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2 Material deprivation items in SHARE Wave 5 data: a contribution to a better understanding of differences in material conditions in later life

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- ▶ New material deprivation items (MDIs) improve the understanding of individual economic situation in later life
 - ▶ MDIs have advantages over simple subjective measures of material conditions and can prove useful in analysis of the effect of economic circumstances on well-being
 - ▶ MDIs may prove valuable when constructing complex measures of material conditions and multidimensional measures of exclusion
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2.1 Measuring material conditions in the 50+ population

In the literature on material conditions and poverty, researchers often use current income to approximate the economic situation of individuals despite the fact that there are many arguments why income at a certain point in time might be a poor reflection of material well-being. For practical reasons, income-based indicators are favoured over those based on the level of expenditure or assets mainly because of the difficulty of collecting such data, and such indicators are favoured over subjective measures of poverty because of the perceived lack of reliability and comparability of these measures across individuals and population groups.

As suggested, among others, by Adena and Myck (2014) and Nolan and Whelan (1996), income-based measures may be particularly poor proxies of material conditions among older people. Additionally, these measures are problematic in the context of international comparisons. On the one hand, incomes are difficult to compare across countries, even with corrections for the cost of living, and, on the other hand, relative country-specific measures of income-based poverty depend strongly on the overall income distribution. On top of that, factors such as disability or health problems are not accounted for in income-based measures. And yet, at the same level of income, these factors will strongly affect financial situation and their role will be particularly important among older individuals.

When accounting for some of the above deficiencies, measures based on subjective assessment of material conditions (usually asking: “How easily can the household make ends meet”?) may be affected by culture specific response behaviour. Apart from that, since they are usually collected as categorical variables, they may provide limited information with respect to the ability to distinguish between different levels of material conditions. Furthermore, when studying the relationships between material well-being and various outcomes of interest (health, life-satisfaction, etc.), subjective measures are likely to be endogenous to the outcomes analysed.

The above arguments were the key factors behind the decision to extend the SHARE battery of questions in Wave 5 to include a number of the so-called “material deprivation items” (MDIs). Deprivation items, which aim to capture the ability of households to afford specific types of goods and services, have been used increasingly in recent decades to complement income-based measures of material conditions (Atkinson et al. 2002, Nolan & Whelan 2010), and there has been a number of other surveys that have used deprivation indicators to identify insufficient material resources. These include, for example, the UK’s *Family Resources Survey*, the EU’s *Survey on Income and Living Conditions* and *Monitoring Poverty and Social Exclusion* conducted in Northern Ireland.

In chapters 5 and 6 in this volume these items are used to generate material deprivation and social exclusion measures. In this chapter, after a brief description of the SHARE Wave 5 MDIs in section 2.2 we examine how strongly they correlate with a general subjective measure of material conditions (section 2.3), and investigate to which extent they complement these measures in the analysis of broader aspects of quality of life (section 2.4).

2.2 Material deprivation items in SHARE Wave 5

For the purposes of this chapter, we used eleven items aimed at capturing material deprivation in SHARE Wave 5 (more information on the MDIs in SHARE can be found in Myck et al. 2015). These items are listed in Table 2.1 and cover aspects of the economic circumstances of households such as the ability to afford to eat meat or fruit more often than three times per week, the affordability of a number of specific items such as groceries and holidays away from home, the necessity to limit expenses on a number of items such as shoes or heating to keep living costs down, and the inability to see a doctor because of cost.

Table 2.1: Material deprivation items: SHARE Wave 5

Material deprivation item	Question text
MDI: meat	...[you] do not eat meat, fish or chicken more often [<i>than three times per week</i>] because: <i>you cannot afford to eat it more often</i>
MDI: fruit	...[you] do not eat fruits or vegetables more often [<i>than three times per week</i>] because: <i>you cannot afford to eat it more often</i>
MDI: groceries	Can your household afford to regularly buy necessary groceries and household supplies?
MDI: holiday	Could your household afford to go for a week long holiday away from home at least once a year?
MDI: expense	Could your household afford to pay an unexpected expense of [<i>AffordExpenseAmount</i>]* without borrowing any money?
MDI: clothing	<i>In the last twelve months, to help you keep your living costs down, have you...</i> ... continued wearing clothing that was worn out because you could not afford replacement?
MDI: shoes	... continued wearing shoes that were worn out because you could not afford replacement?
MDI: heating	... put up with feeling cold to save heating costs?
MDI: glasses	... gone without or not replaced glasses you needed because you could not afford new ones?
MDI: dentist	... postponed visits to the dentist?
MDI: doctor	Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

Notes: For details on question eligibility and questionnaire design see (Myck et al. 2015).

