Material Poverty and Multiple Deprivation in Britain:

The distinctiveness of multidimensional assessment

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Citation

Abstract

Poverty analysis is currently undergoing a multidimensional turn, increasingly focusing on the many ways in which human life can be impoverished and not just on material poverty. In this paper, we present an analysis of material poverty and multiple deprivation in Britain which is inspired by the capability approach. We argue that additional complexity of multidimensional analysis requires that it provides some insight not achieved by a more straight-forward approach focusing on material poverty alone. Our findings indicate that whether a multidimensional assessment identifies different people as being in poverty depends on whether our interest is in identifying vulnerable individuals or identifying vulnerable groups and whether we focus on dimensions in aggregate or disaggregate form. We find that while material poverty and multiple deprivation identify very different individuals, they display greater congruence in terms of the identifying vulnerable groups, especially where aggregate measures are employed.

Keywords capability approach; poverty; deprivation; material; multidimensional; Britain

Introduction

Poverty analysis is currently undergoing a multidimensional turn, increasingly moving beyond an exclusive focus on income-centric or otherwise unidimensional forms of what might be called *material* poverty to incorporate information from a wider set of dimensions which reflect the many different ways in which human life can be impoverished. The multidimensional perspective, it can be argued, not only provides a more accurate reflection of the experience of poverty itself, but potentially also influences *who* we identify as being poor, which is a task of considerable public policy importance. This turn towards multidimensionality can be motivated by range of conceptual frameworks, but one of these – and one which is itself receiving an increasing amount of attention – is the capability approach, developed initially by the economist and philosopher Amartya Sen. The capability approach argues that, in analysing poverty, our focus should be on what people are able to do and be, and not just on what they have (i.e. their resources), or how they feel. Since what people can do and be is inherently multidimensional, the capability approach provides a theoretical justification for adopting a multidimensional conceptualisation of poverty.

However, while multidimensional analysis has, at least from a capability perspective, clear conceptual advantages, further evidence is required to demonstrate that it can also provide substantive empirical insights which are not provided by a more limited, unidimensional focus on material poverty. As Nolan and Whelan (2011: 19, emphasis in original) note, 'the need for a multidimensional measurement approach in identifying the poor/excluded is an *empirical* matter, rather than something one can simply read off from the multidimensional nature of the concepts themselves'.

In this paper, we present an empirical analysis of material poverty and multiple deprivation in Great Britain which is inspired by the capability approach. In particular, we focus on two measures of material poverty (low income and material deprivation) and seven dimensions of what we call multiple deprivation (ill-health, mental ill-health, housing deprivation, low life satisfaction, lack of autonomy, financial stress and unemployment), with these dimensions of multiple deprivation selected because each represent functionings (beings and doings) which we assume that each respondent would avoid if they could – i.e. that these deprivations are the product of constraints and not choices (see below). In examining the distinctiveness of the multidimensional perspective, we distinguish between identifying vulnerable *individuals* and identifying vulnerable *groups* – two distinct but policy-relevant forms of identification.

The capability approach and poverty analysis

The central concepts of the capability approach are functionings and capabilities. A person's 'functionings' refer to the various things a person succeeds in 'doing or being', such as participating in the life of society, being healthy, and so forth, while 'capabilities' refer to a person's real or substantive freedom to achieve such functionings; for example, the *ability* to take part in the life of society (Sen, 1999: 75). Of crucial importance is the emphasis on *real* or *substantive* – as opposed to formal – freedom, since capabilities are opportunities that one could exercise if so desired.

Sen argues that while people's incomes (or, more broadly, their resource holdings) are important, they are only of *instrumental* importance: because of what they allow a person to do or be. In contrast, what a person can do or be is *intrinsically* important (e.g.

Sen, 2009) – our ultimate concern when analysing poverty. Such a distinction would not matter much if people's resources were a good measure of their capabilities, but Sen argues that this is unlikely to be the case because (i) people have different needs, which means that there will be systematic variations between people's incomes and their capabilities, and because (ii) low income is just one of the influences on people's capabilities (Sen, 1999: 87-8).

The capability approach has by now spawned a substantial body of literature, has its own academic association (the Human Development and Capability Association) and its own academic journal (the *Journal of Human Development and Capabilities*). However, we have previously argued that the approach should *not* be seen as constituting a distinct field of studies ("capability studies") but, rather, that its value lies in provides a lens with which to understand our existing concerns (Hick, 2012) – in this case, the problem of poverty and deprivation in Great Britain. Conceiving of the capability approach in this way is significant because it emphasises the importance of engaging with both capability- and non-capability-inspired analyses of poverty and deprivation.

A number of challenges have been identified in drawing on the capability approach to provide a framework for poverty analysis, two of which we discuss here. First, Lister (2004) has argued that the concept of capability deprivation is broader than that of poverty, since it incorporates a focus on both resource- and non-resource-based dimensions and constraints, whereas the concept of poverty is typically understood to be ultimately concerned with a lack of monetary resources. It has been argued elsewhere (Hick, 2012) that the capability approach is essentially a *normative* approach

– concerned primarily with 'what we study' and less concerned with whether this analytical terrain is analysed using one or more concepts. The concept of poverty can therefore retain its widely-accepted, resource-based focus – what we call here material poverty – *if* the wider dimensions of concern do not fall from our analytic focus. We employ the concept of multiple deprivation to capture these wider dimensions of deprivation which are often ignored in studies of material poverty.

Second, some have questioned whether the capability approach can be adequately operationalised (e.g. Sugden, 1993). A multidimensional framework such as the capability approach undoubtedly proves more challenging to operationalise than, say, an income-centric analytic approach. One aspect of this challenge relates to the difficulty of measuring people's capabilities, with their distinction between choice and constraint and, where desired, to the challenge of constructing an aggregate measure of each person's overall capability. In this paper, we focus on a selection of functionings rather than capabilities (i.e. outcomes rather than real opportunities) and assume that, for the dimensions selected, people would avoid deprivation on these dimensions if they could (i.e. that deprivation on these dimensions reflects constraints and not merely choices). A second aspect of the challenge in applying the capability approach relates to the selection of dimensions and to the fact that the dimensions contained in secondary datasets typically fall short of the ideal list an analyst might wish to work with. However, this is a problem for all multidimensional analyses, capability-inspired or otherwise, and unless more limited approaches, such as those focusing on low income or material deprivation, for example, act as good proxies for multidimensional poverty and deprivation, then some important information may be lost by the omission of wider dimensions.

The analysis presented in this paper is based on two measures of material poverty and seven dimensions of multiple deprivation. In terms of material poverty, we draw on the two most prominent measures of material poverty in European poverty analysis: low income and material deprivation. Of these two measures, the measure of material deprivation is perhaps of particular interest since it asks not only whether respondents possess a set of items and participate in a set of activities but also – where they do not – whether this is because of a lack of resources or is by choice. There is something of a parallel between this attempt to distinguish between choice and constraint in these 'enforced lack' measures of material deprivation and Sen's distinction between functionings and capabilities (see Hick, 2012 for a discussion).

The concept of multiple deprivation is intended to focus in a broad way on the lives people are able to live, and not only on those aspects of life which are directly associated with monetary resources. To that end, it is intended to capture deprivation on what are typically considered to be non-material dimensions (though, as we see, many are indeed related to material poverty). The normative status of this conception is derived from our assumption that – despite their various preferences and commitments – people value more rather than less of the achievements concerned, and thus that they reflect differences in people's capabilities rather than just their functionings. However, before presenting the results of the empirical analysis, we discuss some key findings from the existing literature.

