

Poverty, Preference or Pensioners?: Measuring material deprivation in the UK

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Abstract

Indicators of material deprivation are typically based on a two part question, asking, first, whether respondents possess a series of deprivation items, and, second, if they do not, whether this is because of a lack of resources or is by choice. This second sub-question, or enforced lack criterion, is ubiquitous but its efficacy has been questioned by a number of authors. In an important critique published in *Fiscal Studies*, McKay (2004) claimed that older people were more likely than younger respondents to report that they did not want the items they lacked, despite their lower incomes, and also that the enforced lack criterion introduced a subjectivity which, in effect, required respondents to feel poor in order to be classified as such. This critique has potentially profound implications for poverty measurement.

In this paper, we seek to address the question of whether, if we are to employ indicators of material deprivation for poverty measurement, we should include the enforced lack criterion or not. In seeking to answer this question, we draw on data from the BHPS and present tests of reliability and validity on indices of material deprivation, with and without the enforced lack criterion. Using odds ratio and analysis of variance methods, we find that the inclusion of the enforced lack criterion provides a measure of material deprivation which is both more reliable, and is more valid based on a subjective measure of deprivation, as well as a majority of more objective forms of deprivation. Amongst the remaining minority (ill-health for both methods and income quintile for the analysis of variance method), the divergent results can be explained, at least in part, by the older age profile of respondents in poor health and on low incomes. Thus while there are legitimate concerns about the performance of such deprivation indicators amongst certain sub-groups – in particular amongst older people – on aggregate, the enforced lack criterion helps to distinguish between poverty and preference.

Policy points

- In a previous paper in *Fiscal Studies*, McKay (2004) presented a three-pronged critique of the measurement of poverty using material deprivation indicators. The third leg of this critique

suggested that the enforced lack criterion ‘require[s] people to describe themselves as poor’ in order for them to be classified as such. The implication of this is that an index based on the simple absence of deprivation items may be preferable to one using the enforced lack criterion.

- The research presented here suggests that an ‘enforced lack’ index is more reliable than an index based on the simple absence of items, and is more valid based on a subjective measure of deprivation, as well as a majority of more objective forms of deprivation.
- The research suggests that while there may be grounds to question the enforced lack classifications of particular households or groups, there is little support for abandoning the criterion altogether.

Introduction

For almost thirty years, since the *Poor Britain* survey of Mack and Lansley (1985), the measurement of material deprivation has been based on a two-part question: first, asking respondents whether they possess a series of deprivation items and, second – if they do not – whether this is because of a lack of resources, or because they did not want the items. This was not the original format of such questions, however: in pioneering such deprivation indicators in *Poverty in the United Kingdom*, Peter Townsend (1979) did not ask respondents whether the absence of items was because of a lack of resources, but assumed such absence to reflect deprivation relative to wider society. Townsend used his respondents’ deprivation scores, reflecting the number of absent items, to calibrate an income poverty line, below which citizens would be ‘in effect, excluded from ordinary living patterns, customs and activities’ (1979: 31).

In the preeminent critique of Townsend’s work, Piachaud (1981) claimed that this overlooked the fact that some respondents may have *chosen* to go without the items in question. Rather than assuming that going without items implied deprivation, Piachaud argued ‘[w]hat surely matters most is the choice a person has, and the constraints he or she faces. To *choose* not to go on holiday or eat meat is one thing; it may interest sociologists, but it is of no interest to those concerned with poverty. To have little or no *opportunity* to take a holiday or buy meat is entirely different’ (Piachaud, 1981: 421). Piachaud’s critique has been enormously influential. The theoretical importance of focussing on constraints in poverty measurement has been broadly accepted, and subsequent surveys have adopted the two-part structure outlined above, both in the UK and internationally (e.g. Halleröd, 1995; Gordon and Pantazis, 1997; Gordon *et al.*, 2000; Boarini and Mira d’Ercole, 2006; Saunders and Abe, 2010; see also Hick, 2012). Material deprivation indicators have been used to provide a measure of poverty both on their own (e.g. Mack and Lansley, 1985) and in tandem with a low income criterion (e.g. Nolan and Whelan, 1996).

There have been questions, however, about the efficacy of the ‘enforced lack’ criterion,¹ pointing to the subjectivity introduced by asking respondents to distinguish between the absence of items because of a lack of resources, and others which are forgone by choice. This has become a particular concern

¹ Throughout the paper, we refer to the second part of the two-part deprivation question as the ‘enforced lack’ criterion.

with regard to older people (Mack and Lansley, 1985: 177; McKay, 2004; Halleröd, 2006), who have been found to have a high likelihood of claiming not to want the items they lack, which is considered to be problematic because it runs contrary to their lower incomes when compared with younger age groups (McKay, 2004). In qualitative interviews with older people, Legard *et al.* (2008: 18) found that some deprivation items were, even for older people on higher incomes, ‘simply not consistent with lifestyle changes that occurred in old age’. There is by now a widespread concern that the ‘enforced lack’ criterion may serve to underestimate levels of material deprivation amongst older people.

However, criticism of the enforced lack criterion has also been levelled at a more general level. A sustained period of hardship, it is argued, may lead to a process of ‘adaptation’ during which, in reconciling themselves to being unable to attain a certain standard of living, the respondent ‘edits out the desire’ for particular items (Halleröd, 2006: 372). Since adaptation is a long-term process, Halleröd suggested, this offered one reason why older people might be more likely to be affected (2006: 378). Other authors claimed that respondents might be ashamed to admit that they cannot afford seemingly basic items (Dominy and Kempson, 2006: 83; Guio, 2009). Whatever the specific reason, the subjectivity critique suggests that the enforced lack criterion serves to shift the concept away from ‘objective’ deprivation.

However, in an important paper, McKay (2004) went further than other authors, claiming that his findings suggested that an index reflecting the simple absence of deprivation items (for whatever reason) correlated as well, if not better, with *objective* forms of deprivation than the ‘enforced lack’ index, while the ‘enforced lack’ index was found to display a stronger association with *subjective* deprivation than an index reflecting the simple absence of items. The implication was that the ‘enforced lack’ criterion taps into *feelings* of poverty more than poverty itself.