*[*AffordExpenseAmount*] corresponds to the country-specific relative poverty line defined at the level of 60 % of median monthly equivalised household income.

Source: SHARE Wave 5 questionnaire

In our subsequent analysis, the deprivation items are used as binary variables, with 1 indicating that the person is deprived and 0 otherwise. Given that most of the material deprivation questions were asked at the household level (see Myck et al. 2015), we only use one observation per household when analysing their correlation with subjective measure of material conditions in section 2.3. However, since we analyse individual level outcomes (general health, symptoms of depres-

sion, quality of life) in section 2.4, we have imputed information on subjective material conditions and on the MDIs for the other partner in the household in the case of couples.

2.3 Making ends meet and material deprivation

We first analyse the material deprivation items in relation to a general self-assessed measure of the financial situation. Respondents in SHARE, as in many other surveys (including HRS and ELSA), were asked about how easily their household could make ends meet (further referred to as “MEM”). This is a common approach to measure general financial conditions (e.g. Saunders et al. 1994), in which individuals are asked to evaluate their circumstances with respect to their specific needs.

In SHARE the self-assessed financial situation was measured on an ordered scale with four response categories: with great difficulty, with some difficulty, fairly easily and easily. Overall in the sample in SHARE Wave 5 34.9 per cent of households state that they make ends meet easily, 29.3 per cent fairly easily, 24.6 per cent with some difficulty and 11.2 per cent with great difficulty. These shares differ significantly between countries. For example, while in Estonia 61.7 per cent of households make ends meet with some or great difficulty, in Denmark only 12.6 per cent report being in this situation.

Correlation between making ends meet and material deprivation items

To assess the quality of the new deprivation items in SHARE Wave 5 we first analyse their correlation with the overall subjective assessment of financial circumstances. If we expect these items to reflect economic circumstances and we want to use them in the measurement of material conditions, we should first of all find strong correlations between MDIs and the making-ends-meet assessments. Apart from that, we would expect the different MDIs to pick up slightly different aspects of material conditions, so that each individual MDI provides additional information on material conditions on top of the other items. In Figure 2.1 we present the breakdown of the MEM categories for all 40,287 households in SHARE Wave 5 included in our analysis, and specify the proportions of households that are deprived with respect to selected six MDIs: the inability to afford meat, groceries, holidays and an unexpected expense, as well as having

to limit spending on heating and visits to the dentist. Figure 2.1 shows first of all, that there is substantial variation in the level of deprivation for these six items, both overall and across the specific MEM categories. For example only 12.8 per cent of households who make ends meet with great difficulty cannot afford to eat meat at least three times per week. But this is the case for as many as 89.4 per cent of households for the ability to afford to go on holiday and for 82.8 per cent of households for the ability to pay an unexpected expense. It is also interesting to note that, for these two items, a high proportion of households who find it relatively easy to make ends meet is unable to afford them (5.8% and 4.9% respectively).

Variation in the level of deprivation and in the degree of correlation between MEM and MDIs can also be seen from Figure 2.2. The figure demonstrates the relationship between the proportion of households deprived of the same six items used in Figure 2.1, and the proportion of those who make ends meet with some or great difficulty. First of all, the scatterplots suggest strong positive relationships between MEM and MDIs. Seemingly different cross-country patterns indicate that the relationship between the subjective assessment of material conditions and the MDIs may be different in different countries. It also indicates that the latter variables may potentially contain additional information. Figure 2.2 also shows a significant degree of variation both in MEM and the level of deprivation by country. For example, over half of the 50+ households in Estonia, Slovenia and Italy state that they have some or great difficulty in making ends meet. Interestingly, while more than every third household (36.1%) in Estonia cannot afford to buy groceries, in Slovenia and Italy only 15.9 per cent and 11.8 per cent of households respectively are deprived with respect to this item. We can also see that, while similar proportions of households in the Czech Republic, Israel, and Spain declare difficulty with making ends meet, the proportions of households deprived with respect to specific items in these countries can be substantially different.

