

**OVER-INDEBTEDNESS IN GREAT
BRITAIN: AN ANALYSIS USING
THE WEALTH AND ASSETS
SURVEY AND HOUSEHOLD
ANNUAL DEBTORS SURVEY**

Report to the Department for
Business, Innovation and Skills

by

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OCTOBER 2010



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0. Executive Summary

Introduction

The objectives of this research are to use data from the Wealth and Assets Survey (WAS) and the follow-up Household Annual Debtors survey (HAD) to extend existing knowledge about potential ways of measuring financial difficulty and over-indebtedness in particular, identify the types of people and households who are over-indebted, and those who become more or less over-indebted from one year to the next.

Data, variables and sample

WAS is a large-scale longitudinal survey specifically designed to provide a picture of households' financial situations, and allows us to examine how these change over time. The first wave of data was collected between July 2006 and June 2008, and contains information on approximately 32,000 households and 55,000 individuals. The longitudinal part of our research uses data from the follow-up telephone based HAD survey, which targeted the 10% of households in the greatest financial difficulty. The HAD interviews took place a year after respondents were surveyed in WAS, covering the period October 2007 to June 2009. About half of the targeted households agreed to take part, resulting in a sample of approximately 2,200 individuals in nearly 1,400 households.

There is no universal agreement on a single indicator of over-indebtedness, but recent studies have converged on a set of complementary measures reflecting different aspects of debt. This report uses five such measures: being in credit arrears, experiencing debt as a subjective burden, number of credit commitments outstanding, ratio of unsecured debt repayments to gross household income exceeding 25%, and ratio of all debt repayments to gross household income exceeding 50%. The first three indicators are defined at both the individual and household level, while the last two are defined at the household-level.

Prevalence of over-indebtedness

The WAS data indicate that:

- 4% of individuals were behind with an unsecured credit commitment by two or more consecutive months (or payments), and are therefore in arrears.¹ Of those in arrears, 88% were in arrears on one credit commitment, while 11% were in arrears on two or more commitments;
- 6% of individuals reported that any of their unsecured debt was a heavy burden;
- 64% of individuals had no credit commitments, 18% had one, 9% had two, while 4% had four or more;
- 10% of households were in arrears on any credit commitments. Of these, 76% were in arrears on one commitment, 17% on two, while 7% were in arrears on three or more commitments;
- 14% of households had any debt that was perceived to be a heavy burden;

¹ Mortgage arrears and outstanding bills are measured at the household level and so cannot be included in the individual measures.

- 37% of households had no credit commitments (including mortgage and bills), 23% had one and 14% had two. 17% had four or more credit commitments;
- 9% of households made unsecured debt repayments that exceeded 25% of gross household income while 8% made total debt repayments that exceeded 50% of household income.

Factors associated with over-indebtedness

Descriptive statistics indicate that individual-level factors associated with relatively high risks of over-indebtedness are: being a young adult (particularly aged 25–35), a tenant (and a social tenant in particular), in a low income household, a lone parent, in unemployment or sick or disabled. A strong relationship between over-indebtedness and attitudes to debt also emerges, but it is difficult to be certain about whether these cause, or are caused by, over-indebtedness. In particular, people who agree that they ‘buy things when they can’t really afford them’ and ‘buy things on credit and pay later’, and disagree that they are ‘more a saver than spender’ are most likely to be over-indebted. People who have ever received debt advice also have a high probability of over-indebtedness, though again causality is an issue.

Multivariate analysis of over-indebtedness

Multivariate analysis indicates that factors associated with over-indebtedness at the individual level vary with the indicator of over-indebtedness used. In particular:

- The probability of arrears and of debt being a heavy burden are positively associated with: having dependent children, being separated or divorced, unemployed or sick or disabled, and being a tenant. They are negatively associated with age, being married, in work, retired, highly educated and an outright homeowner;
- The numbers of credit commitments are higher for: women, those with dependent children, who are separated, divorced or widowed, employed in a high skilled occupation, with a mortgage or are tenants. They are negatively associated with age, being non-employed, never having worked or being long-term unemployed, and being an outright homeowner.

Factors that consistently increase the risk of over-indebtedness at the household level are: having a young or female household reference person (HRP), living in a larger household, living in a household with a divorced or separated, unemployed or sick or disabled HRP, having a mortgage or being a tenant rather than owning the house outright. Other factors have an inconsistent impact on over-indebtedness that varies depending on the indicator of over-indebtedness used. These include the number of working adults in the household, and having a HRP that is retired or in a high skilled occupation.

Longitudinal analysis of over-indebtedness

Longitudinal analysis matching the WAS and HAD data generally suggests a fall in the prevalence of over-indebtedness among people in the most over-indebted households between 2006–08 and their follow-up interview a year later, but an increase in the depth of over-indebtedness. Fewer individuals and households had any unsecured arrears in HAD than in WAS, and were less likely to perceive debt as a heavy burden. However of those who had any arrears, the average number of arrears was higher in HAD than WAS, as was the average number of credit commitments.

About 50% of individuals and households in the HAD sub-sample who were over-indebted in WAS were still over-indebted in HAD, while between 9% and 25% of individuals and households who were not over-indebted in WAS had become over-indebted in HAD. Therefore there is a

high degree of persistence in over-indebtedness among households in the most financial difficulty. Household size and structure, housing tenure, and employment status, and changes in household size and structure and housing tenure emerge as key factors associated with over-indebtedness transitions. It is important to note that these relationships can only be taken as representative of households in financial difficulty, and not the population as a whole. Since HAD was restricted households which already had financial problems, it did not cover households falling into over-indebtedness for the first time.

Conclusions

Consistent with previous studies using different data sources, we find that a small but significant minority of individuals and households in Great Britain suffers from problems of over-indebtedness. However, the overlap of the indicators is far from perfect and the proportions of individuals and households scoring positively on at least one of the indicators are substantially higher. While this may appear to suggest that over-indebtedness is widespread in Britain, we need to bear in mind that the indicators represent different dimensions of credit behaviour which may not all be immediately problematic. While the arrears indicators reflect acute current problems caused by unsustainable debt, holding multiple credit commitments may not be a problem at all for individuals who can expect high income growth, but for others could be a warning sign of debt problems to come. A goal for future research should be to try to disentangle the different indicators more clearly. For example, with a long run of panel data it would be possible to see whether indicators like debt burden or repayment-to-income ratios correctly predict future arrears and, if so, what appropriate thresholds for each might be.

We also looked at the persistence of over-indebtedness using the WAS-HAD panel. With the caveat that the picture we present is partial (because the sample is of households already in heavy debt, and not households about to fall into over-indebtedness), we find a fall in the prevalence of over-indebtedness among people in the most over-indebted households between 2006–08 and their follow-up interview a year later, but an increase in the depth of over-indebtedness. Although there is persistence in over-indebtedness, the extent of transitions into and out of over-indebtedness indicates that cross-sectional measures are likely to underestimate the numbers of individuals and households affected at some point in their lives. Temporary over-indebtedness may partly be a rational response to income expectations over the life cycle. Further waves of WAS data will help shed light on these issues.

1. Introduction

1. Access to credit is a great benefit to most households as it enables them to smooth out short-term fluctuations in income and to borrow to finance long-term projects such as house purchases. However, a small minority of households have problems dealing with debt. There was already some concern about rising levels of debt before the recent recession (BERR 2007) and the situation of vulnerable households has been worsened by the additional pressures resulting from the economic downturn of the last two years.
2. The objectives of this research are to use data from the new Wealth and Assets Survey (WAS) and Household Annual Debtors follow-up survey (HAD) to extend existing knowledge about potential ways of measuring financial difficulty and over-indebtedness in particular, identify the types of people and households who are over-indebted, and those who become more or less indebted from one year to the next. WAS is the first large-scale representative survey in the UK to include detailed questions on all kinds of borrowing behaviour and indebtedness. The HAD data provide a unique opportunity to study how the circumstances of those facing the greatest financial difficulties change over time. In-depth analyses of these data allow us to explore the trajectories of households as they move out of debt, or into more serious financial difficulties (though the data do not allow us to analyse those who may fall into over-indebtedness from a previously healthy financial position, since they do not form part of the HAD).
3. While a good deal of attention has been devoted to household debt and over-indebtedness in recent years, up until now there has been a dearth of large-scale data sets containing sufficiently targeted information on household finances. Some researchers have used specially-commissioned surveys, but these tend to be relatively small in size (e.g. some 1700 households in the DTI Over-indebtedness survey used by Kempson 2002). Other studies have used existing secondary data, such as the British Household Panel Survey (BHPS) and Families and Children Study (FACS) (see Disney et al 2008, who used BHPS and FACS; and Kempson et al 2004, which included FACS). While the BHPS and FACS are large and follow respondents over time, they are more general surveys and therefore contain limited information on the different dimensions of over-indebtedness. WAS promises to fill this gap. It covers some 32,000 households, interviewing all adult members of each household, is longitudinal, and is designed to investigate a range of financial issues including over-indebtedness. In addition the HAD follow-up survey re-interviews a sub-sample of households in financial difficulty between waves to track their progress. Some preliminary analysis of the WAS aggregate data has already been carried out (BERR 2007, and BIS 2008), but so far there has been no in-depth analysis to investigate the extent of over-indebtedness and its associated household characteristics.
4. It is difficult to draw clear conclusions about trends in over-indebtedness over the last decade partly because of the differences in data collected, and partly because of inconsistencies in the definitions of over-indebtedness used. Although figures suggest that arrears rates fell from highs of around 20% of households in 2000 (Kempson 2002; Kempson et al 2004) to 10% in the latter half of the decade (BERR 2008; BIS 2010), later surveys tended to use more restrictive definitions of arrears (note the Kempson 2000 measure is only 13% if restricted to current arrears rather than arrears over the last 12 months). This highlights the need, which WAS promises to fulfil, for consistent data to track over-indebtedness over time. Although the more recent numbers suggest relatively few people are over-indebted (or at risk of over-indebtedness), larger proportions consider debt repayments to be a burden (BERR 2008). Furthermore, the

prevalence of over-indebtedness is arguably greater than suggested by any one indicator because as we explain below, the different indicators reflect different dimensions of over-indebtedness (e.g. current problems vs unsustainable borrowing leading to future problems) affecting distinct household types at specific points in the lifecycle.

5. Previous research has consistently identified lone parents, the unemployed and tenants (and social tenants in particular) as most at risk of over-indebtedness (BERR 2008; BIS 2010; Disney et al 2008; Kempson 2002; Kempson et al 2004), and persistent over-indebtedness (Kempson et al 2004; Disney et al 2008). Job loss, the birth of a baby and relationship breakdown have also been identified as 'trigger' events that expose households to the risk of excessive debt (BERR 2008; Disney et al 2008; Kempson 2002; Kempson et al 2004). Such factors have also been shown to be associated with people's financial capability more generally (Taylor 2010). There has been less examination of the persistence and transitions into and out of over-indebtedness, although Bridges and Disney (2004) found little evidence of persistence of arrears among a sample of low income families. Clearly this is an area which requires consistent and detailed longitudinal data. WAS will satisfy this requirement when subsequent waves are available, and the HAD follow-up allows us to focus on the experiences of households in difficulty between WAS waves.
6. Sections 3-5 present the cross-sectional analysis of over-indebtedness, preceded by a description in the next section of the WAS data, sample used and over-indebtedness indicators. We present more details of the HAD data in the longitudinal analysis of Section 6.

2. Data, variables and sample

7. The Wealth and Assets Survey (WAS) is a large-scale longitudinal survey which has been specifically designed to provide a picture of households' financial situations and, by re-interviewing the same respondents over time, allows us to examine how these change over time. The HAD follow-up survey focuses on a subsample of households in the most financial difficulty.
8. The WAS interviews approximately 32,000 households (equating to about 55,000 individuals) over a 2-year period (it is known in the field as the Household Assets Survey, HAS). It aims to provide representative information for households and individuals in Great Britain on their economic well-being, including their assets and debts, pension provision, how wealth is distributed and factors that may affect their financial planning. We use data from the first wave, which was collected from July 2006 to June 2008. Interviews were attempted with all adults aged 16+ in each household (excluding those aged 16-18 in full-time education). The survey oversampled wealthier households (because of the skewed nature of the wealth distribution) and we weight all of our descriptive estimates to account for the survey design and for non-response. The survey consisted of two questionnaires: (i) a household questionnaire answered by the household reference person (HRP), usually the head of household or the spouse, which collected details of household structure and demographics, as well as household-level finances like mortgage arrangements; and (ii) an individual questionnaire answered by each adult, which collected economic and employment information, and details of individual financial position and behaviour.
9. The dual individual and household dimensions of WAS represent an important advantage over some previous surveys, such as the 2004 Mori survey (DTI 2004), which only questioned individuals, or others which only surveyed one person per household (such as Kempson 2002). Individual-level data give a more detailed picture of overall household behaviour, and also allow individuals to be followed over time as they move into different households. Our research relies on three sets of variables: (a) those that measure over-indebtedness; (b) those that measure financial attitudes and behaviour which might affect over-indebtedness; and (c) those that characterise different types of individuals and households. Variables that capture dimensions of over-indebtedness, and that we draw on in measuring over-indebtedness, are:

Individual level variables:

- Repayments on credit cards, charge/store cards/accounts;
- Instalments for mail order catalogues and hire purchase;
- Repayments of unsecured loans;
- Whether unable to make minimum payments on credit or store cards in last 12 months;
- Whether 2 or more consecutive repayments behind with mail order, hire purchase or loan repayments;
- Whether entered insolvency in last year;
- Subjective burden of all cards etc and loans;

- Reported income from employment, benefits, savings and investments, rent, pensions and other sources.

Household level variables:

- Monthly mortgage repayments;
- Whether 2 or more consecutive payments behind with any household bills;
- Whether 2 or more consecutive months behind with mortgage repayments;
- Subjective burden of mortgage(s);
- Subjective burden of all mortgage(s) and secured loans;

10. The next section summarises the prevalence of over-indebtedness derived from these variables, while Appendix Table A1 reports the means of the socio-demographic variables used to categorise levels of over-indebtedness and as explanatory variables in the multivariate analysis.