Empirical literature on material poverty and multiple deprivation

The growing emphasis on conceptualising poverty in multidimensional terms has led to a corresponding growth in empirical literature seeking to reflect this multidimensionality (Tomlinson *et al.*, 2008; Roelen *et al.,* 2012; Coromaldi and Zoli, 2007, inter alia). In this section, we identify six key findings from the existing literature on material poverty and multiple deprivation, with a particular focus on British and European studies. The first finding is perhaps the most intuitive: being deprived on one dimension often leads to a greater risk of deprivation on others (e.g. Whelan *et al.*, 2007; Notten and Roelen, 2010: 41; Rippin, 2012), though, as we will see, the precise relationship will depend on the dimensions in question.

Second, low income has been found to correlate more strongly with material deprivation than with other dimensions of multiple deprivation. Whelan *et al.* (2001) find that income has the strongest relationship with material deprivation (or what they call 'basic' deprivation), followed by 'secondary' deprivation (a set of consumer durables such as a car or microwave oven), with a weak, although statistically significant, relationship with housing facilities, housing deterioration and environmental problems, drawing on 1993 and 1994 ECHP data for twelve European countries. Similarly, Boarini and d'Ercole (2006: 28) find a stronger relationship between income and material deprivation than with housing deprivation or social support across the nations of the OECD. Similar findings have also been observed across European nations by Notten and Roelen (2010) and Coromaldi and Zoli (2007).

Third, a number of studies have found that material deprivation may have a stronger relationship than low income with multiple forms of deprivation. Halleröd and Larsson (2008: 23) found that respondents who were materially deprived were more likely to experience a range of other 'welfare problems' (such as crime, health, unemployment, etc.) than those who experienced income poverty, concluding that 'income poverty was one of the most peripheral of all welfare problems'. Nolan and Whelan (2011) observed a closer relationship between material deprivation and subjective financial stress than with low income across twenty-six European countries. This is of interest because it may not always be possible for analysis to undertake multidimensional analysis; in such in instance, we might wish to know which of the two measures of material poverty offers the better proxy of multiple deprivation in terms of identifying individuals in poverty.

Fourth, previous research has found that extensive deprivation across many dimensions is relatively rare. Drawing on 1997 data from the British Household Panel Survey, Burchardt *et al.* (2002) constructed four dimensions of deprivation: consumption (low income), production (not in employment, education or training, or caring), political engagement and social interaction. They found that over half of the sample was not deprived on any dimension, with 2.3 per cent deprived on 3 dimensions and just 0.1 per cent on all four dimensions. In an earlier analysis, they had noted that between 1 and 2 per cent of population were deprived on four or more of five dimensions of deprivation in each year between 1991 and 1995 (Burchardt *et al.*, 1999: 236). This finding is also observed by Barnes (2005), using British data, and by Notten and Roelen (2010) and Tsakloglou and Papadolpoulos (2002), using data from multiple European countries.

However, in analysing material poverty and multiple deprivation we may wish to assess not only whether the various dimensions identify different individuals as being deprived, but also whether the *groups* at risk of multiple deprivation are the same as those who display an elevated risk of material poverty. As Whelan and Maître (2012) note, one can either focus on the proportion of particular groups who experience poverty or deprivation (which we call an 'absolute risk' perspective), or the probability of poverty or deprivation for these groups, once other characteristics have been controlled for using a statistical model (which we call an 'underlying risk' perspective). Both perspectives may be of interest in assessing the additional insights – if any – provided by a multidimensional analysis.

Of course, and fifth, the particular risks faced by specific groups may be dependent on the specific dimensions considered. For example, research has shown that older people are shown to display substantially greater rates of material poverty when income measures rather than material deprivation measures are employed (McKay, 2004; Hick, 2013). Furthermore, in his study of multidimensional social exclusion in the UK, Barnes notes that 'age was related to an individual's risk of experiencing disadvantage in different ways – young adults were at risk of economic and neighbourhood forms of disadvantage, whilst older adults were at risk of health and social related problems' (2005: 173). Drawing on UK data from EU-SILC data, Notten and Roelen (2010: 59-64) find that single parents face an elevated risk of income poverty and financial stress (compared to a two-adult household with children), but not of housing deprivation, neighbourhood problems, or lacking access to services, after controlling for other variables. Similarly, they find low work intensity to be related to income poverty, financial stress and housing problems, but not to neighbourhood problems or access to

services. This points towards one advantage of examining the risk of deprivation for different groups across various dimensions – namely, to identify the *patterns* of disadvantage across the dimensions of material poverty and multiple deprivation.

Sixth, and finally, while the pattern of underlying effects may vary from dimension to dimension, there may be a greater similarity between the groups at risk of material poverty and an aggregate measure of multiple deprivation. Notten and Roelen (2010: 59-64) find that single parents, households with low work intensity and respondents in rented accommodation face raised rates of both income poverty *and* multiple deprivation when an aggregate measure of the latter was employed (comprising housing deprivation, neighbourhood problems, financial stress, and access to services). This is an important finding, as it questions whether a multidimensional perspective does, in fact, point to distinctive groups as being at risk and whether there are novel findings which emerge from a multidimensional perspective.

Notwithstanding any conceptual merit, in practical terms, the effort involved in terms of data collection and additional complexity of analysis requires that the multidimensional perspective provide some new insight that is not achieved by a more straight-forward analysis focusing only on material poverty. Such a contribution may come in a number of forms: in demonstrating that different dimensions of poverty and deprivation identify *different individuals* or *households* as being poor; that different *groups* are shown to be at risk; or that the multidimensional perspective demonstrates distinctive poverty *trends* over time (Hick, forthcoming), for example. Alternatively, it may come from distinguishing between risk factors which are consistent across many dimensions of

poverty and deprivation and those which are dimension-specific or are limited to a small number of dimensions (Förster, 2005).

Furthermore, there is a challenge for analysts to demonstrate that multidimensional poverty analysis can provide robust findings, given the greater number of decisions on the part of the analyst required by a multidimensional approach. Previous research has suggested that the selection of thresholds within any dimension and the selection of dimensions itself can have a substantial influence on the subsequent results (Notten and Roelen, 2010: 47) and, given these concerns, further work in assessing whether multidimensional poverty can provide robust results represents an important priority for poverty research.

Data

The empirical analysis presented in this paper is based on data from the 2006/7 wave of the British Household Panel Survey, a household survey which interviews adult members (aged 16 and over) living in sampled households on an annual basis. The BHPS has been selected as the relevant dataset because of the relative wealth of information it contains on multiple dimensions of deprivation, which are essential for the present analysis, as well as on low income and material deprivation. The findings are based on a completed cases analysis of 4,718 respondents between the ages of 16 and 59, clustered within 2,507 households. Robust standard errors are computed to account for this clustering. Analysis is restricted to respondents under the age of 60 as it has previously been shown that indicators of material deprivation perform very differently for older respondents (e.g. McKay, 2004; Hick, 2013). This is an important area of study in itself, but we restrict attention to respondents under the age of 60 in an

attempt to avoid this differential performance having an undue influence on the analysis undertaken here.

The individual is chosen as the unit of analysis because (i) there is a theoretical preference for a focus on individuals and not households (Atkinson *et al.*, 2002) and (ii) six of the seven deprivations analysed in the final section are collected at the individual level, and we wish to make full use of this data. Since income and material deprivation data are collected at the household level, this means that the ubiquitous, but problematic, assumption of equal income sharing / equal experience of material deprivation within households is made. The data are weighted using the cross-sectional individual weight supplied with the BHPS (with the exception for the analysis presented in Table 3, which is based on unweighted data).