In what follows, we analyse the correlations between MEM and MDIs in more detail using the ordered probit model. Table 2.2 shows the results of the analysis with the four ordinal categories of the MEM variable regressed on deprivation items, controlling for a number of individual characteristics (age, age squared, single dummy, single female dummy, large household) and country dummies. As is indicated in Table 2.2, the estimated cut-off points are statistically different from each other, which justifies the use of an ordered outcome model on all four categories. As we can see, all coefficients on the MDIs are statistically significant, with all but one significant at 0.1%. This result confirms very strong correlations between the MDIs and making ends meet. Marginal effects for the highest category of MEM (making ends meet with great difficulty) are presented

in Figure 2.3. The estimates show how much being deprived with respect to a specific MDI is related to the probability of declaring great difficulty in making ends meet. Inability to afford meat, for example, increases this probability by 2.2 percentage points (pp), while the inability to afford a holiday or an unexpected expense increases the probability by 8.0 pp and 6.6 pp respectively.

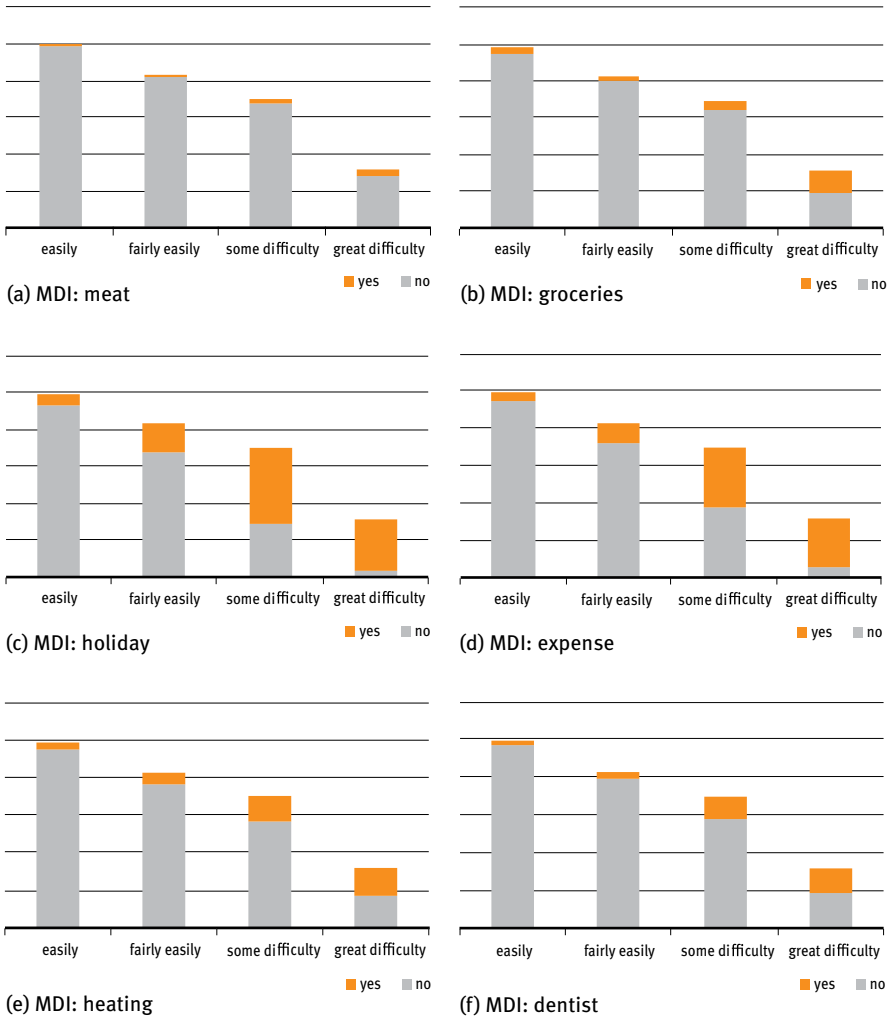


Figure 2.1: Making ends meet categories and the MDIs

Notes: Means at household level, restricted sample to sample used in the regressions, weighted with SHARE Wave 5 households weights; no. of observations: 40,287