This paper will focus on this subjectivity critique, exploring the relationship between the enforced lack indicators and measures of subjective and objective deprivation. It seeks to address the question of whether, if we are to use indicators of material deprivation in poverty measurement, we should include the enforced lack criterion or not. It will thus examine the extent to which the enforced lack criterion succeeds in helping to capture exclusion because of a lack of resources (“poverty”); whether there is sufficient subjectivity introduced by the criterion to undermine its stated purpose (“preference”) or whether the ambiguity about whether the indicators capture poverty or preference is itself related primarily to the differential performance of such indicators amongst older people (“pensioners”). In examining these claims, we draw on data from the 2006/7 wave of the British Household Panel Survey and present tests of reliability and validity on indices of material deprivation where the absence of items is because of a lack of resources (‘enforced lack’), on the one hand, and for any reason (‘simple absence’), on the other. Throughout the paper, the discussion is presented in light of the findings by McKay (2004), because he goes furthest in extending the subjectivity critique from one group (older people) to the efficacy of deprivation indicators *in toto*.

McKay's critique

In his important paper in *Fiscal Studies*, McKay provided a three-pronged critique of the consensual deprivation approach to poverty analysis, based on his analysis of data from the Omnibus Survey of the Office of National Statistics and the Millennium Survey of Poverty and Social Exclusion (PSE), both from 1999. First, he noted that 'the consensual approach is based, at least in part, on the contention that there is a general consensus on which items people should have. We argue that there is no such consensus' (2004: 203). Secondly, he argued that 'virtually everyone who said they were unable to afford a 'necessity' (as judged by 50 per cent of wider society) had one or more non-necessities. Often, they had quite a few' (2004: 204). Third, and of particular interest for this paper, he noted that there were 'systematic differences between different groups in whether non-ownership of a good is attributed either to choice or an inability to afford' (2004: 204). Given the gravity of such a critique, each of these claims warrants further scrutiny and investigation (a discussion of each is provided in Pantazis *et al.* (2006)), but it is the third aspect of McKay's critique that we focus on in this paper.

This third critique itself contained two claims. McKay's first claim in this regard was that 'there is a greater willingness to admit to being unable to afford items among some groups than others *that belie their income situation and availability of resources*' (2004: 216, emphasis added). He focussed particularly on respondents' age, and found younger respondents more likely to claim, where they lacked particular items, that this was because of a lack of resources, and older people² more likely to claim that they did not want the items they lacked (on this, see also Halleröd, 2006). This was considered problematic because older respondents also reported lower median incomes than their younger counterparts – the implication being that measured material deprivation may substantially underestimate the true deprivation rates of older people (McKay, 2010: 3).

This divergent performance of low income and material deprivation indicators amongst older people has become increasingly recognised, and prompted the UK Department for Work and Pensions to commission three studies exploring the experience of low income and material deprivation amongst older people (i.e. Berthoud *et al.*, 2006; Dominy and Kempson, 2006; Finch and Kemp, 2006). These pointed to reduced levels of material deprivation amongst older people, after controlling for income (Berthoud *et al.*, 2006); identified frailty and reduced mobility as helping to explain older people's reduction in activity and associated lower spending patterns (Finch and Kemp 2006, Dominy and Kempson, 2006); and highlighted the extent of family assistance in explaining the variable relationship between income and material deprivation amongst older people (Dominy and Kempson, 2006).

However McKay's (2004) critique went further than to look at particular groups: he went on to question the very nature of the 'enforced lack' criterion and its relationship to objective deprivation. It is this relationship, in particular, which we seek to explore in this paper. To do this, he presented an analysis of variance (ANOVA) comparing the number of absent items (for whatever reason) and the

² defined by McKay as respondents aged 65 and over

number where absence was reported to be enforced due to a lack of resources based on objective (i.e. ill-health) and subjective (i.e. self-classified poverty status) deprivation profiles. In each case, the F-statistic, a measure of between-group variation relative to the total variation, was reported.

The results he presents are alarming: the enforced lack index is more closely associated with subjective poverty (as measured by the F-statistic), while the simple absence of items displays a stronger association with the more 'objective' measures (self-reported health and income). McKay (2004: 219) suggested that the stronger association between the 'enforced lack' index and subjective deprivation was perhaps unsurprising because the 'enforced lack' criterion 'require[s] people to describe themselves as poor (or using some euphemism related to poverty or deprivation or inability to afford)', in order to be classified as such.

If McKay's second claim is correct, in that the 'enforced lack' criterion captures *feelings of poverty* rather than objective deprivation, then it may be that the result of Piachaud's critique has been to undermine Townsend's relative deprivation approach, the whole thrust of which was to set the concept on an objective footing (for a recent discussion, see Fahey, 2010). Far from the 'enforced lack' criterion distinguishing between poverty and preference, it would in fact confuse the two. If correct, it may be preferable to focus simply on the absence of deprivation items and ignore the second question about whether this is because of a lack of resources or by choice (McKay, 2004: 218). To jettison the enforced lack criterion would mark a significant shift in terms of the measurement of poverty, and thus the merits of such a shift must be subjected to empirical scrutiny. This paper aims to contribute to this debate by presenting tests of reliability and validity for indicators of material deprivation, with and without the enforced lack criterion, before considering the implications of the results for poverty measurement.

Data

The analysis presented in this paper draws on data from Great Britain taken from the 2006/7 wave (wave 16) of the British Household Panel Survey. The British Household Panel Survey is a household survey which interviews adult members (aged 16 and over) living in sampled households on an annual basis. The BHPS sample is broadly representative of the population of Great Britain as it has evolved since 1991, but not of post-1991 immigrant groups (Jenkins and van Kerm, 2011). The survey commenced in 1991 and in 2009/10 was subsumed into the larger Understanding Society survey.

The measure of material deprivation used in this paper is based on the nine deprivation indicators included in the BHPS, which are presented in Table 1. This index has been recoded to create a series of binary measures of material deprivation reflecting both counting and prevalence-weighted approaches. The thresholds adopted for each analysis are clearly labelled.

The income variable that has been chosen is 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. The income values are adjusted to January 2008 prices (Levy and Jenkins, 2008).

The data presented in this paper draws on 3,559 households, and data are weighted using the cross-sectional household weight (pxhwght), unless stated. The household is taken as the unit of analysis because the questions on material deprivation are collected by the household head, and thus do not vary within households. The cross-sectional analysis is based on a completed case analysis, but for the three-year average measures in Tables 5 and 6, which act as a test of robustness, analysis is based on 3,157 households. The discrepancy between the cross-sectional and three year samples is not considered problematic because comparison is conducted within and not between the three-year and cross-sectional analyses.