The first of the measures of material poverty is a relative income measure, set at 60% of median income. This remains the most widely-employed measure in European poverty analysis; it acts as one of the three measure used to frame poverty targets under the Europe 2020 strategy; and it is enshrined as one of the official child poverty measures under the UK Child Poverty Act 2010. This measures is based on equivalised net current (i.e. weekly) income (whhnetde2), and is a before housing costs (BHC) measure of income. This income variable employs a Modified OECD equivalence scale, which allocates a weight of 1 for the first adult, 0.5 for additional adults and .3 for each child, and values are expressed in January 2008 prices (Levy and Jenkins, 2008). A binary measure is constructed based on a 60 per cent median income poverty line (calculated using all cases for whom there were positive individual weights), which equates to equivalised £170.99 per week.

The material deprivation measure is on a nine-item deprivation index, with the items relating to whether respondents can: keep their home adequately warm; pay for a week's annual holiday away from home; replace worn out furniture; buy new, rather than second hand, clothes; eat meat, chicken or fish at least every second day; have friends or family for a drink or meal at least once a month; have two pairs of all-weather shoes for each adult in the household; have enough money to keep their home in a decent state of decoration; and have household contents insurance. We classify respondents as being materially deprived where they experience an enforced lack of one or more deprivation items (see also Nolan and Whelan 1996).

While other applications of the capability approach have adopted a deliberative approach to selecting relevant capabilities (e.g. Burchardt and Vizard, 2011; see also Burchi *et al.*, 2013 for a discussion) or have selected indicators on the basis that the correspond to the capability list outlined by Martha Nussbaum (e.g. Anand *et al.*, 2009; Rippin, 2012), in this paper we select dimensions based on (i) our definition of multiple deprivation as being the enforced experience of low living standards, understood to be a set of non-material capabilities for which we assume that people value more rather than less of the achievements concerned, whatever else they value, and (ii) which are contained within the BHPS dataset.

The seven dimensions of multiple deprivation available in the BHPS which we believe correspond to the concept of deprivation we have outlined are: (i) general health, (ii) mental health, (iii) housing deprivation, (iv) autonomy, (v) life satisfaction, (vi) financial stress and (vii) unemployment. Unlike the indicators of material deprivation in most

cases these indicators do not refer explicitly to constraints and thus refer to functionings and not capabilities. Nonetheless, in each case the dimensions represent deprivations which it seems reasonable to believe that people would prefer to avoid if they could.

One dimension which we do not include as a dependent variable is education / knowledge (it is however included as covariate in the models which follow). We do not include this education as one of the dimensions of multiple deprivation, first, because while each of the other dimensions are measured contemporaneously, the variable 'education' contained in the BHPS captures past educational attainment and not present knowledge. This is problematic as its inclusion would require us to define those with relatively low educational attainment as being educationally deprived irrespective of their subsequent economic or labour market position (adopting an 'instrumental' perspective regarding the value of education) or actual knowledge or competence (adopting an 'instrinsic' position). Secondly, identifying a single threshold which would capture deprivation in educational attainment for different generations of respondents is likely to be difficult because the need for formal educational qualifications has risen over time. For these reasons, we have chosen to use the education variable as an explanatory, rather than a dependent, variable.

In terms of the dimensions selected, for *(i) general health*, we focus on the respondent's overall health status over the preceding 12 months. The response categories for this variable range from 1-'excellent' to 5-'very poor'. we have recoded this as a binary variable so that 4-'poor' and 5-'very poor' represent deprivation in this dimension.

For *(ii) mental health* we draw on the 12 items General Health Questionnaire module within the BHPS. This survey module asks respondents how they have been feeling about a number of aspects of life, such as decision making, concentration, whether they have been feeling unhappy or depressed, and so forth. The response categories refer to whether a respondent is doing (i) better than usual, (ii) the same, (iii) worse than usual or (iv) much worse than usual. We adopt the GHS scoring approach (0-0-1-1) and set the threshold at 5/6 as representing mental ill-health.

The measure of *(iii) housing deprivation* draws on 11 indicators relating to whether the respondents accommodation has: a shortage of space; noise from neighbours; street noise; not enough light; lacks adequate heating; has condensation; a leaky roof; damp walls, floors or other; rot in the windows or floors; environmental problems; and whether the area suffers from vandalism or crime. Given that some of the items might not always be particularly severe in isolation (for example, street noise), we suggest that a score of three or more deprivations on this scale might be suggestive of housing deprivation.

For *(iv) autonomy*, we draw on a sub-scale of items from the CASP-19 survey module. The survey module focuses on the ability to do and plan to do things in life. Three indicators are drawn from this survey module relating to respondents' (i) ability to plan for the future, (ii) ability to do the things one wants to do and (iii) being pleased with what one does. The response categories to these three questions are: often; sometimes; not often; never. We code these responses 0-0-1-2. The index is a summation of these values from the three items and we impose a cutoff at 3 or above as representing a lack of autonomy. While this three-item measure is considerably narrower than the measure

of autonomy employed by Burchardt *et al.* (2010) or Ibrahim and Alkire (2007), there is some shared focus in terms of the emphasis on the extent of control over one's life and ability to plan for the future.

For the measure of *(v) life satisfaction*, we draw on the global question 'how satisfied are you with your life overall?'. The response categories ranged from 1-'completely satisfied' to 7-'not satisfied at all', with 4 representing the mid-point 'neither satisfied nor dissatisfied'. We have recoded responses 5-7 to represent deprivation in our primary measure in this domain. The sixth dimension is *(vi) financial stress*, for which we draw on one question relating to overall financial stress. The response categories for this question range from 1 'living comfortably' to 5 'finding it very difficult' to manage financially. We have recoded this as a binary variable, with 4-'finding it quite difficult' and 5-'finding it very difficult', reflecting financial stress. The final dimension of multiple deprivation is *(vii) unemployment*, for which we focus on respondents whose current economic activity is listed as 'unemployed'.

In most of the analysis presented here, the data are aggregated *within* but not *between* dimensions so that the relationship between material poverty and multiple deprivation can be explored for each of the deprivations concerned. Where multi-item measures are used within dimensions (i.e. for material deprivation, mental health, housing deprivation and autonomy), we choose to employ a counting approach to aggregating indicators, as opposed to using more complex data-driven procedures in recognition of the 'tension between the power of sophisticated methods in summarising and analysing the range of indicators available and the transparency required to serve the needs of policy-makers and inform public debate' (Nolan and Whelan, 2009: 25). In Tables 6 and

7, we extend the preceding analysis using aggregate measures of material poverty and multiple deprivation in order to examine whether the findings from disaggregated analysis continue to be observed when these aggregate measures are employed.

Analysis

In Table 1, we present the proportion of respondents who were deprived on each of the nine dimensions of material poverty and multiple deprivation. One can see that a smaller proportion of the population are classified as deprived on each of the individual dimensions of multiple deprivation than on the low income or material deprivation measures (the rates of multiple deprivation are significantly lower than material deprivation in all cases, and significantly different from income poverty in all cases bar mental health and housing deprivation). While 14 per cent of the population experience income poverty, 18 per cent experience material deprivation, rates of other forms of deprivation range from – at the higher end – housing deprivation (13.4%) and mental health difficulties (13.2%) to – at the lower end – 6.8 per cent experiencing ill-health and 3.8 per cent of the population under 60 experiencing unemployment.

TABLE 1 ABOUT HERE

In Table 2 we examine the extent of deprivation across the dimensions of multiple dimensions (i.e. not considering the two dimensions of material poverty). The findings are striking: six in ten respondents (62 per cent) experience no deprivation whatsoever and, of those who do, six in ten (61 per cent) experience deprivation on only one dimension. Extensive deprivation is thus relatively rare, with fewer than 3 per cent of

the population experiencing deprivation on four or more of the seven dimensions considered here.