Source: Authors' calculations using SHARE Wave 5 release 0 data

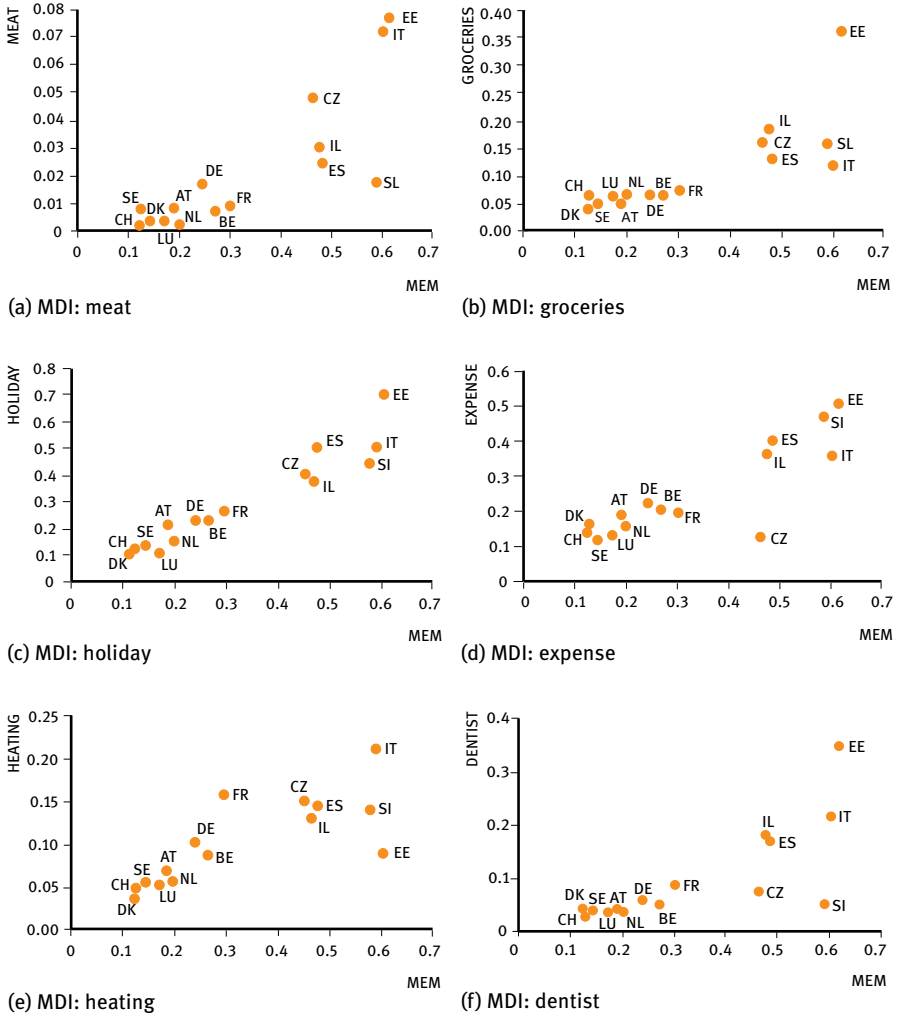
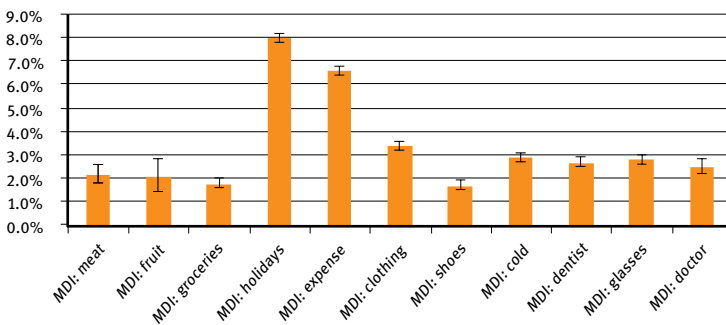


Figure 2.2: Difficulty in making ends meet and levels of deprivation for selected MDIs by country
 Notes: Means at household level by country, restricted sample to sample used in regression analysis, weighted with SHARE Wave 5 households weights; no. of observations: 40,287
 Source: Authors' calculations using SHARE Wave 5 release 0 data

Table 2.2: Correlation between MEM and MDIs. Ordinal probit regression results: coefficients