Results

While indicators of material deprivation are typically treated as part of an index, in Table 1 we present the proportion of the population affected by each of the individual items. In Table 1 and thereafter, we use ‘don’t have’ and ‘simple absence’ to refer to items that respondents lack, irrespective of the reason, while we use ‘can’t afford’ and ‘enforced lack’ and to refer to items that respondents claim that they lack *because of a lack of resources*. ‘Material deprivation’ refers to either or both ‘don’t have’ or ‘can’t afford’ approaches to measuring deprivation. Given the two-stage structure of the deprivation questions that we noted at the outset, the group identified by the ‘can’t afford’ indicators will be a subset of those identified by the ‘don’t have’ indicators. Table 1 shows that there is some variation in the proportion of the population affected by the different indicators. For example, one in ten respondents (11.3 per cent) report being unable to pay for an annual holiday, while less than one per cent claim to be unable to afford to keep their home warm (the ‘can’t afford’ column). Twenty-three per cent do not have visitors once a month, while less than three per cent do not have two pairs of strong shoes (the ‘don’t have’ column).

However, the discrepancy between lacking an item and claiming this is because of a lack of resources varies by indicator too. One in eight respondents who do not have visitors once a month (13 per cent), and one in five respondents who do not eat meat on alternative days (22.4 per cent) claim that this is because of a lack of resources. On the other hand, the overwhelming majority of respondents who claim to not keep their home decorated (79 per cent) and two-thirds of those who do not keep their house warm (66.7 per cent) report that this is because they cannot afford to do so. Indicators affecting a greater proportion of the population, and where there is some discrepancy between ‘don’t have’ and ‘cannot afford’, such as ‘visitors once a month’ and ‘pay for an annual holiday’ play a particularly strong role in the differential operation of the don’t have and can’t afford indices as a whole.

Table 1. Percentage of households experiencing deprivation on each item

	can't afford	don't have	can't afford as % of don't have
house well decorated	4.4	5.6	79.0
keep house warm	0.7	1.1	66.7
two pairs of shoes each	1.4	2.7	50.2
replace furniture	7.0	14.1	50.0
pay for annual holiday	11.3	22.9	49.1
buy new clothes	2.5	5.5	45.3
house contents insurance	5.2	11.8	44.4
eat meat on alternate days	1.5	6.7	22.4
visitors once a month	2.9	22.5	13.0

Source: BHPS, weighted

The measures of material deprivation we employ (of both ‘don’t have’ and ‘can’t afford’ varieties) are in most cases based on counting the number of deprivations a person suffers (in this case, from a total of 9). For the purposes of comparison and robustness, in Tables 5 and 6 adopt an alternative approach and weight the indicators by the proportion of the population who possess the items (Nolan and Whelan, 2009). In Table 2, we present ‘can’t afford’ and ‘don’t have’ measures of material deprivation at three levels of severity – namely, lacking one or more, two or more, or three or more items. One can see that a considerably greater proportion of the population fall under the ‘don’t have’ lines than those based on an ‘enforced lack’ of items. Forty-four per cent of the population report the simple absence of at least one item, but only 16.8 experience an absence due to a lack of resources. As we increase the severity of the threshold, the discrepancy between not having and being unable to afford the items reduces, at least when we look at the 3+ threshold. This is as one might expect, for the absence of a single item is more likely to be attributable to “choice” than, say, the absence of three or more items.

Table 2. Percentage of households below two sets of deprivation lines

	can't afford	don't have
one or more items	16.8	44.4
two or more items	9.2	24.5
three or more items	5.4	12.7

Source: BHPS, weighted

Poverty and preference across the age distribution

In Figure 1, we present four graphs which, taken together, display the relationship between poverty and preference for respondents of different ages. The purpose of presenting this relationship is to provide some context for the analysis of the validity of material deprivation measures in the next section. These graphs represent the smoothed probability of experiencing material deprivation and income poverty across the age distribution. For the measures of material deprivation, we employ both ‘enforced lack’ and ‘simple absence’ measures, in each case using a threshold of one or more items.

We focus specifically on age differences in this section because the performance of material deprivation indicators has been a particular concern amongst older people, as we have discussed.

The graph on the top-left of Figure 1 (labelled ‘enforced lack 1+ item’) presents the probability of reporting an enforced lack of one or more items across the age distribution. We can see that this is greatest where the head of household is young, and falls fairly consistently as we move up the age distribution. But this does not mirror the probability of experiencing income poverty (top-right of Figure 1, labelled ‘60 per cent median inc’). The probability of experiencing income poverty adopts a U-shape pattern across the age distribution, with a raised risk for young household heads, which falls until about age 50, only to rise thereafter, and a high rate of income poverty for households where the head is over 80 years of age. Thus, material deprivation (enforced lack) and income poverty (60 per cent median income) measures provide discordant information about the living standards of older people.