11. Recent studies of over-indebtedness have tended to converge on a common set of indicators, while noting that there is no universal agreement on which indicator best captures true over-indebtedness (see Disney et al 2008 and BIS 2010). The indicators broadly reflect four dimensions of over-indebtedness: making heavy use of credit, being in arrears, experiencing debt as a burden, and making high debt repayments relative to income. The last dimension is usually split into separate indicators for unsecured and total debt repayments. As these indicators address different aspects of over-indebtedness, they each provide potentially valuable information. However by the same token, none of these is 'ideal', in the sense that it dominates the others. For example, Disney et al (2008) argue that such indicators are likely to capture debt problems in different household types and at different points of the life cycle. We therefore compare and contrast the prevalence of and factors associated with over-indebtedness using all five indicators. As future waves of WAS data become available, it will be possible to identify which indicators are the best predictors of long-term and persistent financial hardship, and to distinguish them from measures of credit use that are more closely associated with sustainable borrowing over the lifecycle.

12. The definitions of our indicators are aligned quite closely with other studies, both to facilitate comparison with previous estimates of over-indebtedness and because WAS includes specific questions designed for the construction of these indicators. However, one of our indicators differs slightly from that previously used: following BIS (2010), the arrears indicator combines being in arrears with having entered insolvency in the last year. The purpose of the augmented measure is to capture both ordinary arrears and extreme forms of arrears that have resulted in insolvency. In practice, the inclusion of insolvency makes little difference to overall prevalence because insolvency rates are so low.

13. The definitions of the five indicators used (and separate versions at individual and household level) are:

- Arrears: This identifies individuals who are behind with an unsecured credit commitment (a credit or store card, mail order catalogue, hire purchase agreement or personal loan). Arrears are defined as any missed (minimum) payments in the last 12 months on credit or store cards, and 2 or more consecutive (current) missed payments on mail order, hire

purchase and loans. We are restricted to these differing definitions across credit products by the wording of the WAS questions. This may affect comparability with studies that use the more conventional definition of 2+ missed payments for all products. The household arrears indicator identifies households in which any members are behind with an unsecured credit commitment or the household is 2 or more months behind with mortgage repayments, or 2 or more consecutive payments behind on any household bills.

- Subjective burden: This identifies individuals reporting that any of their unsecured debt represents a “heavy burden” (rather than somewhat of a burden or no problem); and households reporting that any debt (including mortgages) is a “heavy burden”.
- Credit commitments: This is a count of the number of unsecured credit commitments held by individuals; and total number of credit commitments (including mortgages and bills arrears) held by all household members. The conventional over-indebtedness indicator for credit commitments identifies households with four or more commitments (see for example, BERR 2008; BIS 2010). However given the expansion of credit products in recent years, it has been suggested that this threshold may no longer be meaningful. Thus rather than taking a defined (and rather arbitrary) threshold, in most of our analysis we model the number of commitments directly.
- Unsecured repayment-to-income ratio: This identifies whether total household repayments of unsecured debt are greater than 25% of gross household income.
- Total repayment-to-income ratio: This identifies whether total household repayments of all debt are greater than 50% of gross household income.

14. The first three indicators are defined at both the individual and household level, while the repayment-to-income ratios are only at household level. Clearly the two repayment-to-income measures require estimates of household income. Given that WAS focuses on measuring wealth and assets, there was less emphasis on detailed income questions in the survey design. Questions were asked at the individual level with information collected on separate income components, but there was a smaller set of questions than in a more specialised income survey like the Family Resources Survey. The upshot is that income is not measured accurately in WAS (ONS 2009). The main issue is that information on benefit receipt was not collected from proxy respondents and also a significant number of respondents declined to answer the benefit receipt questions. Unlike most of the other income components, there was not enough information to impute missing benefits.

15. This measurement error in income is clearly an issue for our analysis because households relying on benefit income are more likely to be over-indebted. Indeed, initial calculations showed that 25-30% of over-indebted individuals and households (based on measures of arrears and subjective debt burden) have no non-benefit income. Ignoring the missing benefit components will lead to underestimates of the income of these households and probably of low income households in general. An alternative strategy of using only households with complete income information would clearly eliminate a large proportion of ‘at risk’ households (note that some 40% of households are missing at least one income component from a household member). A final strategy, of restricting the analysis to ‘earned income’ (using only households with positive earnings), is not appropriate either because again it selects out the poorest households and ignores other sources of income that can be used to service debt.

16. Despite these problems with the income data, and given that repayment-to-income ratios are standard in the existing over-indebtedness literature, we include them in the analysis as indicative measures derived from the new WAS data. The income questions for future waves of WAS have been reviewed (ONS 2009) and so the levels and relationships that we document here are liable to be superseded by better data in the future. In order to maximise the number of households included in the analysis, we use households with complete information on all income components (including imputed values) except benefits, replacing missing benefits with zero amounts. We can derive gross household income for all but 7% of households (which have missing imputations for other income components) using this method.² Given that income is underestimated, we expect the estimates of repayment-to-income ratios to be upward biased. Owing to the inaccuracy of the income measure, our main multivariate models exclude income as an explanatory variable; however we present additional results including income in Appendix Table A2.
17. Our basic samples, used to document the prevalence of over-indebtedness, contain 54,979 individuals in 30,594 households (26,086 households have non-missing information on income and debt repayments). The samples used in the multivariate analysis are slightly smaller (as reported in Sections 5-6) because we have to drop observations with missing values for the covariates (e.g. the debt attitude questions are not asked to proxy respondents).

² Missing investment income (which was not imputed by ONS) was also set to zero.

3. Prevalence of over-indebtedness

18. In this section we document the prevalence of over-indebtedness in Great Britain according to a set of indicators derived from the WAS data.

19. Thanks to the dual household and individual components of WAS, unlike most other studies we are able to analyse over-indebtedness at both the household and individual level. As indicated above, the arrears, subjective burden and credit commitments indicators have both individual and household level versions. The following two tables present the prevalence of over-indebtedness calculated at the individual (Table 1) and household level (Table 2).

Table 1: Indicators of over-indebtedness at individual level

Indicator	%	Base (individuals)
Any unsecured arrears (including insolvency)	3.7	54,979
- among unsecured borrowers only	5.6	36,495
Number of arrears among unsecured borrowers		1,844
1	87.6	
2	10.5	
3	1.7	
4	0.2	
Unsecured debt is a “heavy burden”	6.0	54,979
- among unsecured borrowers only	9.3	36,362
Number of individual (unsecured) credit commitments		54,979
0	64.1	
1	18.4	
2	9.0	
3	4.3	
4	2.2	
5+	2.1	

Notes: Estimates are weighted for survey design and non-response.

20. Table 1 shows that 4% of individuals were in arrears on unsecured debt, rising to 6% when we exclude those with no unsecured borrowing. The vast majority of those in arrears (88%) were behind with payments on only one product. Perception that debt is a burden was more widespread than actual arrears, as has been documented in previous studies (BERR 2008; BIS 2010). Some 6% of individuals reported that unsecured debt was a heavy burden, rising to 9% among borrowers. Disney et al (2008) suggest that these perceptions may be fuelled by media coverage and be related to the household’s own self-esteem and economic stability. The breakdown of the number of credit commitments shows that 36% of individuals were borrowers, and that about 9% of individuals had three or more credit commitments.

Table 2: Indicators of over-indebtedness at household level

Indicator	%	Base (households)
Any arrears in hh (including insolvency)	10.4	30,594
- only among hhs with credit (inc mortgage)	12.7	18,407
Number of arrears among hhs with credit (inc mortgage)		2,921
1	75.7	
2	17.2	
3	5.0	
4	1.1	
5	0.8	
6	0.1	
7	0.1	
Any debt in the hh is a “heavy burden”	13.9	30,594
- only among hhs with credit (inc mortgage)	16.9	18,376
Number of credit commitments in hh (inc mortgages)		30,594
0	36.8	
1	22.7	
2	13.9	
3	9.5	
4	6.3	
5	3.8	
6	2.6	
7	1.7	
8+	2.7	
Unsecured repayments/income > 25%	8.8	26,086
All repayments/income > 50%	7.8	26,086

Notes: Estimates are weighted for survey design and non-response; Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

21. Not surprisingly, Table 2 indicates that the household-level indicators (based on indebtedness reports from all adult household members) show a higher prevalence of over-indebtedness than when individuals are considered in isolation. This is partly because, unlike the individual indicators, the household measures include mortgages and any arrears on household bills. We see that 10% of all households reported being in arrears on at least one credit payment, rising to 13% among those households with credit commitments. As for individuals, more households perceived that debt was a burden than actually fell behind with payments: 14% of households reported that any of their debts represented a heavy burden (17% among borrowing households). Although this may seem to indicate that households are overly pessimistic about their debt position, the reality is more complex: there is a large proportion of households in arrears which did not report that debt was a burden – as we see below when we examine how the different indicators overlap.

22. Some 63% of households had some form of credit, including mortgages. Further examination (not shown in table) shows that only a minority of households, 13%, had a mortgage only, 25% had a mortgage and unsecured debt, and another 25% had

unsecured debt only. Therefore most mortgage holders had other forms of debt too and about half of unsecured creditors also had mortgages. We see that 17% had 4 or more commitments, which is the conventional over-indebtedness indicator based on credit commitments. This figure is higher than the arrears or burden indicators, and also higher than the indicators based on the repayment-to-income ratios. Over-indebtedness based on the repayment-to-income ratios is lowest of all, indicating that 9% of households made unsecured debt repayments amounting to more than 25% of gross household income, and 8% made total debt repayments of more than 50% of income. In light of the limitations in the WAS income measures discussed above, these figures should be treated with caution. It is not easy to gauge the likely bias arising from missing benefit (and investment) data, but to the extent that incomes are underestimated (particularly among low income households), the repayment-to-income ratios may be overestimates. Improvements to the income questions are expected in future waves of WAS (ONS 2009), so the figures presented here should be treated as provisional estimates which are liable to be considerably revised as better data become available.

23. Table 3 compares the WAS indicators with over-indebtedness measures from previous studies (as summarised in BIS 2010). As detailed in the notes to the table, the definitions of the indicators differ somewhat across surveys. Thus the aim of the comparison is not to detect any trends over time in over-indebtedness but instead to check whether the WAS estimates fall into the same range as previous surveys. We see that in general the WAS figures are similar to previous estimates except that the number of household credit commitments is substantially higher than those measured in both the MORI 2002 survey and the DebtTrack survey (which began just after the first wave of WAS ended in mid-2008). The DebtTrack survey measured the number of types of credit rather than counting products individually, so our higher figure is best compared with the 2002 survey and could reflect the development of the credit market since then.

Table 3: Comparison of over-indebtedness indicators

	MORI household survey (Kempson, 2002)	MORI survey of individuals (DTI, 2004)	DebtTrack online household survey (BIS, 2010)	WAS	WAS
Indicator	% hseholds	% individuals	% hseholds	% individ uals	% hseholds
Arrears	13	4	9	4	10
Unsecured repayment/income > 25%	5	8	8	–	9
Repayments are heavy burden	–	4	15	6	14
4+ unsecured credit commts	7	6	11	4	17

Notes: Based on Table 5.2, BIS (2010); Arrears measure is "currently behind with any payments" in the MORI household survey; and more than 3 months behind in the DebtTrack survey; Unsecured repayment/income threshold is 30% in DebtTrack survey; Number of credit commitments refers to different types of commitment in DebtTrack survey.

24. Given the various alternative indicators of over-indebtedness, it is important to assess the degree to which they overlap (and therefore capture a single dimension of over-

indebtedness) and the degree to which they diverge (and therefore capture different dimensions). Tables 4 and 5 show that there is only partial overlap of the indicators (Table 5 includes both the conventional household credit commitments indicator, positive for 17% of households, and a more restrictive indicator for 5 or more commitments, which is positive for 11% of households). To some extent the partial overlap arises mechanically from the different aggregate proportions of the indicators, but it also seems to reflect different aspects of over-indebtedness.

Table 4: Overlap of individual -level over-indebtedness indicators

Over-indebted according to indicator:	% over-indebted according to other indicators			
	Any unsecured arrears	Unsecured debt is heavy burden	4+ credit commitments	N
Any unsecured arrears	–	43.6	26.4	1858
Unsecured debt is “heavy burden”	26.8	–	25.8	3066
4+ credit commitments	22.9	36.5	–	4371
All	3.7	6.0	4.3	54979

Notes: Estimates are weighted for survey design and non-response.

Table 5: Overlap of household-level over-indebtedness indicators

Over-indebted according to indicator:	% over-indebted according to other indicators						N
	Any hh arrears	Any hh debt is heavy burden	4+ credit commts	5+ credit commts	Unsec repay/ inc>25 %	All repay /inc> 50%	
Any household arrears	–	46.4	41.6	29.5	19.4	14.1	2928
Any household debt is “heavy burden”	34.8	–	47.0	33.6	18.8	17.6	3890
4+ credit commitments	25.4	38.2	–	63.3	22.7	17.3	4742
5+ credit commitments	28.5	43.2	100.0	–	27.0	19.9	2975
Unsecured repayments/inc >25%	21.6	27.6	36.4	26.7	–	69.8	2240
All repayments/inc >50%	17.8	29.1	31.4	22.3	78.9	–	1993
All	10.4	13.9	17.1	10.8	8.8	7.8	30594

Notes: Estimates are weighted for survey design and non-response.