TABLE 2 ABOUT HERE

In addition to examining the extent to which individuals experience deprivation across multiple dimensions, we may wish to understand the relationship between the dimensions of deprivation themselves. In Table 3, we present a tetrachoric correlation matrix of the binary measures of income poverty, material deprivation and the seven dimensions of multiple deprivation. From this, we observe that material deprivation correlates more strongly than low income with all other forms of deprivation, with the exception of unemployment (see also Halleröd and Larsson, 2008; Hick, 2014). Indeed, the correlations between low income and many of forms of deprivation are not particularly strong, with correlations between low income and general health, mental health, housing deprivation, and autonomy all below .2. Low income correlates most strongly with material deprivation and unemployment, and to lesser extent financial stress.

TABLE 3 ABOUT HERE

Perhaps the most striking finding, however, is that a simple question asking respondents how they are 'managing financially these days' (i.e. the measure of financial stress) correlates more strongly than low income with every other measure of multiple deprivation, bar unemployment. Given the efforts expended in compiling income data in

surveys such as the BHPS, this is a surprising finding, and is one which is robust to the selection of low income and financial stress thresholds (not shown here).

The pattern of correlations between the deprivations themselves is also of some interest: general health, mental health, life satisfaction, financial stress and autonomy all correlate quite strongly with one another. On the other hand, material deprivation, financial stress and unemployment – and, to a lesser degree, life satisfaction – correlate most strongly with each other, although the values tend to be below .5 with the exception of the correlation between material deprivation and financial stress (.62). Financial stress is the dimension of deprivation which appears to be most closely related to both groups, most closely associated with material deprivation (.62), but also correlated with life satisfaction (.52), mental health (.44) and general health (.32).

Thus, despite the 'mismatch' between low income and material deprivation (e.g. Bradshaw and Finch, 2003), these measures display a *stronger* association with each other than with most of the dimensions of multiple deprivation considered here. The reasons for this may include *inter alia* the fact that the dimensions of material poverty are collected at the household level while six of the seven indicators are collected at the individual level; the inclusion of both 'objective' and 'subjective' indicators of multiple deprivation, and idiosyncrasies of particular indicators, such as the mental health indicator, which asks respondents to compare their current state to their usual situation. For some (including one reviewer), the fact that the income measure is relative, while the material deprivation and most multiple deprivation measures are "absolute" may provide another explanation for the relatively weak association between low income and the dimensions of multiple deprivation. We would argue that in a cross-

sectional analysis of poverty in one country the primary way in which this is likely to influence the analysis is in terms of the proportion of the population who experience deprivation on each dimensions (see Table 1).

Overall, then, the analysis we have presented suggests that extending the analytic focus beyond material dimensions of poverty does lead to the identification of a distinct set of individuals as being in poverty and deprivation.

Between-group differences in risks of material poverty and multiple deprivation

Having established that the measures of multiple deprivation identify substantially different *individuals*, of further interest is the extent to which they identify different *groups* as being at risk. The groups included in the analysis presented here are age, housing tenure, household composition, education, sex, sex of household head, employment composition, and region. These groups have been selected to reflect a range of social and economic characteristics typically associated with material poverty.

A focus on groups at risk of poverty and deprivation can adopt either an *absolute* risk or *underlying* risk perspective (see also Whelan and Maître, 2012). We use absolute risk to refer to the percentage of a particular group who experience poverty or deprivation, and use underlying risk to refer to the probability or odds of deprivation once other characteristics have been accounted for in our logistic regression models.

In Table 4, we present the percentage of each group experiencing income poverty, material deprivation, and the seven dimensions of multiple deprivation considered here. Perhaps the primary finding is the distinctive age dimension to the experience of

material poverty and multiple deprivation. The experience of material deprivation falls throughout the lifecourse; this is also the pattern for rates of housing deprivation, financial stress and unemployment. In contrast, rates of poor health rise consistently amongst older age-groups, as we might expect. These are the dimensions with clear and unidirectional rates of deprivation. On other dimensions, there is *not* a unidirectional trend amongst respondents of different ages. There is a spike in rates of low autonomy, low life satisfaction and mental ill-health for respondents between 40 and 49, which coincides with a *reduced* rate of income poverty for respondents of this age. These trends are generally confirmed by the underlying risk perspective (Table 5), although differences in financial stress are not significant across the lifecourse.

TABLE 4 ABOUT HERE

TABLE 5 ABOUT HERE

In contrast, the risk of material poverty and multiple deprivation for some groups is relatively consistent across dimensions. Comparing respondents with different housing tenures, one observes that on every dimension bar mental health, a greater proportion of respondents in social housing experience material poverty and multiple deprivation than respondents in either of the other two tenure statuses, while owner occupiers uniformly display the lowest rates (Table 4). After controlling for other variables (Table 5), respondents in social housing display a significantly greater risk of deprivation than owner occupiers on all dimensions other than life satisfaction and autonomy. Tenants in the private rented sector are significantly more likely to experience poverty and

deprivation than owner occupiers on most dimensions too, but differences were not significant in terms of ill-health, low life satisfaction or unemployment.

Similarly, individuals living in workless households experience *substantially* raised rates of every form of deprivation – indeed more than half experience income poverty and material deprivation, and the rate of material poverty and multiple deprivation across all dimensions is typically *at least double* that of individuals living in households with at least one employed member. By contrast, individuals living in households with at least one self-employed member are three times more likely to experience income poverty than those in households where all employed members are employees, but they are less likely to experience material deprivation *as well as all other forms of deprivation*, though these differences are in most cases not significant once controlling for other variables (the exception is for mental health). The underlying risk perspective (Table 5) also demonstrates while living in a workless household is associated with a particularly high risk of income poverty, it is also associated with a raised risk of deprivation on every dimension considered here, other than housing deprivation, where the coefficient is positive but not significant.

Across the dimensions of material poverty and multiple deprivation, there is a relatively consistent gender effect, but this is found to manifest itself in different ways. In the absolute risk perspective, women are more likely to experience every one of the deprivations than men, with the exception of unemployment, which we might expect to under-state women's true unemployment rate since women may be more likely to withdraw from the labour market when unable to find work. However, moving from an absolute to an underlying risk perspective provides additional information about the

ways in which men and women experience poverty and deprivation differently. While for health and mental health, it is being a woman that raises the risk of deprivation, for material deprivation and housing deprivation it is living in a female-headed household that significantly increases the risk of deprivation, for both men and women in such households. Comparing absolute and underlying risk perspectives in this way sheds additional light on the gendered experience of poverty and deprivation.

There are other groups for whom the picture is neither one of uniform consistency or inconsistency across dimensions. In terms of household composition, the data, from an absolute risk perspective (Table 4), show that single parents perform worst on all dimensions bar life satisfaction (where single person households fare worse). Indeed, so great is their vulnerability to material poverty that more than one-third of lone parents experience low income and more than one-half experience material deprivation. They also experience substantially greater rates of low autonomy, financial stress and unemployment than the next most deprived group.

And yet, turning to an *underlying* risk perspective, while the coefficients for some of the more 'economic' dimensions are significant (income, material deprivation, financial stress), as they are for low life satisfaction and lack of autonomy, single parents are not significantly more likely than couples without children to experience ill-health, poor mental health or housing deprivation. The findings are not dissimilar for single person households, who are significantly more likely than couples without children to be deprived on the dimensions of material poverty, as well as on the dimensions of life satisfaction, mental health and financial stress (Table 5), but display no significant

differences from couples without children in terms of experiencing ill-health, unemployment, a lack of autonomy or housing deprivation.