	Coefficients	SE/CI
MDI: meat	0.231***	(0.045)
MDI: fruit	0.221**	(0.071)
MDI: groceries	0.190***	(0.021)
MDI: holidays	0.840***	(0.016)
MDI: expense	0.696***	(0.017)
MDI: clothing	0.361***	(0.023)
MDI: shoes	0.181***	(0.025)
MDI: heating	0.311***	(0.021)
MDI: dentist	0.288***	(0.024)
MDI: glasses	0.294***	(0.025)
MDI: doctor	0.260***	(0.030)
single	0.060**	(0.021)
single female	0.081***	(0.023)
large household	0.169***	(0.015)
Country dummies	Included	
Cut-off 1	0.330	(0.285–0.375)
Cut-off 2	1.428	(1.381–1.475)
Cut-off 3	2.940	(2.886–2.994)
Observations	40,387	
Wald test of MDI (p value)	0.000	
Pseudo R2	0.243	

Notes: * p < 0.05, ** p < 0.01, *** p < 0.001. SE/CI – standard errors or confidence intervals
Source: Authors' calculations using SHARE Wave 5 release 0 data, unweighted

**Figure 2.3:** Making ends meet and MDIs: marginal effects from ordered probit regression

Notes: Marginal effects of a specific MDI on the probability of having great difficulty in making ends meet. Based on ordered probit regression in Table 2.2; in case of dummy variables marginal effects are calculated for discrete change of dummy variable from 0 to 1; no. of observations: 40,387

Source: Authors' calculations using SHARE Wave 5 release 0 data, unweighted

2.4 MDIs in the analysis of material conditions on health and well-being

Having established a strong correlation between the subjective assessment of material conditions and the deprivation items, we now turn to the question of the degree of additional information contained in the MDIs when analysing the relationship between material conditions and such outcomes as health and well-being.

To examine the potential of the MDIs in explaining the variation in the quality of life with respect to material circumstances we run probit regressions for three outcomes and test the additional contribution of MDIs versus using only subjective assessment of material conditions by examining their (joint) statistical significance separately.

The outcomes used in the regressions are poor health (based on self-assessment of health, SAH), symptoms of depression based on the EURO-D scale and quality of life measured with an indicator based on the CASP-12 questions. All outcomes were rescaled into binary variables with “1” indicating poor health, depression or low quality of life. SAH is a subjective measure of general health status on an ordered five-level scale from excellent to poor. In our analysis we take the last two categories – fair and poor health, as implying poor health status. Around 37 per cent of individuals in the (weighted) restricted sample declare themselves to be in poor health. As far as depression is concerned, we follow the literature and consider all respondents with four or more symptoms of depression on the 12-point EURO-D scale to be classified as suffering from depression. Around 20 per cent of individuals in the (weighted) restricted sample suffer from depression. The CASP-12 items reflect respondents’ quality of life. In this case, respondents get a total score of 12 to 48 which is a sum of their specific answers to twelve questions on how often they experience certain feelings such as feeling left out of things or being full of energy. In our analysis, we set the threshold of 35 points or lower to represent low quality of life which means that 30 per cent of respondents in the (weighted) restricted sample are classified as having low quality of life. In all regressions we control for age, age squared, being single, female and for household size; we also include country dummies. Note, that this estimation is conducted at the individual and not household level with standard errors clustered at the household level.

The regression results in the form of marginal effects from a probit model estimation are presented in Table 2.3. Columns (1), (3) and (5) present the results from the specification without MDIs while columns (2), (4) and (6) present the results of specifications including the MDIs as additional explanatory variables. The information on the degree of difficulty with making ends meet is controlled

through three separate dummy variables for making ends meet “relatively easily”, with “some difficulty” and with “great difficulty”.

The first thing to note is the reflection of the correlation between MEM and deprivation items, which results in much lower values of coefficients on MEM categories in specifications after inclusion of the MDIs. The three coefficients, however, remain statistically significant. In all specifications including the MDIs most of the coefficients on MDIs are individually statistically significant, and the Wald test suggests that they are jointly significant in all three cases. In the case of the CASP, regression coefficients on all MDIs are statistically significant. Individually, across the three specifications the most significant coefficients are those on the following material deprivation items: meat, holiday, expense, clothes, glasses, and doctor. We see, for example, that at sample means, conditional on other variables, a positive answer to the question on inability to afford a holiday increases the probability of reporting poor health by almost 11 pp. Deprivation in the holiday domain increases the probability of suffering from depression symptoms by 6.2 pp and of low quality of life by 9.7 pp.