25. Other than the measures which are linked by construction (the two household commitment indicators and the two repayment-to-income ratios), the biggest overlaps are between arrears and subjective debt burden, and between credit commitments and subjective debt burden. However, the direction from which we look at these

relationships matters. For instance, Table 4 shows that 44% of individuals in arrears perceive debt to be a heavy burden (suggesting a reasonable degree of overlap), but only 27% of those who perceive debt to be a heavy burden are actually in arrears. This indicates that subjective burden is capturing a broader notion of being over-indebted than currently experiencing problems meeting repayments. It is possible that the subjective indicator could act as an early warning of future arrears problems, but without longitudinal data we cannot test this possibility. Being in arrears, particularly at the household level, is also a strong predictor of having many credit commitments (Table 5 shows that 42% of households in arrears have 4 or more commitments), but we see that having many credit commitments is a less good predictor of being in arrears (25% of households with 4 or more commitments are in arrears). Having many commitments is also a fairly good predictor of perceiving debt to be a burden (38%/43% of households with 4/5 or more commitments perceive their debts to be a heavy burden). Again, being heavily committed could be a warning sign of future problems rather than a symptom of current problems (or simply a reflection of borrowing early in the lifecycle in anticipation of future earnings).

26. The differences between these indicators highlight the need to analyse them separately and examine in more detail how they are correlated with a range of socio-economic factors. In subsequent sections we tabulate the bivariate associations between the indicators and various personal and household characteristics, and estimate multivariate models that control for potentially confounding and mediating factors.

4. Factors associated with over-indebtedness

27. Having described the prevalence of over-indebtedness and overlap between measures of over-indebtedness, we now investigate the individual and household characteristics of people who are over-indebted. This analysis takes two forms. The first is descriptive and highlights bivariate relationships between over-indebtedness and a range of characteristics of individuals and the households in which they live. We then extend this to multivariate analysis, which allows for potentially mediating or confounding factors in identifying characteristics associated with over-indebtedness. Both analyses are conducted at the individual and the household level.

4.1 Descriptive analysis of over-indebtedness at the individual level

28. Table 6 presents the prevalence of over-indebtedness at the individual level, as measured by being in arrears with any unsecured credit commitment, feeling that unsecured debt is a heavy burden, and the number of credit commitments, by a range of characteristics.

Age

29. Consistent with much previous research (BERR 2008; Disney et al 2008; Kempson 2002; Kempson et al 2004), Table 6 indicates that over-indebtedness is most common among young adults, particularly those aged 25–34. The proportion with unsecured arrears was highest among 25–34 year olds, at 6.2%, and this fell progressively to 5.2% among 35 to 44 year olds, 4% among 45 to 54 year olds and 2.1% among 55 to 64 year olds. Less than 1% of those aged 65 or above had any unsecured arrears. A similar pattern emerges with the subjective burden indicator – the proportion of people reporting that unsecured debt is a heavy burden increased from 5.8% among 16–24 year olds to 9.1% among 25 to 34 year olds and then fell continuously with age such that 4% of people aged 55 to 64 and less than 2% of those aged 65 and above were over-indebted on this measure. The number of unsecured credit commitments is highest among people aged 25 to 44 (at one commitment), and likewise falls continuously with age. The age profile of credit commitments is consistent with a lifecycle pattern of borrowing at younger ages, which in some cases leads to problems of over-indebtedness. Another explanation for the low prevalence of over-indebtedness at older ages might be that older cohorts (who grew up in an era when credit was less accessible) are more cautious in their financial behaviour. However, without quite long runs of longitudinal data we cannot separate age from cohort effects.

Housing tenure

30. Descriptive statistics indicate that generally social tenants had the highest levels of over-indebtedness, while people who own their home outright had the lowest levels. Again this is consistent with previous findings (BERR 2008; Kempson 2004). More than 7% of social tenants had unsecured arrears, compared with 6.8% of private tenants, 3.5% of mortgage holders and less than 1% of outright owners. A similar pattern emerges with the subjective burden indicator – 12% of social tenants reported that their unsecured debt is a heavy burden compared with 1.2% of outright owners. In contrast, mortgage holders had most unsecured credit commitments (an average of one), although the difference with social and private tenants is small.

Table 6: Indicators of over-indebtedness at individual level, by selected characteristics

	Any unsecured arrears (%)	Unsecured debt is heavy burden (%)	Number of unsecured credit commitments
Age			
16-24	4.6	5.8	0.6
25-34	6.2	9.1	1.0
35-44	5.2	8.8	1.0
45-54	4.0	7.5	0.9
55-64	2.1	3.9	0.5
65-74	0.9	1.9	0.3
75-84	0.3	0.7	0.1
85+	0.0	0.2	0.0
Housing tenure			
Owned outright	0.8	1.2	0.3
Buying with mortgage	3.5	6.1	1.0
Part rent, part mortgage	4.5	11.4	1.0
Social tenant	7.3	12.0	0.8
Private tenant	6.8	9.7	0.9
Rent free	2.9	3.5	0.5
Household gross annual income			
<£10k	5.2	9.4	0.5
£10k-20k	3.8	7.1	0.6
£20k-30k	4.4	6.5	0.8
£30k-40k	3.9	6.3	0.9
£40k-50k	3.7	4.8	0.9
£50k+	2.0	3.3	0.8
Government office region			
North-East	4.1	4.7	0.8
North-West	4.1	5.9	0.7
Yorkshire and Humber	3.1	4.8	0.7
East Midlands	4.1	6.4	0.7
West Midlands	3.6	6.0	0.7
East of England	3.5	6.2	0.7
London	4.8	8.1	0.7
South East	3.4	6.2	0.8
South West	3.9	6.2	0.7
Wales	3.4	4.6	0.5
Scotland	2.6	5.1	0.6

Continued over page

Table 6 continued

	Any unsecured arrears (%)	Unsecured debt is heavy burden (%)	Number of unsecured credit commitments
Household type			
Single, over SPA	0.8	2.4	0.2
Single, under SPA	6.0	11.2	1.0
Married/cohabiting, both over SPA, no children	0.4	0.9	0.2
Married/cohabiting, both under SPA, no children	3.0	4.7	0.8
Married/cohabiting, 1 over / 1 under SPA, no children	1.4	1.8	0.4
Married/cohabiting, dependent children	4.7	7.4	0.9
Married/cohabiting, non-dependent children	2.7	3.2	0.6
Lone parent, dependent children	12.4	22.1	1.3
Lone parent, non-dependent children	4.8	7.1	0.7
2+ families / other household type	3.9	5.6	0.6
Highest educational qualification			
Degree	2.8	4.7	0.8
Other qualifications	4.5	7.3	0.8
No qualifications	3.1	5.1	0.4
Socio-economic classification			
Managerial and professional occupation	2.9	4.6	0.8
Intermediate occupation	3.9	6.2	0.7
Routine and manual occupation	4.7	7.6	0.7
Never worked / long-term unemployed	3.7	7.0	0.3

Continued over

Table 6 continued

	Any unsecured arrears (%)	Unsecured debt is heavy burden (%)	Number of unsecured credit commitments
Activity status			
Employee	4.2	6.4	1.0
Self-employed	3.9	6.3	0.9
Unemployed	9.3	13.8	0.7
Student	3.8	7.2	0.6
Looking after family	7.0	12.7	0.7
Sick or disabled	7.9	14.6	0.7
Retired	0.6	1.4	0.2
Other	4.5	7.6	0.5
“...buy things when can't really afford”			
strongly agree	14.6	24.6	1.7
tend to agree	10.1	18.3	1.7
neither agree nor dis	7.4	11.7	1.3
tend to disagree	4.2	7.6	1.0
strongly disagree	1.9	3.6	0.4
don t know/no opinion	2.1	5.2	0.4
“...more a saver than spender”			
strongly agree	1.1	2.5	0.3
tend to agree	2.0	3.7	0.5
neither agree nor dis	3.2	6.3	0.7
tend to disagree	6.2	11.0	1.2
strongly disagree	11.4	18.5	1.5
don t know/no opinion	3.7	6.8	0.4
“...buy things on credit and pay later”			
strongly agree	8.8	19.4	1.6
tend to agree	7.2	13.7	1.6
Neither agree nor dis	6.0	10.5	1.4
tend to disagree	4.3	7.1	0.8
strongly disagree	2.3	3.8	0.4
don t know/no opinion	3.1	4.5	0.3

Continued over

Table 6 continued

	Any unsecured arrears (%)	Unsecured debt is heavy burden (%)	Number of unsecured credit commitments
“Tend to shop around for best deal on interest rates etc.”			
strongly agree	3.3	7.0	1.0
tend to agree	3.9	7.1	0.9
Neither agree nor dis	4.5	7.4	0.6
tend to disagree	4.8	8.2	0.8
strongly disagree	5.1	8.1	0.6
don t know/no opinion	3.6	7.8	0.4
Ever sought debt advice			
Yes	24.0	34.5	2.2
No	3.5	7.0	1.0

Notes: Estimates are weighted for survey design and non-response. Missing benefit and investment income components are set to zero in the calculation of household gross annual income.

Household income

31. As noted in Section 2, household income is not accurately measured in WAS but we present some indicative results of over-indebtedness by gross household income categories. Table 6 suggests that, as we might expect, over-indebtedness is more prevalent among low income households, particularly using the subjective burden indicator. More than 5% of individuals living in households with a gross annual income of less than £10,000 had unsecured arrears, compared with about 4% of those in households with annual incomes of between £10,000 and £50,000, and 2% of households with annual incomes exceeding £50,000. Individuals in households with an annual income of less than £10,000 are also three times more likely than those with incomes exceeding £50,000 to report that their unsecured debt is a heavy burden (9.4% compared with 3.3%). However, the final column indicates that people in higher income households on average had more credit commitments than those with lower incomes. These relationships between over-indebtedness and income are generally consistent with previous research (see, for example, BERR 2008).

Region

32. Indebtedness levels vary among regions, but the differences are smaller than the gaps between socio-economic groups (as defined by age, income, tenure etc). London stands out as having high levels of unsecured arrears (4.8%) and perceptions of high debt burden (8.1%), compared to the national averages of 3.7% and 6.0% respectively (Table 1), while Scotland and Wales had the lowest levels of subjective debt burden (5.1% and 4.6%) and almost the lowest unsecured arrears (2.6% and 3.4%). The mean number of credit commitments is also the lowest in Scotland and Wales (0.6 and 0.5), while the highest numbers are found in the South East (0.8) and the North East (0.8).

Household type

33. Table 6 indicates that over-indebtedness is most common among lone parents with dependent children (see also BERR 2008; Kempson 2002). More than 12% of this group had unsecured arrears while 22% reported their unsecured debt to be a heavy burden. This prevalence of over-indebtedness is double that of the next most at risk

group – single people under the state pension age (SPA) – of whom 6% had unsecured arrears and 11% reported unsecured debt to be a heavy burden. In contrast single people over the SPA and married or cohabiting people with no children had relatively low levels of over-indebtedness. Lone parents with dependent children and single people of working age also on average had the most credit commitments, at 1.3 and 1 respectively.

Education

34. Little systematic relationship emerges between over-indebtedness and level of education. Table 6 suggests that unsecured arrears and the subjective burden of unsecured debt are most common among people with intermediate levels of qualifications and lowest for those educated to degree level. However the more highly educated also on average had more unsecured credit commitments than those with no qualifications. This could reflect differences in ‘permanent’ (or lifetime) income between these groups: if highly educated people have higher average income in the long-term, they have more capacity to borrow to maintain current consumption levels.

Socio-economic classification

35. We find that people in higher status occupations had lower levels of over-indebtedness than those in lower status occupations or who had become detached from the labour market. For example 3% of people in managerial and professional occupations had unsecured arrears, compared with 5% of those in routine and manual occupations, and 4% in intermediate occupations or who have never worked/in long-term unemployment. Similarly, those in routine and manual occupations or who have never worked or are in long-term unemployment were most likely to report that their unsecured debt is a heavy burden (more than 7% did so, compared with 4.6% of those in managerial or professional occupations). The association between socio-economic classification and the number of credit commitments is rather different, with those in higher status occupations on average having most credit commitments. Again this is likely to be a permanent income effect.

Activity status

36. Table 6 indicates that over-indebtedness is most prevalent among people who are unemployed, looking after the family or sick or disabled while the lowest levels of over-indebtedness are among the retired (see also BIS 2010; Kempson et al 2004). More than 9% of the unemployed had unsecured arrears, while 14% reported that their unsecured debt is a heavy burden. Similar levels of over-indebtedness emerge among those looking after the family and the sick or disabled. Employees and the self-employed had similar levels of over-indebtedness, with about 4% of these groups having unsecured arrears and 6% reporting that their unsecured debt is a heavy burden. Levels of over-indebtedness were very low among the retired (less than 1% had unsecured arrears, and 1.4% reported debt being a heavy burden). People in work on average have higher incomes, and this is reflected in the higher number of credit commitments they had compared to people who are not currently working.

Attitudes to debt

37. The next four sections of Table 6 focus on people’s attitudes to debt. As expected, these reveal strong relationships between over-indebtedness using all three indicators and the extent of agreement with ‘...buy things when can’t really afford’, being ‘...more a saver than spender’ and ‘...buy things on credit and pay later’. For example, 15% of people who strongly agreed that they buy things when they can’t really afford them had unsecured arrears compared with 1.9% of people who strongly disagreed. Similarly large differences in the subjective burden indicator and number of credit commitments also emerge – with one in four people who strongly agreed with this statement reporting

that their unsecured debt is a heavy burden. About 1% of people who strongly agreed that they are more a saver than a spender had unsecured arrears compared with 11% of those who strongly disagreed, and almost 9% of people who strongly agreed that they buy things on credit and pay later had unsecured arrears, compared with 2% of people who strongly disagreed. Again, similar differences are apparent with the subjective burden indicator and number of credit commitments. However some caution is needed in interpreting these associations as such attitudes could reflect, as much as cause, financial behaviour.

38. There is less of an association between levels of over-indebtedness and the extent to which people agree that they 'tend to shop around for best deals on interest rates etc.' People who disagreed with this statement were more likely to have unsecured arrears (5% compared with less than 4% among those who agreed) and report that their unsecured debt is a heavy burden (8% compared with 7% who agreed). However people who agreed with this statement on average had more credit commitments. This may be because people with more credit commitments are more concerned about the amount of interest being paid.