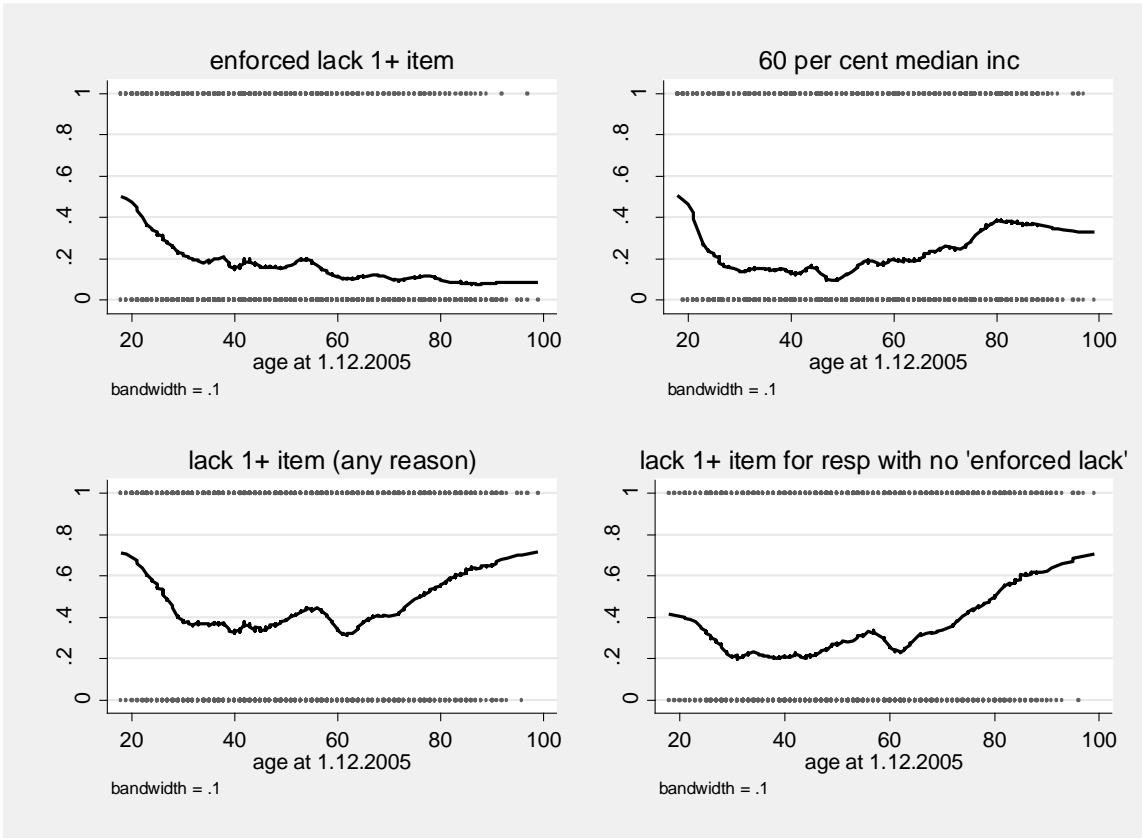
This can be further explained by the two graphs on the bottom row of Figure 1. In the graph on the bottom-left (labelled ‘lack 1+ item (any reason)’), we present the proportion who report the simple absence of one or more of the items. We can see that this displays the U-shape distribution that is characteristic of the income poverty distribution, particularly affecting households with very young heads, and households where the head is aged 80 and above. However, the group identified as lacking one or more items is made up of two sub-groups: respondents who lack items *because they cannot afford them*, and respondents who lack them but claim that this is not because of a lack of resources.

Thus, in the final graph in the bottom-right of the figure (labelled ‘lack 1+ item for those with no “enforced lack”’), we present the probability of reporting the simple absence of at least one item *for those respondents who do not claim an ‘enforced lack’ of any of the items*. When we remove those respondents who do experience some form of enforced lack, we now find that lacking items by ‘choice’ is now more clearly associated with older people – and is especially acute for the oldest old. And this would seem to be problematic precisely because it is in contradistinction to the income position of older people, for as we have seen in the top-right graph, the oldest old also experience high rates of income poverty.

Of course, this may be explained by either the income or the material deprivation measures (or both) and may be the result of a substantive relationship or measurement error (or both). It may be, as Legard *et al.* (2008) suggest, that the deprivation items represent aspects of consumption which are less relevant for older people. If indicators of material deprivation are to be used in poverty measurement, we would want them to identify households who, on similar criteria, “appear” to be deprived (i.e. we need to test the validity of the material deprivation measure). We would also want such a measure to facilitate a fair comparison between sub-groups; that is, for the items contained in the index not to relate to some groups and not others (i.e. urban but not rural residents, young people but not older people, etc.). The requirement of a set of items which both identifies vulnerable households and enables a fair comparison across sub-groups presents a challenge to any short index of material deprivation and for this reason Berthoud and Bryan (2011) have questioned whether *any*

such index can adequately be used as a measure of poverty. In the analysis presented here, we find, as McKay (2004) and other authors have found, that older people have considerably lower rates of material deprivation than one might expect given their reported incomes.

Figure 1. Probability of experience three forms of material deprivation across the age distribution



Source: BHPS, unweighted

The reliability and validity of material deprivation indicators

It is necessary, however, to extend the analysis beyond age differentials to explore the relationship between ‘enforced lack’ measures of material deprivation and objective forms of deprivation to test McKay’s claim that such measures may be more subjective than they seem. In evaluating the merits of ‘don’t have’ and ‘can’t afford’ measures of material deprivation, we present analysis of the reliability and validity of both indices. Table 3 presents results from the Cronbach’s alpha measure of reliability for both indices, with bootstrapped confidence intervals. It shows that the enforced lack index is more reliable than an index based on the simple absence of items, as other authors have previously found (e.g. Halleröd, 2006; Pantazis *et al.*, 2006).

Table 3. Cronbach's alpha rates for enforced lack and simple absence indices

	Chronbach's alpha	95% confidence interval
enforced lack index	0.75	0.73 - 0.78
simple absence index	0.66	0.64 - 0.69

Source: BHPS, unweighted.

Measure of reliability, however, only provide information about the internal consistency of the indices (i.e. whether they are measuring the same phenomenon). The real question is whether the enforced lack or simple absence indicators of material deprivation provide an index that is more valid (Price, 2008: 48) – that is, whether it is measuring what is intended. One common approach to testing the validity of a concept is to compare its association with other variables that are known or assumed to be related to the construct of interest (e.g. Gordon, 2006) – in this case material deprivation. To do this, we select measures of objective and subjective deprivation that we expect to be related to material deprivation. We include as measures of ‘objective’ deprivation: income quintile, whether the household makes savings, whether there is an unemployed member, the number of housing problems, as well as self-reported health status. Our ‘subjective’ deprivation measure is a self-reported measure of financial stress asking respondents ‘How well would you say you yourself are managing financially these days?’. Of course, since all measures are self-reported, they are all to some extent subjective, and thus the distinction between objective and subjective dimensions should be understood as a continuum and not a binary distinction.

We wish to explore whether the ‘enforced lack’ index is more closely related to subjective deprivation and the simple absence index with objective deprivation, as McKay (2004) suggests, or – on the other hand – whether the enforced lack criterion strengthens the relationship between the material deprivation indicators and our measures of objective and subjective deprivation.