In the absolute risk perspective in Table 4, we see that couples and other families *with children* face greater rates of the economic deprivations (income poverty, material deprivation and financial stress) and, to a lesser extent, lack of autonomy, than their counterparts without children. Conversely, 'other' families (families with 3 or more adults) – with or without children – display elevated rates of mental ill-health, housing deprivation, low life satisfaction and unemployment compared to couples (again, both with or without children). The underlying risk perspective (Table 5) bears this out, although not all of the between-group differences are statistically significant.

Respondents with lower educational attainment experience greater rates of deprivation for most of the dimensions considered here, but differences in terms of underlying risk (Table 5) are significant only for the economic dimensions (income poverty, material deprivation and financial stress) as well as for lack of autonomy and ill-health (as well as for the respondents with no qualifications in terms of low life satisfaction).

In terms of the regions of Great Britain considered, Wales performs worst on each dimension bar housing and unemployment (absolute risk perspective; Table 4). On the two measures of material poverty, London and the Rest of the South East are the two best-performing regions, and perform well, albeit somewhat less consistently, on the dimensions of multiple deprivation considered here. Moving to an underlying risk perspective, many coefficients are not significant but, compared to respondents living in

the Rest of England, Welsh respondents display a significant risk of income poverty, ill-health, poor mental health, and financial stress.

The presence of additional children (defined as 3 or more children in the household) *substantially increases the proportion experiencing income poverty and material deprivation* but the rates for other dimensions are either *lower* (health, mental health, life satisfaction financial stress) or only marginally greater (autonomy, unemployment, housing deprivation) than households with two of fewer children (absolute risk perspective; Table 4). The underlying risk perspective confirms that families with three or more children face a raised risk of income poverty, but do not experience a raised risk for any other dimension and, in fact, report better health. The dummy for households with five or more adults is not significant for any of the dimensions considered here.

The analysis presented in Tables 4 and 5 demonstrates that there is no uniform trend for significant risk factors for different groups to be either (i) consistent across all dimensions of material poverty and multiple deprivation *or* (ii) to be entirely dimension specific. Rather the consistency of risk factors across dimensions was observed to vary depending on the group characteristics themselves. While respondents in social and private rented housing, and living in workless households display elevated risks across the dimensions of material poverty and multiple deprivation, for other group characteristics – namely educational differences, being a single parent, and to a lesser extent families with children more broadly, display underlying risks of income and material deprivation which are only partially observed on many for the other forms of multiple deprivation considered here. The most noticeable differences of all were

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observed for respondents of different ages, with the risk of material poverty and multiple deprivation across the lifecourse varying substantially depending on the dimension in question.

Aggregate measures of material poverty and multiple deprivation

Thus far, we have analysed the dimensions of material poverty and multiple deprivation individually. However, as noted at the outset, there may also be a legitimate interest in whether the individuals and groups identified as being at risk of multiple deprivation at distinct from those at risk of material poverty when aggregate measures are employed. In this section, we present analyses using aggregate measures of material poverty and multiple deprivation, with the former defined as the experience of low income *or* material deprivation, and the latter defined as the experience of two or more of the seven dimensions of multiple deprivation considered in this paper.

In Figure 1 we present a scatterplot of aggregate material poverty and multiple deprivation rates for the thirty-five sub-groups considered here. The correlation is between these scores is extremely high: 0.92 (R-sq. 0.85). Groups who experience an elevated risk of material poverty tend also to be at risk of multiple deprivation when these aggregate measures are employed. Indeed, the correlation between these aggregate measures is greater than those between the seven disaggregated dimensions of multiple deprivation and the low income measure of material poverty (which range between 0.69 and 0.85) or, on most dimensions, with the material deprivation measure (which range between 0.71 and 0.94) (not shown here).

Thus, while we have seen previously that multiple dimensions identify different individuals as experiencing poverty and deprivation (Table 3), to a substantial extent they identify similar groups as being at risk when aggregate measures are employed. This suggests that the question of whether a multidimensional perspective provides distinctive empirical insights (i.e. the challenge identified by Nolan and Whelan, 2011: 19) depends in an important way on whether one is seeking to identify vulnerable individuals or vulnerable groups.

In order to explore the aggregate experience of material poverty and multiple deprivation for different individuals, we construct a four-way typology – identifying individuals who (i) do not experience material poverty or multiple deprivation, (ii) experience material poverty but not multiple deprivation, (iii) multiple deprivation but not material poverty, and (iv) both material poverty and multiple deprivation respectively. As Table 6 demonstrates, while 26 per cent of the population experience material poverty, only one-third of these individuals also experience multiple deprivation (given the sizes of the two groups, the maximum overlap would be 57%); of those who experience multiple deprivation, 56 per cent also experience material poverty.

TABLE 6 ABOUT HERE

In this final analysis, we present the absolute and underlying risk of experiencing one or both of material poverty and multiple deprivation (Tables 7 and 8, respectively). Table 7 presents the distribution of each sub-group according to our four-way material poverty and multiple deprivation classification. Table 8 presents the results of a

multinomial logistic regression model which estimates the probability of experiencing material poverty, multiple deprivation or both, where the reference category is 'neither material poverty nor multiple deprivation'.

In Table 7, we can see that of the three categories with some experience of material poverty and multiple deprivation, the category 'both material poverty and multiple deprivation' has the largest range in terms of its incidence among the groups considered here (between 3.4% – 40.6%). This is followed by the category 'material poverty but not multiple deprivation'; the incidence of 'multiple deprivation but not material poverty' is the most equally distributed of the four categories among the groups considered here (3.5% – 9%).

TABLE 7 ABOUT HERE

Turning to the underlying risk perspective presented in Table 8, we find that the coefficients for the category 'material poverty but not multiple deprivation' to a significant extent mirror those of the individual dimensions of material poverty which have previously been discussed. The probability of falling into this category is significantly associated with living in a workless household, social and private rented housing tenancy, living in a single parent or a single person household, and having no qualifications, etc., as we would expect.

TABLE 8 ABOUT HERE

The groups with an elevated risk of experiencing 'both material poverty and multiple deprivation' are in many cases the same as those at risk of material poverty; but the coefficients but are in many cases greater – i.e. the experience of 'both material poverty and multiple deprivation' is more concentrated on the groups previously identified to be at risk of material poverty only. The key difference is for age, where there are no significant differences for the age categories considered here, equalising the divergent relationships between age and material poverty and multiple deprivation, respectively.

The final category is for the group 'multiple deprivation but not material poverty'. This is a smaller group than the other two categories considered here (see Table 6) and is more equally distributed between the different groups (Table 7); in Table 8 we show that the coefficients are typically weaker than those for the 'material poverty but multiple deprivation category', after controlling for other variables.

Overall, then, while the groups' experience of multiple deprivation in aggregate form is predicted to a significant extent by their experience of material poverty, only one-third of those individuals who experience material poverty also experience multiple deprivation. We show that the incidence of 'material poverty and multiple deprivation' is more concentrated on groups previously identified as being at risk of material poverty alone, with the experience of 'multiple deprivation but not material poverty' both more residual and more equally distributed amongst the groups considered here. The preceding analysis demonstrates that (i) some of the distinctiveness of the multidimensional perspective is lost when aggregate measures are employed and (ii) that while multiple deprivation identifies different *individuals*, in many cases these

measures identify the same *groups* as being at risk, at least when aggregate measures are employed.

Sensitivity analysis

Multidimensional poverty analyses rely on numerous decisions on the part of the analyst, including the selection of indicators and dimensions, their thresholds, approach to aggregation and so forth. This can be viewed as problematic if the choices made by the analyst influence the results in an important way. In recognition of this, substantial sensitivity analyses have been undertaken.