Table 2.3: Material conditions and well-being

	Poor health (SAH)		Depression (EURO-D)		CASP	
	(1)	(2)	(3)	(4)	(5)	(6)
MEM: fairly easily	0.086*** (0.006)	0.069*** (0.006)	0.045*** (0.004)	0.031*** (0.005)	0.103*** (0.005)	0.087*** (0.006)
MEM: some difficulty	0.204*** (0.006)	0.119*** (0.007)	0.120*** (0.005)	0.054*** (0.005)	0.257*** (0.005)	0.174*** (0.006)
MEM: great difficulty	0.344*** (0.008)	0.179*** (0.011)	0.223*** (0.006)	0.090*** (0.008)	0.407*** (0.007)	0.229*** (0.010)
MDI: meat		0.060*** (0.017)		0.050*** (0.011)		0.076*** (0.015)
MDI: fruit		0.042 (0.028)		0.058** (0.018)		0.097*** (0.024)
MDI: groceries		-0.005 (0.008)		0.001 (0.006)		0.029*** (0.007)
MDI: holidays		0.110*** (0.007)		0.062*** (0.005)		0.097*** (0.006)
MDI: expense		0.040*** (0.007)		0.021*** (0.005)		0.043*** (0.006)
MDI: clothing		0.033*** (0.009)		0.031*** (0.007)		0.028*** (0.008)

Table 2.3 (continued)

	Poor health (SAH)		Depression (EURO-D)		CASP	
	(1)	(2)	(3)	(4)	(5)	(6)
MDI: shoes		0.006 (0.010)		0.016* (0.007)		0.021* (0.009)
MDI: heating		0.000 (0.009)		0.021*** (0.006)		0.040*** (0.007)
MDI: dentist		0.020* (0.009)		0.008 (0.006)		0.034*** (0.008)
MDI: glasses		0.047*** (0.010)		0.041*** (0.007)		0.029*** (0.009)
MDI: doctor		0.088*** (0.012)		0.070*** (0.008)		0.089*** (0.010)
Age	-0.000 (0.003)	0.003 (0.003)	-0.024*** (0.002)	-0.023*** (0.002)	-0.027*** (0.003)	-0.027*** (0.003)
Age squared	0.000*** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Single	-0.002 (0.006)	-0.015* (0.006)	-0.003 (0.004)	-0.012** (0.004)	0.021*** (0.005)	0.006 (0.005)
Female	0.016*** (0.004)	0.012** (0.004)	0.087*** (0.003)	0.084*** (0.003)	0.013*** (0.004)	0.009* (0.004)
Large household	-0.014* (0.006)	-0.017** (0.006)	-0.010* (0.005)	-0.012* (0.005)	0.006 (0.006)	0.003 (0.006)
Country dummies	yes	yes	yes	yes	yes	yes
Observations	53,537	53,537	52,286	52,286	50,770	50,770
Wald test of MDI (p value)		0.000		0.000		0.000
Wald test of MEM (p value)		0.000		0.000		0.000
Pseudo R2	0.135	0.147	0.082	0.101	0.181	0.204

Notes: Marginal effects from probit model. Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Authors' calculations using SHARE Wave 5 release 0 data, unweighted

2.5 Conclusions

In this chapter we have analysed whether the new material deprivation items collected in SHARE Wave 5 can contribute to a better understanding of material conditions in later life. We showed that they strongly correlate with subjective assessments of material conditions (MEM) and that they contribute to the understanding of the variation in a number of broader quality of life outcomes (health, depression, CASP) over and above the information contained in MEM.

An important advantage of material deprivation items is that, while they clearly capture variations in the economic circumstances of households, in analysing outcomes such as subjective assessment of health, depression or overall life satisfaction, they are less likely to be endogenous with respect to the dependent variable. In the case of MEM, for example, it is likely that depressed people could judge their material situation less favourably compared to healthy individuals, as a result of which the established relationship between depression and material conditions could be biased. Our analysis in this chapter demonstrates that MDIs can be usefully employed in creating an index of material conditions. Examples of such indices are presented in chapters 5 and 6 and are employed in analysis in chapters 7, 9, 11, 14, 17, 18, 19, 28 and 30. The MDI variables can also be used to “objectivise” the subjective assessment of material conditions in a similar way to how subjective health assessment is “objectivised,” for example, in Kalwij and Vermeulen (2008). MDIs could be accounted for when constructing alternative poverty measures to income-based indicators and as such, they may prove useful as policy targets and instruments for monitoring the material conditions of European populations.

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