In Table 4, we follow Whelan (2007) and report the odds of experiencing material deprivation for each sub-category of the objective and subjective deprivation measures, relative to the least-deprived category. We select this method in preference to the analysis of variance conducted by McKay (2004) for two reasons. First, given the substantial number of zeros in the data (83 per cent of households report no deprivation whatsoever), a probability-based analysis is selected in preference to variation-based analysis, because these zeros do not reflect ‘true’ scores. Rather, the indicators are assumed to tap into a latent, continuous dimension of deprivation. Secondly, it provides a focus on how the measures identify different *households*. Given the two-part questionnaire wording, the ‘can’t afford’ index must necessarily be a subset of the ‘don’t have’ index. The additional items can arise in two cases: they either identify *new households*, who lack item(s) but are not classified as deprived by the ‘can’t afford’ measures, or they identify *new deprivations* for households already classified as deprived; for example, the household lacks three items, two of which, they claim, are because of an absence of resources. Since these two cases are qualitatively different, we may wish to explore them separately and the approach here focuses on *new households*, and not *new deprivations*.

A good measure of material deprivation should discriminate well between advantaged and disadvantaged groups, and the greater the odds ratios between the least advantaged and most advantaged groups, the greater the discrimination of the measure. These odds ratios have been taken from a series of logistic regression models in which the various objective and subjective variables act as the only independent variable, and a binary measure of either ‘don’t have’ or ‘can’t afford’ material deprivation is the dependent variable. We present the relevant odds for both ‘don’t have’ and ‘can’t afford’ measures at three levels of severity, because we want to ensure our findings are robust and not limited to the selection of one particular threshold.

Table 4. Odds of falling below don’t have and can’t afford material deprivation lines relative to least deprived group of various ‘objective’ and ‘subjective’ measures of deprivation

		don't have 1+	don't have 2+	don't have 3+	can't afford 1+	can't afford 2+	can't afford 3+
income	1st	4.7	7.5	6.8	11.4	14.1	28.8
decile	95% conf interval	[3.6 - 6.0]	[5.3 - 10.5]	[4.3 - 10.6]	[7.1 - 18.2]	[7.3 - 27.4]	[10.1 - 82.0]
	2nd	3.8	5.0	3.6	7.6	7.0	15.7
	3rd	2.3	3.2	2.9	5.1	4.3	10.1
	4th	1.6	2.0	1.3	2.7	2.1	4.6
	5th	1.0	1.0	1.0	1.0	1.0	1.0
	someone in HH is saving (ref: yes)	1.6	2.2	2.7	4.0	4.5	10.2
	95% conf interval	[1.3 - 1.8]	[1.8 - 2.7]	[1.9 - 3.7]	[2.9 - 5.4]	[2.9 - 7.1]	[4.6 - 22.4]
	someone unemployed (ref: no)	2.7	2.4	3.1	4.3	4.9	5.3
	95% conf interval	[1.9 - 3.8]	[1.7 - 3.4]	[2.1 - 4.4]	[3.1 - 6.1]	[3.4 - 7.2]	[3.4 - 8.3]
housing	none	1	1	1	1	1	1
problems	1	1.6	1.6	2.0	2.2	2.6	2.3
	2	2.1	2.2	2.7	2.9	4.0	4.1
	3	3.3	2.9	3.1	3.9	4.9	5.8
	4	3.5	3.3	3.5	4.1	6.9	5.8
	5+ housing problems	5.2	6.3	7.3	13.3	17.3	12.0
	95% conf interval	[3.3 - 8.2]	[4.2 - 9.5]	[4.6 - 11.3]	[8.7 - 20.4]	[10.9 - 27.7]	[6.8 - 21.2]
health	good or very good (ref)	1	1	1	1	1	1
status	fair	1.9	1.9	1.7	1.7	1.7	2.0
	poor or very poor	2.7	3.2	3.7	3.3	3.6	4.5
	95% conf interval	[2.1 - 3.5]	[2.5 - 4.2]	[2.8 - 5.0]	[2.5 - 4.4]	[2.6 - 5.0]	[3.0 - 6.8]
financial	living comfortably	1	1	1	1	1	1
status	doing alright	1.4	1.4	1.4	3.8	4.0	2.9
	just about getting by	3.1	3.5	3.6	14.6	16.3	12.9
	finding it quite or very difficult	8.5	12.4	12.8	83.5	91.9	82.2
	95% conf interval	[5.9 - 12.1]	[8.8 - 17.4]	[8.7 - 18.9]	[53.0 - 131.6]	[50.5 - 167.4]	[40.1 - 168.6]

BHPS, weighted

The results in Table 4 show that for four of the ‘objective’ measures of deprivation (income quintile, no household member saving, no-one unemployed and housing problems), the ‘can’t afford’ measures unambiguously discriminate more effectively between the worse-off and better-off subgroups than

the ‘don’t have’ measures. Depending on the threshold adopted, the odds of respondents in the bottom income quintile reporting a simple absence of items are 4.7 and 6.8 times those of respondents in the top quintile, but are between 11.4 and 28.8 times those of respondents in the highest income quintile when the ‘enforced lack’ measures are employed. This closer relationship between income and the ‘can’t afford’ index was also reported by Halleröd (2006) and Berthoud *et al.* (2006).

Similarly, the ‘can’t afford’ measures discriminate better than the ‘don’t have’ indicators for housing deprivation (Odds Ratio/OR: 12.0 – 17.3 compared to 5.2-7.3), whether someone in the household was making savings (OR 4.0 - 10.2 in comparison with 1.6 - 2.7) and whether a household member was unemployed (OR 4.3-5.3 compared with 2.4-3.1). These differences are significant at the 95% level for all three threshold comparisons for making savings, two thresholds (1+ and 2+ for housing deprivation), and one threshold each for unemployment (2+) and income quintile (1+). For each of these four variables, the enforced lack measure of material deprivation displays a stronger relationship with groups we expect to be associated with material deprivation (namely, those on low incomes, respondents who do not make savings, the unemployed and households with many housing problems) than the simple absence measure of material deprivation.

The subjective deprivation indicator, furthermore, displays a *considerably* stronger relationship with the ‘can’t afford’ measure than the ‘don’t have’ measure of material deprivation. Compared with respondents who claimed to be living comfortably, respondents who were finding it quite or very difficult to manage financially experienced between 8.5 and 12.8 times greater odds of reporting a simple absence of items but between 82.2 and 91.9 times greater odds of claiming an enforced lack of deprivation items (the differences are significant at the 99% confidence interval). Thus, on both the four objective variables described above and the subjective variable discussed here, the ‘can’t afford’ index discriminates better across variables we expect to be associated with material deprivation than the ‘don’t have’ index.