For Table 5, these include (a) to vary the income or material deprivation thresholds; use of annual instead of current income, and use of McClements instead of OECD equivalence scale, (b) to include possession indicators instead of 'enforced lack' deprivation indicators, (c) to vary the thresholds on each of the dimensions of multiple deprivation and (d) to vary the number of dimensions on which one must be deprived in order to be classified as multiply deprived using the aggregate measure. Sensitivity analyses were also conducted using available, and not completed, cases. Sensitivity analysis have also been conducted which employ more difficult and easier thresholds for the disaggregated dimensions in Table 3 and the aggregated dimensions in Table 6 and Table 8.

We find that the substantive findings presented in this paper are relatively robust and are not overly dependent on the thresholds selected. At times, certain effects move from being significant (or sizeable) to non-significant (or trivial) – or, indeed, in the opposite direction. However, in most cases the primary findings relating to the relationship

between dimensions and to groups at risk of material poverty and multiple deprivation are upheld (the results are not presented here for reasons of brevity, but are available from the author on request).

Conclusions

Poverty analysis is currently undergoing a multidimensional turn, increasingly focusing on the many ways in which human life can be impoverished and not just material poverty alone. We have argued that one framework which can be used to support this multidimensional turn is the capability approach, and in this paper have presented an analysis of material poverty and multiple deprivation in Britain which is inspired by that approach. The multidimensional turn within poverty analysis may be conceptually desirable, at least from a capability perspective, but it raises empirical challenges. In order to decide whether this more complex empirical approach can be justified, it must be demonstrated that the multidimensional perspective can deliver distinctive findings to those which emerge from more limited approaches focusing only on material poverty. This paper has sought to contribute to the growing literature on multidimensionality by exploring the relationship between material poverty and multiple deprivation in Great Britain and by assessing whether these measures identify a distinct set of individuals and groups as being at risk of poverty and deprivation.

We find, as other authors have found previously (e.g Burchardt *et al.*, 2002b; Nolan and Whelan, 2011), that deprivation across many dimensions is relatively rare – just one per cent of the population experience deprivation on five or more of the seven dimensions considered here – and that the correlations between many of the dimensions are relatively low, demonstrating that

the dimensions of deprivation considered here identify different individuals as being in material poverty and multiple deprivation.

It cannot be proven that the findings presented here would be replicated if a wider set of dimensions were selected (Robeyns, 2005: 209). However, it is clear from the preceding analysis that there is little to suggest that low income acts as a valid proxy for multidimensional deprivation in aggregate terms in terms of the individuals who identified as poor or deprived.

The multidimensional perspective can also shed some light on *patterns of deprivation* as they are experienced by different groups, and in the preceding analysis we have focussed both on absolute and underlying risks of poverty and deprivation, following Whelan and Maître (2012). In our analysis of disaggregated dimensions, we find that while some groups – living in a workless household; social housing and private rented sector tenants – experienced consistently raised risks across most dimensions of material poverty and multiple deprivation (irrespective of whether our focus is on absolute or underlying risk), other groups displayed underlying risks for the dimension of material poverty which were only partially observed for the dimensions of multiple deprivation, and for respondents of different ages the experience of poverty and deprivation varies substantially depending on the dimension of interest. Extending our focus from that of material poverty alone to also consider multiple deprivation provides distinctive results irrespective of whether our focus is on vulnerable individuals or vulnerable groups, at least in the disaggregated analysis.

The findings also demonstrate the value of adopting absolute and underlying risk perspectives in exploring the gendered experience of poverty and deprivation. Women, and respondents in female-headed households, experience raised rates of all forms of deprivation, with the exception of unemployment (which as we note is likely to underestimate women's 'true' unemployment rate). However, an underlying risk perspective, adjusting for other characteristics, shows that for some dimensions (health and mental health – and also the aggregate measure of multiple deprivation), the risk exists *for women*, while for material deprivation, housing deprivation and financial stress, the risk exists for *living in a female-headed household*, irrespective of whether the respondent is a man or a woman.

However, when we turn to an aggregate measure of material poverty and multiple deprivation, the insights provided by a multidimensional perspective are more contingent on whether we are interested in identifying vulnerable *individuals* or vulnerable *groups*. In the former, the multidimensional perspective continues to identify distinctive individuals – just over one-half of those experiencing multiple deprivation also experienced material poverty. But if our interest were in identifying vulnerable *groups*, then the distinctiveness of the multidimensional perspective is no longer clear – the correlation between the aggregate material poverty and multiple deprivation scores for the thirty-five sub-groups considered here is 0.92.

Constructing a four-way material poverty and multiple deprivation profile for each group, we find that the experience of 'both material poverty and multiple deprivation' is more concentrated on groups previously identified as being at risk of material poverty

alone, while the 'multiple deprivation but not material poverty' category is smaller and more equally distributed between the groups considered here.

In evaluating the distinctiveness of the multidimensional perspective in empirical terms, our findings depend significantly on whether we are interested in identifying vulnerable individuals or vulnerable groups and whether we employ aggregate or disaggregated measures of material poverty and multiple deprivation. The measures of material poverty and multiple deprivation analysed here identify substantially different individuals as being poor and deprived, irrespective of whether disaggregated or aggregate measures are employed. There is greater consistency between these measures when our interest is in the groups identified as poor or deprived, though they remain distinctive when disaggregated measures of material poverty and multiple deprivation measures are employed. When analysing the aggregate experience of material poverty and multiple deprivation for the thirty-five sub-groups considered here, we find that there is remarkable consistency – a correlation of 0.92 between their material poverty and multiple deprivation scores.

The analysis presented in this paper shows that there *are* novel insights to be gained from the multidimensional perspective which cannot be obtained by relying on measures of material poverty alone. Adopting a multidimensional perspective *does* influence who we identify as being poor. However, the distinctiveness of the multidimensional perspective in empirical terms is not an all-or-nothing affair: it depends significantly on whether we analyse aggregate or disaggregate measures and on whether our interest lies in identifying vulnerable individual or vulnerable groups – two distinct, but important, tasks for public policy.

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Table 1. The experience of material poverty and multiple deprivation (%)

Material Poverty	
60% median income	14.3
Material deprivation	18.1
Multiple Deprivation	
General health	6.8
Mental health	13.2
Housing deprivation	13.4
Low life satisfaction	10.3
Lack of autonomy	8.3
Financial stress	8.2
Unemployment	3.8

Source: BHPS 2006/7, respondents under 60, weighted data

Table 2. The extent of multiple deprivation (%)

dimensions of deprivation	total	cumulative	of those deprived (38%)
Zero	62.0		
One	23.2	85.2	61.1
Two	7.9	93.1	20.9
Three	3.9	97.1	10.3
Four	1.9	99.0	5.0
Five	0.8	99.7	2.1
Six or seven	0.3	100.0	0.7

Source: BHPS 2006/7, respondents under 60, weighted data

Table 3. Tetrachoric correlation between low income, material and dimensions of multiple deprivation

	low income	material deprivation	ill-health	mental ill-health	housing deprivation	low life satisfaction	lack of autonomy	financial stress	unemployment
low income	1								
material deprivation	0.4775	1							
ill-health	0.1785	0.3442	1						
mental ill-health	0.1501	0.2564	0.5043	1					
housing deprivation	0.1908	0.4281	0.2041	0.1553	1				
low life satisfaction	0.2755	0.3867	0.481	0.6672	0.1931	1			
lack of autonomy	0.1311	0.214	0.2599	0.3248	0.1235	0.4808	1		
financial stress	0.4023	0.6211	0.3184	0.435	0.2356	0.5236	0.2301	1	
unemployment	0.4638	0.3993	0.2033	0.2777	0.2195	0.3715	0.1704	0.4194	1