Debt advice

39. The final section of the table examines the relationship between the receipt of debt advice and over-indebtedness. This reveals stark differences, with people who had ever received debt advice experiencing substantially higher levels of over-indebtedness than those who had not. For example, 24% of people who had received debt advice had unsecured arrears compared with 3.5% of those who had not, while 34.5% reported that their unsecured debt is a heavy burden compared with 7% of those who had not. Those that had sought debt advice also had on average one more credit commitment (2.2 compared with one). These large differences are likely to reflect the fact that the most over-indebted will also be most likely to seek debt advice, plus any debt restructuring (reflected in additional credit commitments) that may result from receiving debt advice. An important policy question is whether receipt of debt advice leads to lower indebtedness – it is clear that this question cannot be answered by looking at the cross-sectional correlation only because the relationship can go in both directions. In Section 6 we examine the association between receiving advice and transitions out of over-indebtedness. This provides more information, although the timescale is rather short (a year).

4.2 Descriptive analysis of over-indebtedness at the household level

40. We now examine factors associated with over-indebtedness at the household level, summarised in Table 7. The household level analysis allows us to also look at relationships between household characteristics and the unsecured debt repayment-to-income ratio and the total repayment-to-income ratio, as well as the arrears, subjective burden and number of credit commitments indicators. In this table we summarise over-indebtedness by a number of household-level characteristics in addition to key characteristics of the household reference person (HRP), usually the head of household or the spouse.

Age of household reference person

41. The relationship between over-indebtedness and age found at the individual level persists at the household level. Generally households in which the HRPs are aged less than 34 had the highest levels of over-indebtedness. One in four households in which the HRP is aged 16–24 had some arrears, and this falls to 15% in households where the HRP is aged 35–44, and to less than 4% where the HRP is aged 65 or above. One in five households where the HRP is aged 16–44 had any debt that is a heavy burden,

which falls to less than 5% in households where the HRP is aged 65 or more. Similar patterns emerge with the number of credit commitments. There is evidence, however, that the relationships between age of HRP and debt repayment ratios are not linear. The proportion of households where unsecured repayments exceed 25% of income falls from 13% when the HRP is aged less than 25 to about 7% when the HRP is aged between 65 and 74. However, it is noticeably higher (11.6%) among households where the HRP is aged 85 or above. A similar pattern emerges for all repayments exceed 50% of income.

Table 7: Indicators of over-indebtedness at household level, by selected characteristics

	Any arrears in hh (%)	Unsecured repayments > 25% hh income	All repayments >50% hh income	Any debt in hh is heavy burden	Number of credit commitments
Age of HRP					
16-24	25.0	13.3	9.9	20.3	2.1
25-34	17.3	10.8	8.3	20.7	2.7
35-44	15.1	8.5	8.9	21.4	2.5
45-54	12.1	8.9	8.3	18.1	2.3
55-64	6.2	8.5	7.1	9.4	1.4
65-74	3.2	7.5	6.0	4.3	0.6
75-84	1.2	6.6	5.9	1.4	0.2
85+	0.5	11.6	11.3	1.0	0.1
Housing tenure					
Owned outright	1.8	5.9	4.2	2.1	0.5
Buying with mortgage	7.8	7.2	10.6	21.5	3.0
Part rent, part mortgage	8.2	9.0	4.7	18.9	2.3
Social tenant	23.7	14.2	9.3	17.0	1.4
Private tenant	20.2	11.5	6.7	15.6	1.8
Rent free	5.9	12.4	9.1	4.8	0.8
Household gross annual income					
<£10k	15.2	19.4	17.5	12.6	0.9
£10k-20k	11.4	5.6	5.2	13.0	1.2
£20k-30k	10.5	6.0	5.6	15.3	1.9
£30k-40k	8.5	4.8	3.7	16.4	2.5
£40k-50k	7.5	4.2	3.1	15.9	2.6
£50k+	4.8	3.4	2.5	12.5	2.6

Continued over

Table 7 continued

	Any arrears in hh (%)	Unsecured repayments > 25% hh income	All repayments >50% hh income	Any debt in hh is heavy burden	Number of credit commitments
Government office region					
North-East	10.3	10.1	8.2	10.5	1.8
North-West	11.6	9.5	8.8	13.4	1.8
Yorkshire and Humber	9.9	9.1	7.9	11.8	1.8
East Midlands	10.5	8.7	6.9	14.1	1.9
West Midlands	10.2	8.6	7.0	15.1	1.7
East of England	9.0	8.6	8.3	14.3	1.8
London	13.9	10.2	9.7	18.4	1.8
South East	9.5	8.3	7.3	15.4	2.0
South West	10.1	8.1	7.0	14.4	1.7
Wales	9.7	6.5	6.4	10.4	1.4
Scotland	8.8	8.7	7.4	10.0	1.5

Continued over

Table 7 continued

	Any arrears in hh (%)	Unsecured repayments > 25% hh income	All repayments >50% hh income	Any debt in hh is heavy burden	Number of credit commitments
Household type					
Single, over SPA	2.2	10.4	9.3	3.0	0.3
Single, under SPA	13.7	11.6	11.3	15.7	1.5
Married/cohabiting, both over SPA, no children	1.1	4.3	3.4	2.1	0.4
Married/cohabiting, both under SPA, no children	7.2	6.9	5.9	12.1	2.3
Married/cohabiting, 1 over / 1 under SPA, no children	3.2	5.4	4.1	5.0	1.1
Married/cohabiting, dependent children	12.6	8.0	7.7	21.6	2.8
Married/cohabiting, non-dependent children	8.3	4.5	3.2	12.7	2.5
Lone parent, dependent children	31.9	15.3	12.2	29.5	2.1
Lone parent, non-dependent children	15.8	9.8	7.5	17.5	1.8
2+ families / other household type	16.3	9.5	7.4	18.5	2.3

Continued over

Table 7 continued

	Any arrears in hh (%)	Unsecured repayments > 25% hh income	All repayments >50% hh income	Any debt in hh is heavy burden	Number of credit commitments
Highest educational qualification of HRP					
Degree	5.6	6.2	6.5	12.4	2.0
Other qualifications	12.3	8.8	7.4	16.3	2.0
No qualifications	10.9	11.3	9.7	10.0	1.0
Socio-economic classification of HRP					
Managerial and professional occupation	5.7	6.3	6.0	12.2	2.0
Intermediate occupation	10.1	10.1	9.5	14.8	1.8
Routine and manual occupation	14.6	9.7	8.0	15.0	1.5
Never worked / long-term unemployed	23.7	17.6	13.9	17.3	1.1

Housing tenure

42. A less consistent pattern emerges between household-level over-indebtedness and housing tenure than at the individual level. About one in five households that rent their accommodation had any arrears, compared with 8% of mortgage households and less than 2% of home-owning households with no mortgage. A similar pattern emerges when using the unsecured debt repayments exceed 25% of household income indicator – tenants are more likely to be over-indebted than home-owners (see also, for example, BERR 2008; BIS 2010). However the remaining indicators reveal a different pattern. In particular, households with a mortgage are most likely to be over-indebted when using the subjective burden indicator, the number of credit commitments, and all debt repayments exceed 50% of household income. For example, 11% of mortgaged households had debt repayments that exceed 50% of income (compared with 9% of social and 7% of private tenants), while 22% had some debt that is a heavy burden (compared with 17% of social and 16% of private tenants). Such households also had approximately double the number of credit commitments than tenants (3 compared with 1.4 and 1.8). The extent of over-indebtedness among mortgaged households using these indicators reflects the fact that in these indicators the mortgage and the associated repayments are components of the household debt.

Table 7 continued

	Any arrears in hh (%)	Unsecured repayments > 25% hh income	All repayments >50% hh income	Any debt in hh is heavy burden	Number of credit commitments
Activity status of HRP					
Employee	10.4	5.5	4.7	16.8	2.4
Self-employed	9.4	12.2	14.3	17.2	2.2
Unemployed	38.0	25.5	22.1	30.0	1.8
Student	15.9	26.8	24.3	14.4	1.6
Looking after family	34.7	18.8	12.4	26.2	1.9
Sick or disabled	26.7	18.8	16.1	22.9	1.5
Retired	2.2	8.1	7.2	2.9	0.4
Other	20.4	32.2	29.5	17.9	1.3
Number of working household members					
0	10.5	12.8	11.0	8.9	0.7
1	12.0	7.0	7.0	16.6	1.8
2	8.6	5.8	5.0	16.3	2.8
3	12.2	5.0	2.6	18.3	3.2
4	11.4	2.4	1.1	19.6	3.4
5	8.2	0.0	0.0	15.1	2.5

Notes: Estimates are weighted for survey design and non-response. Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

Household income

43. With the caveats noted above about the income measure, Table 7 reveals strong inverse relationships between household income and household over-indebtedness using the arrears and repayment ratio indicators, consistent with previous research (Kempson et al 2004). For example, 15% of households with an income of less than £10,000 per annum had some arrears, compared with 5% of those with an annual income of £50,000 or more. Almost 20% of households with an income of less than £10,000 had unsecured debt repayments that exceed 25% of their income, compared with less than 5% of those with incomes exceeding £30,000 per annum. A similar pattern emerges when using total repayments exceed 50% of household income.

44. However different patterns emerge with the subjective burden and number of credit commitments indicators. The level of over-indebtedness according to the subjective burden indicator initially increases with income, from 12.6% in households with an annual income of less than £10,000 to 16.4% among households with an annual income of between £30,000 and £40,000. It then falls to 12.5% among households with an income of £50,000 or more. This may reflect the fact that the household burden measure includes mortgage repayments, although BERR (2008) report no relationship between household income and the subjective burden indicator of over-indebtedness at the household level. The number of credit commitments in the household increases continuously with household incomes from an average of less than one in households with incomes of less than £10,000 per annum to 2.6 in households with annual incomes exceeding £40,000. People in high income households had more credit commitments, a pattern that emerged in the individual-level analysis and in previous research (e.g. BERR 2008).

Region

45. As for over-indebtedness measured at the individual level (Table 6), Table 7 shows relatively modest variation in household over-indebtedness across regions. Again, London had the highest over-indebtedness on most measures, in particular 18% of households reported that debt was a heavy burden (compared to the national average of 14%, Table 2). Scotland and Wales had the lowest subjective debt burdens (10.0% and 10.4%) and scored low down on the other measures too (e.g. 6.5% of households paid more than 25% of income in unsecured repayments, compared to 10.2% in London). The exception was for the number of credit commitments, which was highest in the South East (2.0), a region which scored quite low on the repayment indicators (8.3% of households paid more than 25% of income in unsecured repayments, compared to 10.2% in London) and arrears (9.5% of households, compared to 13.9% in London). This indicates that extensive use of credit may reflect prosperous economic conditions as much as risky financial behaviour, consistent with the findings based on individual measures of economic position.

Household type

46. Table 6 indicated that lone parents with dependent children were most likely to be over-indebted, and the household-level analysis is consistent with this (note that the household measures of arrears, debt burden and credit commitments include mortgages and so that even for single households, they differ from the individual reports in Table 6). Table 7 indicates that almost one third of lone parent households with dependent children had some arrears, 15% had unsecured debt repayments that exceed 25% of household income, 12% had debt repayments exceeding 50% of income, and 30% had some debt that was a heavy burden (see also BIS 2010). Households over the SPA are least likely to be over-indebted using the arrears and subjective burden indicators, but elderly single person households (and single person households more generally) had relatively high over-indebtedness using the repayment ratios. This may reflect their relatively low household incomes or fact that a relatively large proportion of their income is from benefits or investments (which are undercounted in the derived measure). On average, couples with children (either dependent or non-dependent) had the most credit commitments (2.5), while single and married households over the SPA had the fewest (less than 0.5).

Education level of the HRP

47. Households in which the HRP has a degree are least likely to have any arrears (5.6%), to have unsecured debt repayments that exceed 25% of household income (6.2%), and to have all debt repayments exceeding 50% of income (6.5%). Furthermore, households in which the HRP has no qualifications are most likely to be over-indebted according to the repayment-to-income ratios (11.3% and 9.7%). This is, therefore, some evidence that education reduces the probability of over-indebtedness. However households in which the HRP has no qualifications are least likely to have any household debt that is a heavy burden (10%) and the fewest number of credit commitments. Therefore as with the individual level analysis, no consistent relationship emerges between over-indebtedness and level of education.

Socio-economic classification of the HRP

48. Table 7 indicates that households in which the HRP is in a more highly skilled occupation are least likely to be over-indebted. Fewer than 6% of such households had any arrears, 6% were over-indebted according to the repayment-to-income ratios, and 12% were over-indebted using the subjective burden indicator. Over-indebtedness is more common among households where the HRP is in intermediate or routine and manual occupations, but is most likely in households where the HRP has never worked or is in long-term unemployment. For example of the latter group, 24% had arrears, 18% had unsecured debt repayments that exceed 25% of their income, 14% had repayments that exceed 50% of income, and 17% reported that any debt is a heavy burden. However households in which the HRP is in a more skilled occupation had on average more credit commitments, which is likely to reflect their higher permanent incomes.

Activity status of HRP

49. Unemployment, looking after the family and long-term sickness or disability among HRPs are associated with high levels of over-indebtedness. For example, 38% of households in which the reference person is unemployed had some arrears, as did 35% of households in which the HRP is looking after the family and 27% in which (s)he is sick or disabled. In contrast, only 2% of retired households and 10% of households in which the HRP is working had arrears. A similar pattern emerges using the subjective burden indicator.

50. A large proportion of households in which the HRP is a student were over-indebted using the repayment-to-income ratio indicators. About 25% were over-indebted using these measures, similar to that for households in which the HRP is unemployed, which probably reflects the relatively low incomes of such households. However households in which the HRP are employees or self-employed had the most credit commitments (an average of 2.4 and 2.2 respectively), while those in which the HRP is economically inactive had an average of between 1.5 and two credit commitments. Retired households had the least (0.4 on average).