The final variable, ill-health, is the primary variable McKay focuses on as a proxy for ‘objective’ deprivation. Contrary to the pattern observed with the preceding variables, the can’t afford and don’t want measures discriminate rather similarly in terms of ill-health (Odds Ratios of 2.7 - 3.7 compared to 3.3 - 4.5), and none of the comparisons in terms of ill-health are statistically significant.

However, one potentially important factor influencing the discriminating power of a measure is the proportion of the population that are affected by the measure. Measures affecting a small proportion of the population may be concentrated on extremely disadvantaged groups, and thus, seeking ever greater discrimination between less advantaged and more advantaged sub-groups may run the risk of validating a measure of extreme deprivation. What we ideally require is for measures of *approximately the same size* in order to compare the validity of poverty measures.

An alternative approach to simply counting the number of absent items is to construct a prevalence-weighted index, where each absent item is weighted by the proportion of the population who possess

that item. The logic behind such a measure is that an enforced lack of an item possessed almost universally (for example, two pairs of strong shoes) should be given a greater weight than items where absence is more typical (e.g. in the case of the annual holiday). One advantage of such an approach is that weighting the items in this way provides a less ‘lumpy’ distribution, which enables us to impose a cutoff which creates equally-sized groups.

Table 5: Odds of material deprivation based on current and three-year average income, health and financial stress profiles, prevalence-weighted threshold

		don't want	can't afford			don't want	can't afford
		\(16.85%	\(16.8%			\(16.85%	\(16.8%
income	1st and 2nd	4.6	9.4	3 yr income quintile	1st and 2nd	5.5	12.9
quintile	90% conf interval	[3.4 - 6.3]	[6.4 - 13.8]		90% conf interval	[3.9 - 7.8]	[8.2 - 20.5]
	3rd	2.6	5.1		3rd	2.3	5.5
	4th	1.8	2.7		4th	1.6	3.3
	5th (ref)	1.0	1.0		5th (ref)	1.0	1.0
health	very good or good (ref)	1.0	1.0	3 yr health status	very good (ref)	1.0	1.0
status	fair	1.8	1.7		fair	1.7	2.1
	poor and very poor	3.1	3.3		poor and very poor	3.0	2.9
	90% conf interval	[2.5 - 3.9]	[2.6 - 4.2]		90% conf interval	[2.3 - 3.8]	[2.2 - 3.7]
financial	living comfortably (ref)	1.0	1.0	3 yr financial stress	3 or 4 (ref)	1.0	1.0
status	doing alright	1.4	3.8	score (out of 15)	5 or 6	1.4	5.0
	just about getting by	3.4	14.6		7 or 8	2.7	17.7
	quite or very difficult	10.9	83.5		9 to 15	11.3	89.9
	90% confidence interval	[8.1 - 14.7]	[57.0 - 122.3]		90% conf interval	[8.3 - 15.5]	[56.2 - 143.8]
	N = 3,559				N = 3,157		

Source: BHPS, weighted

In Table 5, we present the odds of don't have and can't afford measures where a prevalence-weighted measure has been constructed to ensure that 16.8 per cent of households are deprived on both measures. We focus on three variables – household income quintile, self-reported health and financial stress and present Odds Ratios for – on the left hand side – current measures for these three variables, based on the 2006/7 cross-section, and – on the right-hand side – a three-year average measure of income quintile, health status and financial stress. This analysis acts as a check on robustness of the findings presented in Table 4, employing different thresholds and a longer-term measure of three forms of deprivation.

The results broadly confirm the pattern presented in Table 4. Respondents in the lowest two income quintiles are report higher odds of experiencing ‘can't afford’ measures of deprivation than ‘don't have’ measures, on both the current and three-year average measures of income (differences in both cases are significant at the 90% confidence interval). The odds ratios for respondents experiencing financial stress are, again, substantially higher for the can't afford measures (significant at the 99.9% confidence level). And the odds of experiencing ‘can't afford’ and ‘don't want’ measures of deprivation

for respondents in poor or very poor health (relative to good or very good) are almost identical. Odds Ratios for the dimensions in Table 4 that are not included here broadly confirm this picture.

In comparing the performance of the enforced lack criterion on a broader range of dimensions of deprivation than McKay (2004), therefore, we arrive at quite a different conclusion. The results presented here suggest that while ill-health discriminates very similarly in terms of the ‘can’t afford’ and ‘don’t want’ material deprivation indices, it is not at all representative of wider forms of ‘objective’ deprivation, as McKay had suggested, but instead bears quite a distinctive relationship to the enforced lack criterion amongst the variables considered here. We must acknowledge that McKay selected health status as one variable for testing the validity of material deprivation indicators because the PSE researchers, whose dataset he was re-analysing, claimed that that it was a useful variable for this purpose (McKay, 2004: 219; Gordon, 2006: 64) and, furthermore, that this validity testing formed just one part of McKay’s overall critique. Nonetheless, by adopting a broader approach to the dimensions of deprivation used to validate the enforced lack criterion, we demonstrate the closer relationship between ‘can’t afford’ measures and most of the deprivations considered here, as well as the distinctiveness of the relationship between the enforced lack criterion and ill-health.

Ill-health and an ‘enforced lack’ of deprivation items

Why, then, does ill-health display this distinctive relationship to the enforced lack criterion? One important feature of respondents in ill-health is their older age profile than respondents reporting better health: household heads who report poor or very poor health were, on average, 9 years older than those in good or very good health (53 versus 62 years). This is important because we have shown in Figure 1 that the probability of reporting the absence of an item as an ‘enforced lack’ is itself related to age.

Thus, in this section, we repeat the preceding analysis for the variable ill-health, but now control for age differences. Table 6 presents the odds of reporting (i) a simple absence and (ii) an enforced lack of deprivation items for respondents in poor or very poor health, relative to those reporting good or very good health. In Block 1 we reproduce the odds ratios from the previous models, in which ill-health is the only covariate in the statistical model. In Block 2, we present odds ratios for the same models but with added age controls (the estimates for which are not shown here).³

Controlling for age differences alters the results in an important way. While the odds ratios for the ‘don’t have’ measure of material deprivation under Block 2 are very similar to those under Block 1, they are much greater for the ‘can’t afford’ measures of material deprivation. Thus, differences in the age of household heads serves to suppress the relationship between ill-health and enforced lack measures of material deprivation.

³ Age is included as a series of dummy variables coded 1) 16-24, 2) 25 to 39, 3) 40 to 59, 4) 60 to 79, and 5) 80 to 99, with 16 – 24 year olds the omitted reference category.