Source: BHPS 2006/7, respondents under 60, unweighted data

Table 4. Percentage of selected groups experiencing low income, material deprivation and dimensions of multiple deprivation

	low income	material deprivation	health	mental health	housing deprivation	life satisfaction	autonomy	financial stress	unemployment
16 to 29	17.4	25.5	4.7	11.6	17.0	8.6	5.6	9.1	6.9
30 to 39	13.4	18.5	5.7	13.4	13.7	10.2	9.2	8.0	3.4
40 to 49	11.3	14.9	7.1	14.1	12.5	11.8	9.7	8.4	2.4
50 to 59	15.1	12.7	9.8	13.8	10.0	10.7	8.9	7.0	2.1
owner occupiers	9.7	10.8	5.4	11.2	9.7	8.8	7.0	5.4	2.3
social /housing association	36.5	52.4	14.6	19.9	28.4	17.1	13.5	20.7	12.1
private rented	23.1	33.3	6.9	20.9	24.6	13.9	12.6	15.1	5.3
single person HH	26.0	25.5	9.7	18.0	18.2	19.8	9.2	11.6	5.6
single parent	37.1	53.6	10.8	19.9	20.6	19.3	17.9	22.7	9.9
couple, no children	10.0	7.9	6.9	10.4	9.2	6.8	6.1	3.9	1.7
couple, children	13.6	16.4	5.8	11.3	11.2	7.9	9.7	7.2	1.5
other, no children	7.8	15.0	6.0	13.6	13.7	10.5	6.9	7.1	5.4
other, children	17.5	27.2	6.3	15.2	18.5	10.5	7.5	12.1	6.4
degree or higher	6.4	9.6	3.6	13.0	11.8	8.3	5.5	4.2	1.7
some further education	11.9	15.6	6.6	12.2	12.1	10.4	8.4	8.5	2.6
a level or equivalent	15.4	19.6	6.5	13.4	13.4	8.5	6.2	7.6	4.9
o level or equivalent	18.6	23.3	6.3	11.9	15.4	9.4	8.6	9.4	5.6
other qualification	16.4	17.0	7.0	13.5	20.8	10.8	15.6	9.9	1.1
no qualifications/still at school	28.8	32.1	16.4	21.1	16.0	20.0	15.6	12.9	7.9
men	12.8	16.0	5.1	10.1	12.2	10.0	8.2	6.9	4.2
Women	15.7	20.1	8.4	16.2	14.6	10.6	8.4	9.5	3.4
male headed HH	12.1	13.6	6.4	12.6	10.9	9.5	7.8	6.4	3.3
female headed HH	17.7	25.2	7.3	14.0	17.3	11.5	9.0	11.0	4.6
workless HH	59.2	53.2	23.8	27.8	24.2	30.6	17.3	24.4	22.7
Employees	7.9	15.9	5.4	12.7	12.8	8.8	7.7	7.2	2.3
self-employed	22.1	10.9	4.6	8.5	10.8	7.3	6.5	5.0	1.3

London	11.8	14.0	5.6	11.2	14.5	10.3	6.3	7.0	3.5
rest of South East	8.9	16.2	4.7	11.9	12.0	9.2	7.3	9.7	1.9
rest of England	15.4	18.5	6.9	13.4	13.6	10.6	8.6	7.3	4.9
Wales	21.9	22.7	12.3	19.6	12.5	11.6	12.8	13.5	3.2
Scotland	17.9	21.1	8.3	12.4	15.6	9.6	7.2	8.1	1.5
2 or fewer children	13.4	17.6	6.9	13.3	13.3	10.4	8.1	8.3	3.8
3 or more children	31.0	27.8	3.9	10.4	15.6	9.1	11.6	6.8	4.3
4 or fewer adults	14.3	18.0	6.8	13.2	13.3	10.3	8.4	8.1	3.8
5 or more adults	14.4	20.8	4.3	9.9	20.9	7.8	4.9	12.5	6.6

Source: BHPS 2006/7, respondents under 60, weighted

Table 5. Logistic regression models estimating group-based differences in log odds of income poverty, material deprivation and multiple deprivation

	income	material deprivation	health	mental health	housing	life satisfaction	autonomy	financial stress	unemployment
16 to 29 (ref)									
30 to 39	-0.281	-0.218	0.380	0.400*	-0.025	0.392*	0.556**	0.108	-0.192
40 to 49	-0.497***	-0.420***	0.661**	0.472**	-0.090	0.510**	0.704***	0.224	-0.795*
50 to 59	-0.128	-0.499**	0.747***	0.352*	-0.353*	0.159	0.663**	0.099	-1.321***
owner occupiers (ref)									
social /housing association	1.053***	1.587***	0.605**	0.381*	1.091***	0.140	0.348	1.006***	0.690*
private rented	0.692**	1.149***	0.224	0.733***	0.955***	0.252	0.788***	1.017***	0.099
single person HH	0.855***	0.866***	0.034	0.392*	0.404	0.922***	0.217	0.684*	0.170
single parent	0.795*	1.553***	-0.156	0.279	0.040	0.707*	0.969**	1.076**	0.203
couple, no children (ref)									
couple, children	0.274	0.708**	0.081	0.160	0.045	0.184	0.590**	0.713**	-0.527
other, no children	-0.370	0.530*	-0.067	0.425*	0.315	0.564**	0.241	0.562*	0.941**
other, children	0.498	1.138***	-0.004	0.530**	0.491	0.502*	0.304	1.011***	0.930*
degree or higher (ref)									
some further	0.520**	0.331	0.493*	-0.197	-0.063	0.160	0.381	0.570**	-0.104
a level or equivalent	0.828***	0.431*	0.647*	-0.037	-0.093	-0.030	0.219	0.365	0.279
o level or equivalent	0.979***	0.525**	0.417	-0.247	0.023	0.057	0.459*	0.506*	0.392
other qualification	0.589	0.165	0.005	-0.336	0.481	0.036	1.102**	0.449	-1.042
no qualifications/still at school	1.076***	0.794**	0.971***	0.214	-0.039	0.705**	0.950***	0.571*	0.252
woman (ref: man)	0.085	0.013	0.558***	0.557***	0.072	-0.018	-0.091	0.153	-0.437*
female headed HH (ref: male)	0.156	0.381*	-0.084	-0.147	0.316*	0.029	0.061	0.258	-0.151
workless HH	2.126***	1.073***	1.316***	0.742***	0.245	1.243***	0.511*	0.981***	2.620***
employees (ref)									
self-employed	1.542***	-0.141	-0.117	-0.388*	0.000	-0.154	-0.190	-0.254	-0.290
london	-0.265	-0.374	-0.066	-0.199	-0.003	0.053	-0.253	0.047	-0.292
rest of south east	-0.536**	0.084	-0.192	-0.016	-0.079	0.046	-0.060	0.550**	-0.527
rest of england (ref)									
wales	0.610*	0.278	0.657**	0.499**	-0.070	0.105	0.427	0.713**	-0.404
scotland	0.079	0.023	0.077	-0.165	0.101	-0.179	-0.336	0.004	-1.439**
3 or more children (ref: fewer)	0.923**	0.326	-0.802*	-0.331	0.175	-0.234	0.039	-0.612	-0.025
5 or more adults (ref: fewer)	0.127	-0.069	-0.142	-0.285	0.401	-0.149	-0.254	0.463	0.375
	-3.603***	-3.084***	-4.718***	-3.311***	-2.533***	-3.162***	-3.684***	-4.549***	-3.115***
N	4718	4718	4718	4718	4718	4718	4718	4718	4718
McFadden's Adjusted R2	0.217	0.179	0.073	0.036	0.049	0.05	0.031	0.087	0.206
Nagelkerke's R2	0.308	0.27	0.118	0.071	0.088	0.09	0.066	0.136	0.27