Number of working household members

51. The final section of Table 7 examines over-indebtedness at the household level by the number of working household members. This reveals a rather inconsistent pattern. For example, no relationship emerges between having any arrears in the household and the number of working household members which suggests that workless households are no more at risk of over-indebtedness than working households. Furthermore, the extent to which any debt in the household is a burden increases with the number employed in the household: 9% of workless households reported that any household debt is a burden compared with about 16% of single- and dual-earner households. Similarly, the

average number of credit commitments in the household increases with the number of working household members, from less than one in workless households to three or more in households with more than two working members. These patterns could be attributed to the fact that households with more working members tend also to be larger households, and so more likely to report credit use (and problems) by at least one member. In the multivariate analysis, we include the number of working member and also control for household size.

52. However when using the repayment-to-income ratios a more consistent pattern emerges indicating that workless households were more likely to be over-indebted than working households. For example, 13% of workless households had unsecured debt repayments that exceed 25% of household income while 11% had debt repayments exceeding 50% of income. These compare to about 7% of single-earner households and 5% of dual-earner households.
53. These bivariate relationships, while interesting and revealing, do not allow for potentially mediating or confounding factors in identifying characteristics associated with over-indebtedness. For example, we have found that people who are unemployed have higher levels of over-indebtedness than those in work, but this might be because unemployed people tend to have lower permanent incomes (due to lower levels of education, or lower-paid occupations), or because unemployment is accompanied by a drop in income, and it is low income rather than unemployment that causes over-indebtedness. We next explore the extent to which these bivariate relationships persist within a multivariate framework.

5. Multivariate analysis of over-indebtedness

54. The next stage in the analysis is to investigate the relationships between over-indebtedness and individual and household characteristics in more detail. We do so using multivariate models which allow us to control for other (observable) characteristics of households that might be correlated with their propensity to be over-indebted (such as activity status, housing tenure, age etc) in identifying key factors associated with over-indebtedness. The WAS is a particularly rich source of a wide range of such characteristics, allowing more reliable and robust coefficients to be estimated.

55. In these analyses, some of the dependent variables of interest (our measures of over-indebtedness) are binary; that is they indicate whether or not a person (or household) has any unsecured arrears, or whether unsecured debt is a heavy burden etc. Therefore binary dependent variable models are appropriate in this context, and we estimate probit models. We can write the model to be estimated as the following, where y_i is our measure of over-indebtedness for individual i and x_i is a vector of observed characteristics:

$$\Pr(y_i = 1|x_i) = F(\beta x_i) \quad (1)$$

56. $F(\bullet)$ is the cumulative normal distribution. A positive value for β would imply that higher values of x are associated with a higher probability of over-indebtedness, while a negative β indicates that a higher x is associated with a lower probability of over-indebtedness.

57. We treat the number of credit commitments as a continuous variable, and estimate models using linear Ordinary Least Squares (OLS) regression. These can be written as:

$$y_i = \alpha_0 + \alpha_1 x_i + \varepsilon_i \quad (2)$$

58. Where y_i is the number of credit commitments, x_i is a vector of observed characteristics and α_1 is a vector of coefficients to be estimated. As before, a positive value for α_1 implies that higher values of x are associated with more credit commitments, while a negative α_1 indicates that a higher x is associated with fewer credit commitments. Comparing how a range of characteristics are associated with different measures of over-indebtedness will provide an indication of the extent to which the indicators overlap and therefore essentially capture the same thing.

59. We estimate two sets of models. The first models over-indebtedness at the individual level, including as explanatory variables a range of characteristics of the individual and the household in which (s)he lives. We estimate individual-level models both excluding and including the attitude to debt variables, which enables us to see both the impact of such attitudes and subjective measures on a person's propensity to be over-indebted and also the extent to which such variables mediate the effect of other characteristics. We correct the standard errors from these models to account for the fact that individual observations are clustered within households. The second set of models examines over-indebtedness at the household level (using one observation per household), and includes as explanatory variables characteristics of the household and of the HRP.

5.1. Multivariate analysis of individual-level over-indebtedness

60. Table 8 presents estimates from models of over-indebtedness estimated at the individual level, without responses to the attitudinal questions. The estimates from models (1) and (2) are from probit models with binary dependent variables indicating whether or not the individual had any unsecured arrears and whether or not unsecured debt was perceived as a heavy burden. In these we present marginal effects, which can be interpreted as the change in the probability of over-indebtedness associated with a one unit change in the explanatory variable, holding other variables constant at their sample mean values. The estimates in (3) are from an OLS regression with the number of credit commitments as the dependent variable, and can be interpreted as the change in the number of credit commitments associated with a one unit change in the explanatory variable, holding other variables constant.
61. Estimates in Table 8 indicate that women are significantly more likely than men to report that unsecured debt is a heavy burden, and have significantly more credit commitments. However although statistically significant, the sizes of these effects are relatively small – increasing the probability of debt being a heavy burden by 0.8 percentage points and the number of credit commitments by 0.04. Age has a consistently positive impact on over-indebtedness at younger ages but the quadratic age functions peak at around 30 years for the arrears and commitments measures, and in the mid-forties for the burden indicator, so that individuals above these ages are less likely to be over-indebted. This is consistent with research indicating that younger adults have less financial capability than older people (Atkinson et al 2006; Kempson et al 2004; Taylor 2010), and that people’s financial management skills increase with age and experience. However, the fact that over-indebtedness problems persist at least into the early thirties could indicate that the measures also partly capture lifecycle patterns of borrowing. The number of children aged under 16 also increases the probability of over-indebtedness on all three indicators, but by relatively small amounts (0.3 and 0.9 percentage points using arrears and the subjective burden indicators, and by 0.07 credit commitments).
62. The next set of covariates relate to an individual’s marital status. These indicate that married people are less likely to be over-indebted than single never married people. For example, married people are one percentage point less likely than those who have never married to have arrears and 1.4 percentage points less likely to report that debt is a heavy burden. Being married also has a negative, but statistically insignificant, impact on the number of credit commitments. In contrast, separation or divorce is associated with a statistically significantly higher probability of over-indebtedness on all three indicators. A separated or divorced person has a probability of having arrears that is 0.7 percentage points higher than a never married person, and of debt being a burden that is 2.8 percentage points higher. They also have 0.27 more credit commitments. Being a widow is also associated with having significantly more credit commitments.

Table 8: Over-indebtedness at individual level

	Any unsecured arrears (1)	Unsecured debt is heavy burden (2)	Number of credit commitments (3)
Female	0.001	0.008***	0.041***
Age/10	0.011***	0.027***	0.123***
(Age/10) squared	-0.002***	-0.003***	-0.019***
No. of children under 16	0.003***	0.009***	0.073***
<i>Marital status (base is single)</i>			
Married	-0.010***	-0.014***	-0.023
Separated or divorced	0.007***	0.028***	0.266***
Widowed	-0.005	0.007	0.097***
<i>Activity status (base is employee)</i>			
Self-employed	0.000	0.003	-0.038
Unemployed	0.019***	0.040***	-0.113***
Retired	-0.007***	-0.003	-0.187***
Sick/disabled	0.012***	0.041***	-0.094***
Student	-0.003	0.021	-0.076
Looking after family	0.003	0.011***	-0.217***
Other status	0.001	0.009	-0.281***
<i>Socio-econ class (base is routine/manual)</i>			
Managerial and prof occup	-0.003**	-0.010***	0.106***
Intermediate occup	-0.000	-0.003	0.056***
Never worked / l-t unemployed	-0.013***	-0.019***	-0.255***
<i>Highest qualification (base is none)</i>			
Degree	-0.006***	-0.002	0.032*
Other qualifications	0.003*	0.009***	0.126***
<i>Housing tenure (base is own outright)</i>			
Mortgage (inc part rent)	0.018***	0.041***	0.433***
Social tenant	0.054***	0.094***	0.451***
Private tenant	0.055***	0.091***	0.485***
Rent free	0.025*	0.031**	0.159***

Continued over

Table 8 Continued

	Any unsecured arrears (1)	Unsecured debt is heavy burden (2)	Number of credit commitments (3)
<i>Region (base is Scotland)</i>			
North-East	0.014***	-0.004	0.190***
North-West	0.014***	0.005	0.154***
Yorkshire and Humber	0.004	-0.004	0.127***
East Midlands	0.015***	0.012**	0.180***
West Midlands	0.008**	0.006	0.127***
East of England	0.009**	0.011**	0.157***
London	0.017***	0.019***	0.139***
South East	0.009***	0.011**	0.200***
South West	0.015***	0.012**	0.154***
Wales	0.013**	-0.001	0.046*
<i>N</i>	51642	51642	51642

Notes: * significant at 10%; ** significant at 5%; *** significant at 1% (significance levels account for clustering of individuals within households). Columns (1) and (2) are estimated using probit equations and report marginal effects on probability evaluated at sample means. Column (3) is estimated using OLS regression and reports marginal effects on number of credit commitments. E.g. holding other variables constant, an unemployed person has a 0.019 (=1.9 percentage points) higher probability of being in arrears and 0.12 fewer credit commitments than an employee.

63. The estimated effects of activity status are consistent with those in the bivariate analysis. In particular, being unemployed and sick or disabled is associated with significantly higher probabilities of over-indebtedness on the arrears and subjective burden indicators relative to being an employee (see also Berthoud and Kempson 1992), while it significantly reduces the number of credit commitments. The sizes of the effects are relatively large – being unemployed, for example, increases the probability of arrears by 1.9 percentage points and that of debt being a burden by four percentage points. Being sick or disabled has similar sized effects. Unemployment and sickness or disability is also associated with having fewer credit commitments (by 0.11 and 0.09 respectively). Retired people have a lower probability of arrears (by 0.7 percentage points) and have fewer credit commitments than employees (by 0.19), while those looking after the family have a higher probability of debt being a burden than employees (by 1.1 percentage points) and fewer credit commitments (by 0.22).

64. People working in managerial and professional occupations have significantly lower probabilities of over-indebtedness than those in manual occupations using the arrears and subjective burden indicators, although the sizes of the effects are relatively small (by 0.3 and one percentage point respectively), but significantly more credit commitments (which may be an income effect). The impact of skills is also captured by education level achieved, and people with a degree have a lower probability of arrears (by 0.6 percentage points) but have significantly more credit commitments than those with no qualifications. Those who have never worked or are in long-term unemployment also have lower probabilities of over-indebtedness relative to someone in a manual occupation (by between one and two percentage points, and 0.26 credit commitments).

While this may seem counter-intuitive, it may reflect the fact that such people have adjusted their debt management and financial situation to meet their long-term labour market situation.

65. The next set of variables captures an individual's housing tenure. The estimates indicate that housing tenure has relatively large and statistically significant impacts on over-indebtedness using all three measures, and being a tenant (social or private) has the largest impact of all characteristics in the model. People with a mortgage have higher probabilities of over-indebtedness than those who own their home outright – they are 1.8 percentage points more likely to be in arrears, 4.1 percentage points more likely to have debt that is a heavy burden, and have 0.4 more credit commitments. Tenants, either social or private, are 5.5 percentage points more likely than outright owners to have arrears, 9 percentage points more likely to have debt that is a heavy burden and have 0.5 more credit commitments. This is consistent with previous research which indicates that being a tenant, and a social tenant in particular, is strongly associated with the risk of arrears and with less financial capability even when controlling for a number of other characteristics (Berthoud and Kempson 1992; Herbert and Kempson 1995; Taylor 2010).
66. The equations also include 10 regional dummy variables, since as indicated in the bivariate cross-tabulations, there is variation in over-indebtedness over the regions of Great Britain. They show that regional differences remain after controlling for socio-economic composition, and broadly we see the same patterns as in Table 6: Scotland (the base category) has the lowest over-indebtedness while London has the highest according to the arrears and debt burden measures; and the South East has the largest number of credit commitments. Generally the coefficients are reduced somewhat compared to the bivariate differences (e.g. the prevalence of arrears in London is 1.7 percentage points higher than in Scotland, compared to a difference of 2.2 percentage points in the raw data, Table 6). The regional differences are also smaller than the key socio-economic impacts (for example the effect of social tenancy on the probability of arrears is 5.5 percentage points), and they would be much smaller than the combined effect of several unfavourable socio-economic characteristics. Nevertheless there appear to be genuine regional differences, which may be related to cost of living or access to credit, which should be further investigated in future research.
67. A comparison of the impact of characteristics on over-indebtedness across the three measures indicates some similarities. For example, the probability of over-indebtedness is higher for people who are divorced or separated, who have children under the age of 16 and who are tenants (either social or private). In contrast, older people are less likely to be over-indebted on all three indicators. There is more overlap between the arrears and subjective burden indicators – similar characteristics are associated with over-indebtedness on these indicators. Non-employment, and particularly unemployment and sickness or disability, increases the risk of over-indebtedness on these indicators, while employment (and employment in high-skilled occupations) and marriage reduces the risk. In contrast non-employment reduces over-indebtedness measured using credit commitments, which seem to more reflect economic success. Therefore this measure captures a different component of financial risk than the unsecured arrears and subjective burden indicators.
68. In Table 9 we add the attitude to debt variables, in particular whether individuals agree or strongly agree that they buy things they cannot really afford, they are more a saver than a spender, and they buy things on credit and pay later. The inclusion of these attitudinal variables has little impact on the estimated effects of other covariates which remain generally consistent with those in Table 8. There is some evidence that the sizes

of some effects are reduced, although differences are small. The regional coefficients are not reported for brevity, but they are also similar to Table 8, indicating (perhaps unsurprisingly) that regional differences cannot be explained by attitudinal variation across regions. However the attitudinal variables themselves have relatively large and statistically significant impacts on the probability of over-indebtedness. For example, people who agree that they buy things they cannot afford have a higher probability than those who disagree to have unsecured arrears and debt that is a heavy burden (by 1.8 and 4.1 percentage points respectively). They also have 0.5 more credit commitments.