In terms of the statistical significance of the results, we see that while there are no significant differences between the odds ratios for ‘don’t have’ and ‘can’t afford’ measures in Block 1, once we control for age differences (Block 2), the odds of respondents in poor or very poor health falling below ‘can’t afford’ measures of deprivation are significantly greater than those for falling below ‘don’t have’ measures at the 95% level of confidence for both the current and the three-year average measure of health where the 1+ thresholds are adopted. When we adopt the prevalence-weighted measures of material deprivation, the odds ratios for both current and three-year health status display a similar pattern to the 1+ threshold, but differences in Block 2 are not statistically significant.

Table 6. Odds ratio of experiencing material deprivation by health status, compared to least-deprived group, using 1+ and prevalence thresholds.

threshold	measure of health	Block 1		Block 2		N
		don't have	can't afford	don't have	can't afford	
		just ill-health, disability		control for age added		
1+ threshold	current health: poor or v. poor (ref: very good or good)	2.7 [2.1 - 3.5]	3.3 [2.5 - 4.4]	2.7 [2.1 - 3.5]	4.9 [3.6 - 6.5]	3,559
prevalence		3.1 [2.4 - 4.1]	3.3 [2.5 - 4.4]	3.4 [2.5 - 4.5]	4.9 [3.6-6.5]	3,559
1+ threshold	3 yr health: poor or v. poor (ref: very good or good)	2.5 [2.0 - 3.0]	2.9 [2.2 - 3.7]	2.4 [1.9 - 2.9]	4.1 [3.1 - 5.4]	3,157
prevalence		3.0 [2.3 - 3.8]	2.9 [2.2 - 3.7]	3.1 [2.3 - 4.0]	4.1 [3.1 - 5.4]	3,157

Source: BHPS, weighted

Taking these results together, we now see that the enforced lack index provides a measure which is more reliable, and is more valid on five of the six dimensions of deprivation considered here using this odds ratio method. It is also found to be more valid in terms of the sixth variable, ill-health, once age differences are accounted for. However, we should place these findings in their appropriate context. Indices of material deprivation are typically constructed by adding the number of deprivation items a person cannot afford. Such indices are *not* constructed in a way that adjusts for age differences as we have done here. Thus, the findings presented here do not detract from the very real problems that appear to exist when using indicators of material deprivation to measure poverty amongst older people. However, there is little to suggest, using the odds ratio approach adopted here, that an index of simple absence of items would be preferable to one based on the enforced lack criterion.

Explaining the different conclusion reached here vis-à-vis McKay (2004)

Why, then, does the conclusion reached here differ from that of McKay? In examining this question, the analysis is replicated using my data but McKay's analysis of variance method, the results of which are presented in Appendix 1. On three of the 'objective' dimensions (whether someone in the household is saving, whether someone is unemployed, and housing problems) as well as the 'subjective' financial stress measure, the analysis of variance method also favours the inclusion of the enforced lack criterion in the measurement of material deprivation, irrespective of whether one focuses on (i) the number of deprivation items, (ii) weighting these by possession, or (iii) employing binary variables in order to focus on new households but not new deprivations. This is in accordance with the results from the odds ratio method presented in Table 4. So, the broader set of 'objective' measures of deprivation plays an important role in reaching a different substantive conclusion (irrespective of the analytic approach chosen).

But this does not fully explain the discrepancy between the results. The two dimensions on which analysis of variance suggests the greater discrimination of the simple possession scale are ill-health and income quintile (Appendix 1). The latter is, of course, a particularly important variable for poverty analysis, and the results presented may be of some surprise given the relatively clear support for the 'can't afford' measures when analysing by income quintile in Tables 4 and 5. What explains this divergent performance?

In answering this question, we are required to explore the differences between the odds ratio and analysis of variance methods. In Table 7, we present the probability of experiencing 'enforced lack' material deprivation and the simple absence of one or more items for any reason. The probabilities at either end of the income distribution are of particular interest. While a full quarter of those in the top income quintile experience the absence of one or more items, just 3.6 per cent claim that this is because of a lack of resources. Based on this evidence alone, it would seem that the enforced lack criterion is performing its intended function. But the bottom income quintile is also of interest – only half of those in the lowest quintile who report the absence of one or more items claim this is because of a lack of resources. The additional variation included in the simple absence measure is itself correlated with low income.

Table 7. Probability of material deprivation using (i) enforced lack, (ii) simple absence and (iii) possession-weighted simple absence measures, by income quintile

		enforced lack 1+ (16.8%)	simple absence 1+ (44.4%)	simple absence pw (16.8%)
	bottom quintile	0.299	0.603	0.282
	2nd	0.222	0.553	0.200
All respondents	3rd	0.160	0.426	0.154
	4th	0.092	0.340	0.112
	top quintile	0.036	0.245	0.065
	<i>F-statistic</i>	<i>59.4</i>	67.7	37.8
	bottom quintile	0.483	0.682	0.382
	2nd	0.317	0.533	0.211
under 60s only	3rd	0.191	0.395	0.152
	4th	0.120	0.333	0.110
	top quintile	0.040	0.213	0.058
	<i>F-statistic</i>	94.8	68.9	53.2

Source: BHPS, weighted

The differential results of the odds ratio and analysis of variance methods reflects their differing emphases – using odds ratios, the success in minimising the probability of deprivation in the top income quintile is reflected in the raised odds ratios for households in lowest quintiles in Table 4, when compared to the simple possession measure. Using analysis of variance, on the other hand, points towards the fact that the additional households identified by the possession scale have a distribution which is somewhat skewed towards the lower end of the income distribution, which explains why when we look at income quintile, between-group variation explains more of the total variation when the simple possession measure is used.

The additional variation contained in the simple possession measure, however, also helps to explain why the odds ratio and analysis of variance methods arrive at different conclusions by income quintile. When we use possession weights to create a binary simple absence measure which captures the *same proportion* of the population as the enforced lack measure, the F-test delivers a lower result, thus favouring the enforced lack measure (in correspondence with the odds ratio method). And this returns us to one of the reasons for preferring the odds ratio method; namely, the desire to ‘remove’ the influence of the significant number of zeros in the deprivation data on the analysis. This distinction matters because we do not want to confuse the merits of the enforced lack criterion with those of having a deprivation measure with more variation (which might be achieved *inter alia* by the inclusion of additional or ‘easier’ deprivation items, with *or* without the enforced lack criterion).