Source: BHPS 2006/7, respondents under 60, weighted. * p<0.05, ** p<0.01, *** p<0.001

Figure 1. Scatterplot of experience of material poverty and multiple deprivation for thirty-five population sub-groups

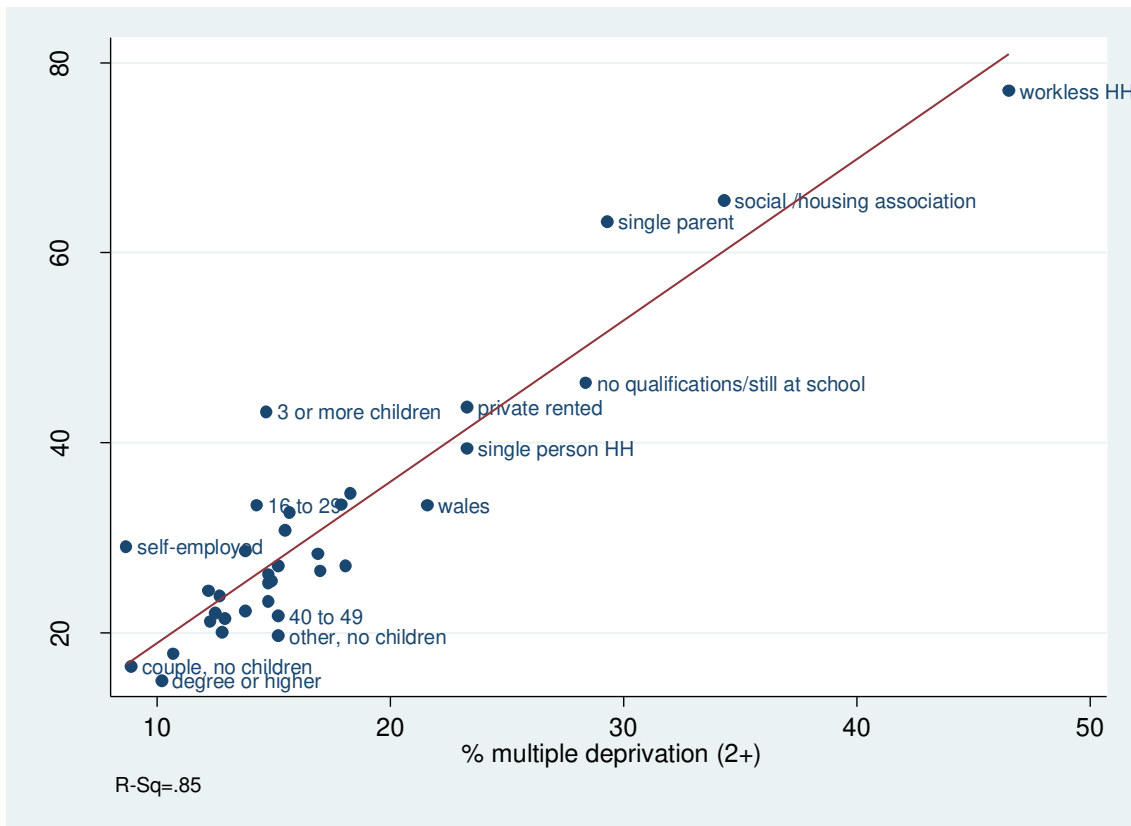**Table 6. Four way material poverty and multiple deprivation classification, respondents under 60 (%)**

neither material poverty nor multiple deprivation	67.4
material poverty but not multiple deprivation	17.9
multiple deprivation but not material poverty	6.5
both material poverty and multiple deprivation	8.3

Source: BHPS 2006/7, respondents under 60, weighted

Table 7. Four-way classification of aggregate material poverty and multiple deprivation, percentage for selected groups

	neither materially or multiply deprived	material poverty but not multiple deprivation	multiple deprivation but not material poverty	both material poverty and multiple deprivation
16 to 29	61.3	24.4	5.3	9
30 to 39	67.9	17.1	6.6	8.4
40 to 49	71.4	13.4	6.8	8.4
50 to 59	69.1	16.1	7.6	7.2
owner occupiers	75.9	13.4	6.3	4.3
social /housing association	28.1	37.7	6.4	27.9
private rented	48	28.7	8.3	15.1
single person HH	54.2	22.4	6.3	17
single parent	33.1	37.7	3.7	25.6
couple, no children	77.9	13.2	5.6	3.4
couple, children	70.2	17.7	5.4	6.8
other, no children	71.4	13.5	8.9	6.2
other, children	58	23.8	7.3	11
degree of higher	78.4	11.4	6.6	3.7
some further	71.2	14.9	6.4	7.4
a level or equivalent	64.2	22	7.2	6.6
o level or equivalent	61.3	23	5.9	9.7
other qualification	69.5	12.5	3.5	14.6
no qualifications/still at school	45.9	25.7	7.7	20.7
man	70	17.3	6	6.7
woman	64.7	18.4	7	9.9
male headed HH	71.7	15.5	6.9	6
female headed HH	60.6	21.6	5.9	12
workless HH	17.1	36.5	5.9	40.6
employees	72.9	14.3	6.9	5.8
self-employed	66.1	25.2	4.8	3.9
london	72.2	15.5	6.6	5.7
rest of south east	70.2	17.3	7.7	4.8
rest of england	66.9	17.9	6.1	9.1
wales	57.6	20.8	9	12.6
scotland	65.1	19.4	4.1	11.4
2 or fewer children	68.1	17.1	6.6	8.2
3 or more children	52.4	32.9	4.3	10.5
4 or fewer adults	67.4	17.9	6.5	8.3
5 or more adults	64.9	18.1	8.5	8.5

Source: BHPS 2006/7, respondents under 60, weighted

Table 8. Multinomial logistic regression model estimating log odds of experiencing some material poverty or multiple deprivation

	material poverty but not multiple deprivation	multiple deprivation but not material poverty	both material poverty and multiple deprivation
16 to 29 (ref)			
30 to 39	-0.341*	0.483*	0.075
40 to 49	-0.624***	0.408*	0.059
50 to 59	-0.298*	0.473*	-0.290
owner occupiers (ref)			
social /housing association	1.682***	0.837***	1.994***
private rented	1.083***	0.844**	1.350***
single person HH	0.620**	0.331	1.367***
single parent	1.282***	0.260	1.598***
couple, no children (ref)			
couple, children	0.305	0.136	0.837**
other, no children	-0.014	0.671**	0.641
other, children	0.684**	0.671**	1.264**
degree of higher (ref)			
some further	0.227	-0.050	0.474
a level or equivalent	0.626**	0.222	0.419
o level or equivalent	0.609**	0.008	0.677*
other qualification	-0.099	-0.871	0.731
no qualifications/still at school	0.838***	0.378	1.362***
woman (ref: man)	-0.004	0.249*	0.231
female headed HH (ref: male)	0.255	-0.125	0.446*
workless HH	1.849***	1.219***	2.740***
employees (ref)			
self-employed	0.984***	-0.231	0.185
london	-0.326	-0.011	-0.593
rest of south east	-0.045	0.239	-0.347
rest of england (ref)			
wales	0.379	0.564*	0.629*
scotland	0.005	-0.374	0.045
3 or more children (ref: fewer)	0.794**	-0.011	0.192
5 or more adults (ref: fewer)	-0.273	0.179	0.152
constant	-2.514***	-3.622***	-4.875***
N of cases	4718		
Pseudo R-sq	0.155		

Source: BHPS 2006/7, respondents under 60, weighted. * p<0.05, ** p<0.01, *** p<0.001