69. People who buy on credit and pay later are 1.2 percentage points more likely to have unsecured arrears and 3.8 percentage points more likely to have debt that is a heavy burden than those who do not. They also have 0.66 more credit commitments. In contrast, people who classify themselves more as a saver than a spender have a lower probability of over-indebtedness than those who do not. Such individuals are 1.3 percentage points less likely to have unsecured arrears, 2.2 percentage points less likely to have debt that is a heavy burden, and to have 0.3 fewer credit commitments.

70. We may conclude from this that people who have a less risk-averse attitude to debt (and who therefore buy when they cannot afford and buy on credit) face higher risks of over-indebtedness than those who are more risk averse (and who save rather than spend). However care must be taken in interpreting these results. These attitudes may be endogenous; that is responses to these questions may reflect as well as cause expenditure and borrowing patterns and be a consequence of over-indebtedness. They may also be correlated with other characteristics of people that we do not observe (such as financial capability or knowledge), and it is these unobserved characteristics that are associated with over-indebtedness. These are common problems in estimating models with cross-sectional data, and more years of longitudinal data will shed light on these issues.

Table 9: Over-indebtedness at individual level, including attitude to debt

	Any unsecured arrears (1)	Unsecured debt is heavy burden (2)	Number of credit commitments (3)
Female	-0.001	0.003*	0.010
Age/10	0.006**	0.018***	0.022
(Age/10) squared	-0.001***	-0.003***	-0.008***
No. of children under 16	0.002***	0.008***	0.060***
<i>Marital status (base is single)</i>			
Married	-0.008***	-0.011***	-0.034
Separated or divorced	0.006***	0.025***	0.206***
Widowed	-0.005*	0.009	0.078***
<i>Activity status (base is employed)</i>			
Self-employed	0.001	0.006	-0.007
Unemployed	0.012***	0.034***	-0.187***
Retired	-0.007***	-0.003	-0.197***
Sick/disabled	0.011***	0.040***	-0.128***

Continued over

Table 9 Continued

	Any unsecured arrears (1)	Unsecured debt is heavy burden (2)	Number of credit commitments (3)
Student	-0.002	0.019	-0.050
Looking after family	0.003	0.009**	-0.227***
Other status	0.003	0.014*	-0.275***
<i>Socio-econ class (base is routine/manual)</i>			
Managerial and prof occup	-0.004***	-0.013***	0.077***
Intermediate occup	-0.001	-0.005**	0.027
Never worked / l-t unemployed	-0.010***	-0.013***	-0.213***
<i>Highest qualification (base is none)</i>			
Degree	-0.004**	-0.000	0.048**
Other qualifications	0.003*	0.007***	0.106***
<i>Housing tenure (base is own outright)</i>			
Mortgage (inc part rent)	0.013***	0.033***	0.343***
Social tenant	0.040***	0.072***	0.334***
Private tenant	0.041***	0.069***	0.361***
Rent free	0.019*	0.022	0.132***
<i>Attitude to debt</i>			
“Buy when can’t afford”	0.018***	0.041***	0.530***
“More saver than spender”	-0.013***	-0.022***	-0.322***
“Buy on credit and pay later”	0.012***	0.038***	0.658***
<i>N</i>	43956	43956	43956

Notes: Controls also included for region. * significant at 10%; ** significant at 5%; *** significant at 1% (significance levels account for clustering of individuals within households). Columns (1) and (2) are estimated using probit equations and report marginal effects on probability evaluated at sample means. Column (3) is estimated using OLS regression and reports marginal effects on number of credit commitments. E.g. holding other variables constant, an unemployed person has a 0.012 (=1.2 percentage points) higher probability of being in arrears and 0.19 fewer credit commitments than an employee.

5.2. Multivariate analysis of household-level over-indebtedness

71. We now turn to discussing the results from the multivariate analysis of over-indebtedness at the household level. Here we estimate five models, with the addition of two models with the repayment to ratio indicators as dependent variables. In these latter models, we additionally include household income as an explanatory variable, which due to missing data, reduces the number of cases used in estimation. It should also be remembered that because of problems with data on benefit incomes, these have been coded as zero. Consequently household income will be under-estimated for households who receive a substantial proportion of their income from benefits. (It is for these reasons that we have excluded income from the other models. To check the sensitivity to this exclusion, Appendix Table A2 shows the estimates of household models including gross household income. Income has a consistently negative association with over-indebtedness, while the other coefficients are similar to those in the main models.)

72. Estimates are presented in Table 10, and indicate that female-headed households have a higher probability of over-indebtedness than male-headed households on four of the five indicators. They are 1.2 percentage points more likely to have any arrears (column (1)), two percentage points more likely to have any debt that is a heavy burden (column (2)), to have more credit commitments (column (3)) and be 0.6 percentage points more likely to have unsecured debt repayments that exceed 25% of their income (column (4)). Age has little impact, although there is evidence that households with older heads have a lower probability of unsecured arrears and debt that is a heavy burden, but more credit commitments. The probability of over-indebtedness also increases with household size, both in terms of the numbers of adults and the numbers of children, on four out of the five indicators (the exception being having unsecured repayments that exceed 25% of income). Larger households face a higher risk of over-indebtedness. The probability of over-indebtedness, measured using the number of credit commitments and the two repayment-to-income ratios, also increases with the number of working adults in the household. A high number of working adults may partly reflect that households are working to pay off significant commitments such as a large mortgage. However more employment in the household reduces the probability of debt being a burden, which is consistent with previous work indicating that those with two or more household members in work are less likely to be in financial difficulty (Ford and Kempson 1995; Herbert and Kempson 1995).

73. Marital status has an inconsistent impact on the various indicators of over-indebtedness. The estimates indicate that, for example, households in which the HRP is married are 2.5 percentage points less likely than those in which the HRP has never been married to have any arrears and 1.6 percentage points less likely to have any debt that is a heavy burden. However they have more credit commitments. Households in which the HRP is a widow have a smaller probability of having any arrears, but have more credit commitments and a larger probability of unsecured repayments exceeding 25% of income and of all repayments exceeding 50% of income. Divorce or separation, however, is associated with a higher probability of over-indebtedness on all five indicators (and increasing the probability of any debt in the household being a burden by almost four percentage points), which is consistent with previous research (Berthoud and Kempson 1992; Ford and Kempson 1995).

Table 10: Over-indebtedness at household level

	Any arrears in hh (1)	Any debt in hh is heavy burden (2)	Number of credit commits (3)	Unsecured repayments > 25% hh income (4)	All repayments >50% hh income (5)
Female	0.012***	0.020***	0.206***	0.006**	0.002
Age/10	0.002	0.004	-0.352***	0.003	-0.001
(Age/10) squared	- 0.002***	-0.002***	0.014***	-0.001*	-0.000
No. of adults	0.017***	0.021***	0.223***	0.004	0.005***
No. of children < 16	0.009***	0.015***	0.087***	0.002	0.002**
No. of wking adults	-0.004	-0.010***	0.353***	0.014***	0.006***
<i>Marital status (base is single)</i>					
Married	- 0.025***	-0.016***	0.123***	0.001	-0.000
Separated or divorced	0.013***	0.039***	0.186***	0.008*	0.005*
Widowed	-0.011*	0.009	0.150***	0.015**	0.009**
<i>Activity status (base is employed)</i>					
Self-employed	0.006	0.004	-0.024	0.045***	0.050***
Unemployed	0.084***	0.084***	0.453***	0.089***	0.057***
Retired	-0.012*	-0.018**	0.194***	0.025***	0.022***
Sick/disabled	0.047***	0.063***	0.442***	0.065***	0.047***
Student	-0.005	0.063	0.510*	0.125**	0.086**
Looking after family	0.017**	0.011	0.308***	0.051***	0.020***
Other status	0.028*	0.034*	0.148	0.166***	0.108***
<i>Socio-econ class (base is routine/manual)</i>					
Managerial/ prof occ	- 0.026***	-0.027***	0.038	0.021***	0.012***
Intermediate occup	- 0.009**	-0.004	0.031	0.006	0.000
Never wked / l-t unem	- 0.020***	-0.031***	-0.339***	-0.005	-0.004

Continued over

Table 10 Continued

	Any arrears in hh (1)	Any debt in hh is heavy burden (2)	Number of credit commits (3)	Unsecured repayments > 25% hh income (4)	All repayments >50% hh income (5)
<i>Highest qualification (base is none)</i>					
Degree	-0.023***	-0.015***	-0.055	0.000	0.008***
Other qualifications	0.003	0.010**	0.189***	-0.005	-0.005***
<i>Housing tenure (base is own outright)</i>					
Mortgage (inc pt rent)	0.032***	0.176***	1.731***	0.045***	0.100***
Social tenant	0.135***	0.127***	0.625***	0.028***	0.008***
Private tenant	0.117***	0.121***	0.602***	0.030***	0.009**
Rent free	0.032*	0.032	0.135*	0.028**	0.013
HH gross monthly inc (£100s)				-0.003***	-0.003***
N	29811	29811	29811	25672	25672

Notes: Controls also included for region. * significant at 10%; ** significant at 5%; *** significant at 1%. Personal characteristics are those of household reference person. Columns (1), (2), (4) and (5) are estimated using probit equations and report marginal effects on probability evaluated at sample means. Column (3) is estimated using OLS regression and reports marginal effects on number of credit commitments. E.g. holding other variables constant, a household with disabled HRP has a 0.047 (=4.7 percentage point) higher probability of being in arrears and 0.44 more credit commitments than a household with an employed HRP. Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

74. The next set of variables capture the economic activity status of the HRP. The estimated coefficients generally indicate that non-employment (and to a lesser extent self-employment) increases the probability of over-indebtedness relative to the HRP being an employee. As with the individual-level models, an HRP who is in unemployment and sickness or disability increases the probability of any arrears in the household (by eight and four percentage points), increases the number of credit commitments (by about 0.5), and increases the probability of unsecured repayments exceeding 25% and all repayments exceeding 50% of household income (by about five percentage points). Previous research has also shown that unemployment is associated with lower financial capability more generally (Taylor 2010). Having an HRP that is looking after the family also increases the risk of any arrears in the household (by 1.7 percentage points), the number of credit commitments (by 0.3) and the probability of unsecured repayments exceeding 25% and all repayments exceeding 50% of household income (by five and two percentage points respectively). Being a student has a large impact on the probability of over-indebtedness on the repayment-to-income ratio indicators, increasing it by twelve and nine percentage points. The exception to this general pattern of non-employment increasing the risk of over-indebtedness is for retirement. Households with a retired HRP are about two percentage points less likely to have any arrears or debt that is a heavy burden (consistent with the individual-level analysis). However a retired HRP increases the risk of over-indebtedness as measured by the number of credit commitments and the repayment-to-income ratios.

75. The skill level of the HRP is also significantly associated with over-indebtedness at the household level. In particular households in which the HRP is in a managerial or professional occupation or who is educated to degree level are significantly less likely than those in manual occupations and with no qualifications to have any arrears (by 2.5 percentage points), and also to have any debt that is a heavy burden (by 2.7 and 1.5 percentage points respectively). However, the estimates suggest that households in which the HRP is in a managerial or professional occupation, or who has a degree, have a higher probability of over-indebtedness using the repayment-to-income ratios (although the sizes of these effects are relatively small compared to those of activity status).³ As with the individual-level analysis, we find that households in which the HRP has never worked or is in long-term unemployment have a lower probability of over-indebtedness, and these effects are statistically significant on three of the five indicators.
76. As with the individual-level analysis, households that have a mortgage or are tenants have larger probabilities of over-indebtedness than outright owners on all five indicators (see also Kempson et al 2004). Tenant households have the largest probability of having any arrears, some twelve percentage points higher than that of outright owners. Owners with a mortgage are most likely to have debt that is a heavy burden (eighteen percentage points more likely than outright owners) and have 1.7 more credit commitments than outright owners (and 1.1 more than tenants). Households with a mortgage are 4.5 percentage points more likely than outright owners to have unsecured debt repayments that exceed 25% of their income, and ten percentage points more likely to have debt repayments that exceed 50% of their income. This latter association is not unexpected given that debt repayments include mortgage payments.
77. Household income has statistically significant impacts on over-indebtedness using the repayment-to-income ratios. In particular, a £100 increase in household income reduces the probability of over-indebtedness on these measures by 0.3 percentage points at the sample means – households with higher income have a lower risk of over-indebtedness (see also Kempson et al 2004). However these effects should be interpreted with caution because of the shortcomings of the household income variable described previously. Additionally, household income is used to define the dependent variable in these models, and is therefore endogenous. We cannot put any causal interpretation on this household income effect.
78. As in the individual analysis, there remain regional differences after controlling for households characteristics, similar to the patterns in the bivariate analysis of Table 7 (regional coefficients are not reported for brevity). It should be noted, however, that the impact of these residual economic conditions is relatively modest compared to the combined effects of households' socio-economic characteristics.
79. These results indicate some similarities, and also key differences, in the characteristics associated with over-indebtedness across the five measures. Households in which the reference person is female are more likely to be over-indebted than those with a male HRP, while larger households have a higher risk of over-indebtedness than smaller households. Households with a separated or divorced HRP have a higher probability of over-indebtedness than those with a never married HRP, while households with HRPs who are unemployed, sick/disabled or looking after their family are more likely to be over-indebted than those with an employed HRP. Tenant households and those with a

³ Note this is holding income constant. If income is removed from the specification, the effect disappears.

mortgage have higher probabilities of over-indebtedness than outright owners, although the relative sizes of the effects vary across indicators.

80. Key differences in associations with household over-indebtedness also emerge across indicators. These relate to households in which the HRP is retired, is self-employed or is a student (who have a higher probability than employees of over-indebtedness using the repayment-to-income ratios), and the education and skill level of the HRP.