Nonetheless, the halving of measured deprivation (from 60 to 30 per cent) in the bottom quintile must at least cause us to harbour some doubts about the performance of the enforced lack criterion at the bottom end of the income distribution. Once again, however, older people have a role play a role in this story, for they display a high probability of experiencing low income but a low probability of reporting absent deprivations as enforced. If we focus on households where the head was aged below 60 years, the proportion in the lowest quintile without one or more items who also report an enforced

lack rises from 50 to 70 per cent. The subjectivity critique and the age critique appear, again, to be related in an important way.

Conclusion

The use of indicators of material deprivation for measuring poverty has become a dominant approach in European poverty analysis, since Peter Townsend's pioneering *Poverty in the United Kingdom*. For those who favour this approach, there is widespread agreement that Piachaud (1981) was right in arguing that our theoretical interest lies in what people cannot afford and not simply in the items that they lack; that is, with constraints, and not the choices they make.

In an important critique, however, McKay (2004) claimed that older people were more likely than younger respondents to report that they did not want the items they lacked – in contradistinction to their incomes, and also that the 'enforced lack' criterion introduced a subjectivity which meant that respondents were, in effect, required to 'feel' poor before such indicators would classify them as such. If McKay is right, then there is reason to question whether we should abandon the 'enforced lack' criterion on practical grounds, despite its theoretical relevance.

In this paper, we have examined the question of whether, if we are to use indicators of material deprivation in poverty measurement, we should include the enforced lack criterion or not. To address this question, we have presented tests of reliability and validity for measures of material deprivation, with and without the 'enforced lack' criterion. The enforced lack index is found to have a significantly greater degree of reliability than the simple absence index. Furthermore, using both odds ratio and analysis of variance approaches, we find that the enforced lack material deprivation measures display a greater level of validity on the subjective dimension of deprivation presented here, as well as four of the five (odds ratio method) and three of the five (ANOVA) objective forms of deprivation considered. The enforced lack measures discriminate more effectively in terms of whether households were saving, whether a member was unemployed, the number of housing problems they face, and a subjective measure of financial stress, as well as for income quintile for the odds ratio method.

The primary exception to this pattern is ill-health, the variable McKay used as a proxy for 'objective' deprivation. On the data presented here, ill-health displays a very similar relationship to measures of material deprivation irrespective of whether the enforced lack criterion is employed or not. And the 'absence' of relationship between ill-health and the enforced lack criterion can be explained, in part, by age differences, which are known to have an important influence on the probability of reporting absent items as due to a lack of resources. Respondents in ill-health are, on average, older than those in good health, and once we control for the age of household head, the enforced lack index is again found to discriminate better than the index of simple absence of items.

The second variable of interest is income quintile, which served to highlight the difference between the two analytic approaches, as well as a substantively interesting result. On the one hand, the enforced

lack criterion reduces the probability of measured deprivation in the top quintile from one-quarter to 3.6 per cent, thus seeming to validate its inclusion. On the other, only *half* of respondents in the bottom quintile who went without an item claimed this was because of a lack of resources. Again, however, the differential performance of the enforced lack criterion for older people was shown to influence the relationship between income quintile and the enforced lack criterion.

Validating people's claims about poverty and preference is a taxing affair, and further analysis is required to investigate the problems that remain, both known and unknown, as regards the performance of these deprivation indicators. But the findings presented here suggest that the 'older people' problem and the 'subjectivity problem' identified by McKay (2004) are, at least in part, not two problems, but one. While there may be some support for 'surgically' re-classifying the deprivation status of *particular* households or sub-groups in certain instances, the analysis presented here suggests no grounds for abandoning the enforced lack criterion, which has become a mainstay of poverty measurement when indicators of material deprivation are employed. While further work is required to explore the performance of enforced lack indicators across the life course, with a particular focus on older people ("pensioners"), the enforced lack criterion nonetheless *does* appear to help distinguish between poverty and preference.

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Appendix 1. Probability of deprivation and F-statistic for deprivations analysed in Table 4

		summary scale		possession-weighted scale		binary measures (1+ threshold)	
		can't afford	don't have	can't afford	don't have	can't afford	don't have
income	bottom	0.767	1.518	0.660	1.284	0.299	0.603
decile	2nd	0.466	1.142	0.397	0.957	0.222	0.553
	3rd	0.306	0.835	0.258	0.697	0.160	0.426
	4th	0.164	0.602	0.140	0.504	0.092	0.340
	top	0.061	0.387	0.053	0.325	0.036	0.245
	<i>F-statistic</i>	57.3	83.9	56.3	81.7	59.4	67.7
	someone in HH is saving	0.104	0.627	0.087	0.523	0.061	0.362
	no-one saving	0.463	1.025	0.396	0.862	0.206	0.469
	<i>F-statistic</i>	90.5	60.9	89.0	60.2	110.5	32.7
	someone unemployed	0.319	0.871	0.272	0.730	0.152	0.428
	no-one unemployed	1.240	1.791	1.078	1.541	0.434	0.660
	<i>F-statistic</i>	141.5	76.8	143.9	81.1	97.6	36.5
housing	none	0.183	0.670	0.156	0.556	0.098	0.359
problems	1	0.393	0.990	0.334	0.832	0.194	0.466
	2	0.544	1.184	0.468	1.007	0.236	0.542
	3	0.747	1.492	0.637	1.264	0.296	0.649
	4	0.963	1.711	0.835	1.462	0.311	0.664
	5+ housing problems	1.552	2.112	1.335	1.799	0.585	0.744
	<i>F-statistic</i>	63.5	50.7	62.5	51.5	57.5	35.6
health	good or very good	0.260	0.726	0.221	0.611	0.129	0.377
status	fair	0.462	1.145	0.393	0.957	0.204	0.540
	poor or very poor	0.838	1.647	0.723	1.395	0.326	0.624
	<i>F-statistic</i>	57.2	90.0	56.7	87.4	50.6	62.3
financial	living comfortably	0.052	0.552	0.043	0.458	0.030	0.316
status	doing alright	0.180	0.716	0.152	0.597	0.103	0.398
	just about getting by	0.598	1.272	0.510	1.069	0.307	0.586
	finding it quite or very difficult	2.124	2.616	1.833	2.245	0.717	0.796
	<i>F-statistic</i>	428.6	217.9	421.6	220.9	375.3	101.8

Source: BHPS, weighted