.8=40.2

[13](.162)(.864)+33.7=47.7

With regard to the relationship between income and deprivation a consistent finding across all countries was that the housing and environmental dimensions of deprivation display a very low degree of correlation with equivalent household income. This is particularly important because housing items have tended to figure very prominently in measures intended to reflect generalised deprivation. It is clear, however, that in seeking determinants of such deprivation we must look beyond current income.

For what we termed the basic and secondary dimensions, the current life style deprivation (CSLD) scale which combines them, and the overall 25-item index, the correlation with income was higher but varied significantly across countries. The correlation was generally weakest in the richer countries where the level of deprivation is lowest, and strongest where it is highest, though other factors also appeared to be at work. The CLSD measure showed little variation in deprivation across the bottom deciles in the countries with the lowest levels of deprivation. Thus, moving from higher to lower relative income poverty lines mean deprivation levels increased in the less affluent countries, but not in the more affluent ones. In all countries, those right at the bottom of the income distribution had lower mean levels of deprivation than others in the bottom decile, probably reflecting the generally transient nature of such incomes and the fact that they serve as relatively poor indicators of command over resources. The panel nature of the ECHP data will provide the opportunity to explore such issues of income dynamics in the future.

Finally we sought to explore the distinctive roles of income and deprivation measures by exploring the manner in which they relate to the degree to which households report difficulty in making ends meet. Economic strain was seen to vary substantially with both income and deprivation, although the impact of the latter was considerably stronger. Five-sixths of the variation in economic strain occurs within countries, with reference groups in this context extending beyond national boundaries but only to a limited extent. Income and deprivation explained the vast bulk of the between country variation in economic strain, although income appeared to operate largely through its relationship to deprivation.

Turning to variation in economic strain within countries, our results confirmed the importance of processes of relative deprivation, in the most general sense of that term.

Standardized income and deprivation, together with country dummies allowed us to account for a substantial proportion of the variation in economic strain. However, interaction terms between country and income or deprivation did not produce any significant further increase in variation explanation. Thus, income and current life-style deprivation appear to impact on economic strain in a uniform manner in the twelve countries. The uniformity of the relative deprivation process across country provides an important illustration of the point made by (Erikson & Goldthorpe 1993) that in attempting to explain cross-country variation we should not lose sight of important sociological phenomena whose importance lies precisely in their constancy across such boundaries.

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