6. Longitudinal analysis of over-indebtedness

6.1 Data and sample

81. Longitudinal analysis of individuals and households that are in most financial difficulty is possible using HAD. This was a telephone-based survey which followed up households that were in the most financial difficulty in the first wave of WAS. It contained approximately 10% of the original sample, selected on the basis that the household was in mortgage arrears in WAS, where one or more persons had entered into personal insolvency, in arrears with unsecured debt repayments or household bills, and those who perceived their debt as a heavy financial burden and had sought debt advice. The first was conducted between October 2007 and September 2008 (following up WAS interviews in 2006-7); and the second was conducted between October 2008 and September 2009 (following up WAS interviews in 2007-8).
82. The questionnaire, although shorter than WAS, collects information on a number of indicators of over-indebtedness approximately one year on from the WAS survey. Therefore these data allow us to examine the trajectories of over-indebtedness among those in most financial difficulty, and identify the characteristics of those whose financial situation improves and of those whose situation deteriorates.
83. The original HAD subsample (selected according to above criteria) contained nearly 2,800 households but only about half of these could be re-interviewed, resulting in 1,379 productive households. Weights are provided in the HAD data to account for this attrition, as well as the original survey design and non-response in WAS, and as in the cross-sectional analysis all our descriptive statistics are weighted. Before using the HAD data, we carried out validation checks of the quality of the WAS-HAD match and we examined the distributions and changes of key variables to look for any implausible changes between the two surveys. The linking of individuals and households from WAS to HAD was satisfactory, although we noted that some 360 eligible individuals in linked households (14% of the sample) were not followed to HAD. This is most likely because they left the old household and were not traced to their new households. Although there are 13 new households that are in HAD but not in WAS, the panel is essentially following existing households (and collecting information from new members joining these households). Our final matched sample consists of 2,152 individuals observed in both survey waves, belonging to 1,369 households. In our multivariate analysis, we follow individuals over time but use the characteristics of their current households as contextual information. So although we ignore household leavers and joiners (who only contribute one observation) their characteristics are accounted for at the household level.
84. The data validation exercise, using WAS as a benchmark, indicated that the HAD data are of good quality in general. However, there were issues with some of the debt-related variables which affect our analysis:
 - There was a sharp drop in reported credit and store card arrears between WAS and HAD which does not appear to be plausible (particularly as arrears rates on loans, mail order and hire purchase are stable). It seems likely that the reported drop arises from significant question differences between the two surveys: the WAS question asked about

any arrears in the last 12 months (as noted in Section 2), while the HAD questions asked about being currently behind with 2 or more consecutive payments.

- We also observed a large drop in people falling behind with household bills (from 48% to 31%), although the question is the same in the two surveys.
- There was a large jump in reported loans between WAS and HAD (from 27% to 38%), which we suggest might be due to differences in question wording (related to HAD respondents being reminded about the number of loans they had previously reported in WAS).

85. The most important of these issues is the increase in reported credit and store card arrears, and for this reason we do not look at changes in arrears over time in our multivariate analysis. For indicative purposes, we do report raw transitions in the next sub-section. A further issue with the HAD data is that income was collected using a single question (total gross personal income from all sources). Given the issues with the income measure in WAS, it is not obvious whether or not the HAD version is more accurate, but clearly the two are not fully comparable. Therefore the analysis of transitions in repayment-to-income ratios must be treated with caution.

86. Finally, it is important to bear in mind that the HAD sub-sample was non-randomly selected, i.e. it consists of households which were already over-indebted. Therefore the changes over time cannot be taken as representative of the whole population or even the population of households at risk of over-indebtedness. The picture we present is partial because while we can see whether over-indebted households escape from or get deeper into debt, we do not see households which become over-indebted for the first time.

6.2 Descriptive analysis of over-indebtedness over time

87. We start our longitudinal analysis by describing patterns of over-indebtedness over time. We do this by summarising over-indebtedness in WAS (relating to 2006-08) and HAD (relating to 2007-09), and to ensure comparability we restrict analysis to individuals that were interviewed in both surveys. Therefore we focus on individuals in households that had the most debt in WAS and this results in a sample size of 2,152 individuals and 1,369 households. Table 11 summarises over-indebtedness in the two surveys at the individual level.

Individual-level analysis

88. This table indicates that in 2006-08, 32% of individuals in WAS who were in the most over-indebted households had any unsecured arrears (which relates to 45% of people with unsecured debt). In the HAD survey in 2007-09 (following up individuals a year after their first interview) these proportions had fallen considerably to 18% and 24%. This suggests a large fall in the extent of over-indebtedness over time among people in financial difficulty. However, as noted above these figures need to be treated with some caution because the questions in HAD that collect information on credit card and store card debt are not directly comparable with those in WAS. We are unable to gauge the extent to which these differences in question wording contribute to the sizeable drop in unsecured arrears.

Table 11: Indicators of over-indebtedness at individual level

Indicator	%		Base (individuals)	
	WAS	HAD	WAS	HAD
Any unsecured arrears (including insolvency)	32.0	18.2	2,152	2,152
- among unsec borrowers / insolv only	45.2	24.0	1,551	1,638
Number of arrears among those in arrears or insolv			705	359
1	86.2	78.3		
2	11.3	17.1		
3	2.2	4.1		
4	0.3	0.5		
Unsecured debt is a “heavy burden”	33.8	26.1	2,152	2,152
- among unsecured borrowers only	48.3	32.6	1,497	1,601
Number of individual credit commitments			2,152	2,152
0	31.7	25.8		
1	24.2	22.9		
2	18.6	18.5		
3	11.3	13.0		
4	6.8	9.3		
5+	7.4	10.5		

Notes: Estimates are weighted to account for survey design and attrition between WAS and HAD

89. In terms of the number of arrears among people with arrears, the numbers suggest an increase in the depth of over-indebtedness over time. For example, the figures from WAS indicate that 86% of people in arrears were in arrears on just one source of debt, while 11% were in arrears in two and 2.5% were in arrears on three or more. The HAD figures indicate that one year later, 78% of the people were in arrears on one source of debt, while 17% were in debt on two and almost 5% were in arrears on three or more. Therefore although fewer individuals had any arrears in 2007-09 than in 2006-08, those that were had more extensive arrears.

90. The fall in over-indebtedness over time is also reflected in the extent to which unsecured debt is a heavy burden. In 2006-08, data from WAS indicate that 34% of individuals in the most over-indebted households reported that their unsecured debt was a heavy burden, which equates to 48% of those with any unsecured debt. In 2007-09, these proportions had fallen to 26% and 33% respectively. The proportion of unsecured borrowers who reported their debt to be a heavy burden fell from almost one half to less than one third between their WAS and HAD interviews. A caveat about this general decline in over-indebtedness is that we are only looking at individuals already in debt, and it may not be surprising that a proportion of them manage to escape (we focus on transitions below). We do not observe people newly entering over-indebtedness and to this extent the picture is only partial.

91. However there was an increase in the number of individual credit commitments over the same period. In 2006-08, 32% of people in the most over-indebted households had no credit commitments 24% had one, 19% had two while 14% had four or more. A year

later, one in four individuals in these households had no credit commitments, 23% had one, 19% had two while 20% had at least four credit commitments. This suggests some increase in over-indebtedness over time. However the HAD figures for 2007-09 may be affected by a potentially spurious increase in reported loans resulting from different question wording in HAD than in WAS. This change in wording may have contributed to the increase in the number of loans that individuals reported.

Table 12: Indicators of over-indebtedness at household level

Indicator	%		Base (households)	
	WAS	HAD	WAS	HAD
Any arrears in hh (including insolvency)	86.9	45.1	1,369	1,368
- only among hhs with credit (inc mortgage) or insolvent member(s)	87.0	48.1	1,364	1,285
Number of arrears among hhs with credit (inc mortgage) or insolvent member(s)			1,164	581
1	75.4	62.9		
2	17.0	24.6		
3	5.2	8.2		
4	1.0	2.1		
5	1.2	1.4		
6	0.2	0.5		
7	0.1	0.1		
8	0.0	0.2		
Any debt in the hh is a "heavy burden"	54.1	42.2	1,369	1,368
- only among hhs with credit (inc mort)	54.6	45.5	1,351	1,271
Number of credit commitments in household (inc mort)			1,369	1,368
0	1.2	7.4		
1	17.0	15.2		
2	21.8	15.5		
3	17.3	15.0		
4	12.3	13.0		
5	9.4	11.5		
6	6.5	6.6		
7	5.3	5.4		
8+	9.2	10.3		
Unsecured repayments/income > 25%	18.4	19.2	1,095	1,138
All repayments/income > 50%	13.5	14.3	1,095	1,138

Notes: Estimates are weighted to account for survey design and attrition between WAS and HAD. Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

Household-level analysis

92. Table 12 summarises over-indebtedness at the household level. As with the individual level analysis, the HAD figures suggest a large fall in arrears at the household level in

2007-09 relative to a year earlier. The WAS data indicate that 87% of households had any arrears, and this fell dramatically in HAD to 45%. However, as with the individual level analysis, at least part of this fall can be attributed to the differences in the relevant questions. A larger proportion of households were in arrears on more credit commitments in 2007-09 than in 2006-08 – 63% had one, 25% had two while 12% had three or more compared with 75%, 17% and 8% respectively. This suggests a deepening of over-indebtedness within affected households over the 12 months.

93. A smaller proportion of households in 2007–09 than in 2006–08 had any debt that was perceived as a burden (42% compared with 54%), while there was also a reduction in the number of households with credit commitments. Again this reflects the fact that we observe households escaping from over-indebtedness but not those who enter over-indebtedness. Only 1% of over-indebted households had no credit commitments in WAS in 2006–08; this had increased to 7.4% in HAD a year later. This may seem inconsistent with individual level data showing a reduction in the number of people with no credit commitments. However, the number of household commitments includes mortgages and arrears on household bills, and the increase in households with no debt mainly reflects a fall in bills arrears between the two surveys. When bills and mortgages are excluded from the totals (not shown in table), the proportion of households with no debt remains steady at around 14%. However, the fact that that the proportion does not decrease in line with the proportion of individuals with no debt implies that individual credit behaviour is somehow related to household factors. It could imply that individuals who take on new credit already live with other credit holders, for example these individuals may be conforming to within-household norms of credit use or collective decisions about borrowing. There is some correlation of individual credit changes within households (the intra-household correlation coefficient is 0.2), which is consistent with these possibilities. The data also indicate that individuals beginning to use credit were 14 percentage points more likely to live with other credit holders than individuals who stopped using credit (not reported in table). This suggests that these individuals were aligning their credit behaviour with other household members.
94. Focusing on households using credit, in WAS 56% of over-indebted households had between one and three credit commitments while 43% had four or more. In HAD, 46% of households had between one and three credit commitments while a similar proportion had four or more. This increase in the number of credit commitments among the over-indebted is consistent with BIS (2010) which reports increased credit use among the over-indebted between 2008 and 2009.
95. The final two indicators of over-indebtedness remained relatively constant between the two years. About 19% of households had unsecured debt repayments that exceeded 25% of their income, while 14% had total debt repayments that exceeded 50% of their income. These increased marginally between WAS and HAD, although a caveat is that income is not fully comparable across the two surveys.

Analysis of transition into/out of over-indebtedness

96. In Table 13 we present transitions in over-indebtedness to examine the extent to which individuals and households who were over-indebted in WAS in 2006–08 remained over-indebted when they were re-interviewed a year later, and the extent to which they escaped over-indebtedness. The table indicates that persistence in over-indebtedness from one year to the next and transitions into and out of over-indebtedness vary depending on the indicator used. For example, 72% of individuals who had any unsecured arrears in WAS no longer had arrears one year later, while 28% remained in arrears. This suggests low persistence in over-indebtedness over time even among individuals in households with the most financial difficulty. About 14% of individuals with

no arrears in WAS had entered arrears a year later, while 86% of those with no arrears in WAS still had no arrears in HAD. However, these results should be treated very cautiously given the differences in questions about credit/store card arrears in WAS and HAD.

97. As with arrears, about 14% of those whose unsecured debt was not a heavy burden in WAS had unsecured debt that was a heavy burden in HAD. However, there was much more persistence in debt being a heavy burden between WAS and HAD – about one half of those whose unsecured debt was a heavy burden in WAS also reported their unsecured debt as a heavy burden in HAD (and based on the figures in the table, 17% of individuals perceive debt to be a heavy burden in both waves). Bridges and Disney (2004) note that we might expect to find persistence in over-indebtedness if borrowing cumulates over time to finance existing repayments. On the other hand, over-indebted individuals will at some point be refused credit, which may show up as an exit from over-indebtedness. The substantial amounts of persistence that we see are certainly consistent with the idea of revolving credit. But the fact that we also observe frequent transitions suggest that cross-sectional estimates of over-indebtedness understate the number of individuals affected at some point in their lives.
98. As we would expect, there is more mobility into over-indebtedness at the household level than at the individual level. One in four households with no arrears in WAS had some arrears in HAD, while 75% remained free from arrears. One half of households with arrears in WAS also had arrears in HAD – persistence in arrears is greater at the household level than at the individual level. Similar patterns emerge using the subjective burden indicator, a larger proportion of households than individuals entered over-indebtedness between WAS and HAD and there is more persistence in over-indebtedness at the household than individual level.
99. The repayment-to-income ratios yield similar results. Transitions into over-indebtedness using these indicators are relatively low – 13% and 9% of households entered over-indebtedness using these measures. These are lower than transitions into over-indebtedness using the arrears and subjective burden indicators. Again however there are relatively high levels of persistence in over-indebtedness, as more than 40% of households who were over-indebted in WAS remained over-indebted in HAD on these measures.

Table 13: Transitions in over-indebtedness

Over-indebtedness in WAS	Over-indebtedness in HAD (row %)		
Individual has any unsecured arrears (including insolvency)	No	Yes	N
No	86.39	13.61	1,446
Yes	71.99	28.01	706
Unsecured debt is a “heavy burden” for individual	No	Yes	N
No	85.87	14.13	1,443
Yes	50.43	49.57	709
Any arrears in hh (including insolvency)	No	Yes	N
No	75.83	24.17	202
Yes	51.74	48.26	1,166
Any debt in the hh is a “heavy burden”	No	Yes	N
No	77.78	22.22	631
Yes	40.79	59.21	737
Unsecured repayments/income > 25%	No	Yes	N
No	86.91	13.09	758
Yes	55.7	44.3	173
All repayments/income > 50%	No	Yes	N
No	91.45	8.55	799
Yes	57.88	42.12	132
Credit commitments	Change btw WAS and HAD		
Number of individual credit commitments	%	N	
-2 or more	8.78	192	
-1	14.79	329	
No change	37.26	805	
+1	21.79	453	
+2 or more	17.38	373	
Number of credit commitments in hh (inc mort)	%		
-2 or more	19.91	276	
-1	16.99	227	
No change	24.14	328	
+1	16.17	224	
+2 or more	22.77	313	

Notes: Estimates are weighted to account for survey design and attrition between WAS and HAD (but the reported N are unweighted).

Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

100. The final panel of Table 13 focuses on the changes in the numbers of credit commitments between WAS and HAD at the individual and household level. Focusing initially on individuals, this indicates that 37% experienced no change in the number of credit commitments between their interview in 2006–08 and the following year. On average, the number of credit commitments increased which is consistent with Table 11.

For example, 24% of individuals reduced their number of credit commitments over the period between WAS and HAD while almost 40% increased their credit commitments. A similar pattern emerges at the household level, although there is more mobility than at the individual level. About one in four households had the same number of credit commitments in WAS and HAD, while 37% of households had reduced their number of credit commitments and 39% increased their number of credit commitments. High levels of persistence in credit use over time are also reported in Kempson et al (2004).

101. While these descriptive statistics provide information on how patterns of over-indebtedness changed from one year to the next, and on flows into and out of over-indebtedness, it can tell us nothing about the characteristics of people who either become over-indebted or escape over-indebtedness over time. We turn to this in the subsequent section. (As is clear from the numbers of observations reported in Table 13, some of the cell sizes are rather small. It is not possible to break down transitions, e.g. entry and exit from over-indebtedness, by detailed characteristics as was done in Section 3.)

6.3 Modelling over-indebtedness transitions

102. We estimate multivariate models of over-indebtedness transitions using changes in over-indebtedness between WAS and HAD as the dependent variable. These can be written as follows:

$$y_{i,t+1} - y_{i,t} = \gamma_0 + \gamma_1 x_{i,t} + \gamma_2 y_{i,t} + \varepsilon_{it}$$

103. where $y_{i,t}$ is the measure of over-indebtedness for individual i at time t (here t refers to WAS and $t+1$ refers to HAD), x is a vector of observed characteristics measured at time t and therefore relate to WAS, and γ_1 is a vector of coefficients to be estimated. (In later specifications we model changes in over-indebtedness over time as a function of changes in individual characteristics.) The dependent variables therefore take a negative value if people reduce their over-indebtedness between WAS and HAD, and a positive value if people increase their over-indebtedness. Hence negative coefficients indicate that a particular characteristic is associated with improvements in over-indebtedness, while positive coefficients indicate that a factor is associated with deterioration in over-indebtedness. Our models also include the initial level of over-indebtedness in WAS, and so we model change in over-indebtedness conditional on a person's initial level. An alternative strategy would be to model entry and exit from over-indebtedness separately, but this is not feasible in this case given the small cell sizes that are clear from Table 13. We estimate these models using OLS.

6.4 Over-indebtedness transitions at the individual level

104. Table 14 presents results from models of over-indebtedness transitions at the individual level, with column (1) focusing on change in whether unsecured debt is a heavy burden and (2) in the change in the number of credit commitments. (We have not modelled change in arrears because the inconsistency of question wording in the WAS and HAD surveys makes interpretation of the results difficult.) These are generally less well specified than the models of over-indebtedness levels presented in Tables 8 and 9 – fewer observed characteristics of individuals are important in explaining changes in over-indebtedness than levels. This may in part be due to the smaller sample sizes.

105. The results indicate that women increased their number of credit commitments between WAS and HAD relative to men, by 0.17, but there were no gender differences in changes in the subjective measure. The probability of starting to perceive unsecured debt as a burden increases with age but at a declining rate, and is also increased by 1.7 percentage points for each child aged under 16. People with dependent children are more likely to start (and less likely to stop) to perceive unsecured debt as a burden. Marriage reduces the probability of starting to perceive debt as a burden, by about five percentage points relative to being single never married.
106. Activity status in WAS in 2006–08 has little impact on over-indebtedness transitions, the estimated impacts are generally not statistically significant. There is evidence that people who were looking after the family or in some ‘other’ economic status reduced their number of credit commitments relative to employees, by between 0.3 and 0.4. However, people working in intermediate occupations experienced increases in their over-indebtedness on both measures. They were five percentage points more likely than those in routine or manual occupations to start to perceive unsecured debt as a burden, and also increased the number of credit commitments by 0.29.
107. As in the models of over-indebtedness levels, housing tenure is an important determinant of change in over-indebtedness over time. Mortgage holders increase their number of credit commitments by 0.37 between WAS and HAD relative to outright owners, while social tenants and private tenants also increase their number of credit commitments (by 0.35 and 0.28 respectively). Tenants are also more likely than outright owners to start perceiving their unsecured debt as a burden, by 10 percentage points.
108. Finally, it is worth noting that the estimated impact of the level of indebtedness in WAS on changes in over-indebtedness is negative. Therefore people with higher levels of over-indebtedness in 2006–08 were less likely than those with lower levels to experience increases in over-indebtedness in 2007–09. This is partly mechanical as individuals who, for example, already perceived unsecured debt as a heavy burden in WAS could not become more over-indebted in HAD.

Table 14: Over-indebtedness transitions at individual level as a function of initial characteristics

	Change in unsecured debt perceived as heavy burden (1)	Change in number of credit commitments (2)
Female	-0.005	0.171**
Age/10	0.087**	0.147
(Age/10) squared	-0.009**	-0.021
No. of children under 16	0.017*	0.031
<i>Marital status (base is single)</i>		
Married	-0.049*	0.056
Separated or divorced	0.034	0.105
Widowed	0.021	0.025

	Change in unsecured debt perceived as heavy burden (1)	Change in number of credit commitments (2)
<i>Activity status (base is employee)</i>		
Self-employed	-0.053	-0.023
Unemployed	0.066	-0.166
Retired	-0.004	-0.120
Sick/disabled	0.030	-0.009
Student	0.039	-0.138
Looking after family	-0.034	-0.292**
Other status	-0.031	-0.394**
<i>Socio-econ class (base is routine/manual)</i>		
Managerial and prof occup	-0.003	0.085
Intermediate occup	0.052*	0.292***
Never worked / l-t unemployed	-0.039	-0.120
<i>Highest qualification (base is none)</i>		
Degree	0.002	0.095
Other qualifications	-0.037	-0.032
<i>Housing tenure (base is own outright)</i>		
Mortgage (inc part rent)	0.049	0.368***
Social tenant	0.099***	0.347**
Private tenant	0.101***	0.282*
Rent free	-0.135	-0.267
Indebtedness level in WAS	-0.684***	-0.392***
<i>N</i>	2050	2050

Notes: Explanatory variables are characteristics before transitions (i.e. WAS characteristics). "Indebtedness level in WAS" is the initial value of the corresponding over-indebtedness measure (whether debt is a burden, or number of credit commitments). Controls also included for region. * significant at 10%; ** significant at 5%; *** significant at 1% (significance levels account for clustering of individuals within households). Equations are estimated using OLS regression. Column (1) reports marginal effects on probability of transitions evaluated at sample means; column (2) reports marginal effects on number of credit commitments. E.g. holding other variables constant, a private tenant has a 10 percentage point higher probability of entering debt burden (10 percentage point lower probability of escaping) than an outright home owner; and is expected to accumulate an extra 0.28 credit commitments compared to an outright home owner.

6.5 Over-indebtedness transitions at the household level

109. Table 15 presents the estimates from models estimating over-indebtedness transitions at the household level as a function of initial characteristics (measured in WAS). As with the individual models, we have not modelled change in arrears because

of the question consistency problem. The dependent variables are the change in any household debt perceived as a heavy burden (in column 1), the change in the number of credit card commitments (in 2), the change in unsecured repayments exceeding 25% of household income (in 3), and the change in all debt repayments exceeding 50% of household income (in 4). Again it is noticeable that fewer characteristics are statistically significant in these models of change than in the models of levels (in Table 10), partly because of considerably smaller sample sizes.

110. The estimates indicate that, as with the individual models, increases in over-indebtedness are inversely related to the initial level of over-indebtedness measured in WAS. The estimated coefficients are negative and statistically significant in all specifications, indicating that households with relatively high levels of over-indebtedness in WAS were less likely than those with lower levels to experience increases in over-indebtedness in HAD (and were more likely to experience falls in over-indebtedness). Again for some of the indicators this is partly driven by the fact that households already over-indebted in WAS cannot become more over-indebted in HAD.
111. Few other consistent relationships emerge across the four indicators. Households with more adults in work increased their number of credit commitments – each adult in employment is associated with an increase of 0.7 credit commitments. However the number of working adults is associated with a lower probability of becoming over-indebted (a higher probability of leaving over-indebtedness) based on the all debt repayments exceeding 50% of household income measure. This is not an income effect, as this model is controlling for household income. Hence the number of working adults in the household is associated with an increase in credit commitments, but a lower probability of debt repayments putting a strain on household income. In the cross-sectional analysis we also found that more working household members were associated with more use of credit but lower subjective debt burden. It may be that these households are better at managing spending and debt. Kempson et al (2004) suggest that household employment can act as a factor protecting against over-indebtedness.

Table 15: Over-indebtedness transitions at household level as a function of initial characteristics

	Change in any hh debt perceived as heavy burden (1)	Change in number of credit commits (2)	Change in unsecured repayments > 25% hh income (3)	Change in all repayments >50% hh income (4)
Female	-0.013	0.157	0.019	0.004
Age/10	0.107	-0.143	-0.018	-0.004
(Age/10) squared	-0.013*	0.007	0.006	-0.000
No. of adults	0.001	0.050	-0.009	0.017
No. of children < 16	0.027*	0.106	0.005	-0.000
No. of working adult	-0.018	0.677***	0.023	-0.068**
<i>Marital status (base is single)</i>				
Married	-0.030	0.225	-0.027	-0.044
Separated or divorced	0.006	0.072	0.016	0.001
Widowed	-0.002	-0.228	0.001	0.073
<i>Activity status (base is employed)</i>				
Self-employed	-0.108*	-0.118	-0.012	0.012
Unemployed	0.036	0.423	-0.041	-0.137**
Retired	0.011	0.346	-0.080	-0.070
Sick/disabled	0.060	0.689**	0.008	-0.099**
Student	-0.066	0.063	-0.111	0.014
Looking after family	-0.093	-0.034	-0.004	-0.076
Other status	-0.146	0.043	-0.004	-0.009
<i>Socio-econ class (base is routine/manual)</i>				
Managerial/ prof occ	-0.015	0.035	0.018	-0.025
Intermediate occup	0.099**	0.345*	0.031	-0.017
Never wked / l-t unem	-0.037	-0.030	0.033	0.030
<i>Highest qualification (base is none)</i>				
Degree	-0.051	-0.066	-0.010	-0.042
Other qualifications	-0.047	-0.090	0.012	-0.001
<i>Housing tenure (base is own outright)</i>				
Mortgage (inc pt rent)	0.108*	0.785***	-0.036	0.119**
Social tenant	0.071	0.371	-0.003	-0.129**
Private tenant	0.056	0.225	0.004	-0.085
Rent free	-0.194	-0.704	-0.127	-0.054
Indebtedness level in WAS	-0.646***	-0.392***	-0.676***	-0.726***
HH gross monthly inc (£100s)			0.001	-0.001

<i>N</i>	1261	1261	876	876
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Notes: Explanatory variables are characteristics before transitions (i.e. WAS characteristics). "Indebtedness level in WAS" is the initial value of the corresponding over-indebtedness measure (whether debt is a burden, or number of credit commitments). Controls also included for region. * significant at 10%; ** significant at 5%; *** significant at 1%. Personal characteristics are those of household reference person.

Repayment/income ratios use income measures that set missing benefit and investment income components to zero. Equations are estimated using OLS regression. Columns (1), (3) and (4) report marginal effects on probability of making transitions evaluated at sample means; column (2) reports marginal effects on number of credit commitments. E.g. holding other variables constant, including a household's initial level of over-indebtedness, a mortgaged household has a 10.8 percentage point higher probability of entering debt burden (10.8 percentage point lower probability of escaping) than a household which owns outright; and is expected to accumulate an extra 0.79 credit commitments compared to a household which owns outright.

112. Households in which the HRP is unemployed or sick or disabled have a lower probability than those in which the HRP is an employee of becoming over-indebted based on the debt repayments exceed 50% of household income measure. Households in which the HRP is unemployed are fourteen percentage points less likely to become over-indebted (more likely to leave over-indebtedness) than one in which the HRP is an employee, while a sick or disabled HRP reduces the probability of becoming over-indebted by ten percentage points. However a sick or disabled HRP is associated with an increase in the number of credit commitments (by 0.7).
113. There is some evidence that households in which the HRP is in an intermediate occupation have a higher probability than those in which the HRP is in a routine or manual occupation to start to perceive any debt as a burden (by 10 percentage points) and to increase their number of credit commitments (by 0.3). Education however has no impact on over-indebtedness transitions. The results also suggest that mortgage holders in WAS were more likely than outright owners to move into (or have more) over-indebtedness in HAD. They were eleven percentage points more likely than owners to start to perceive any household debt as a burden, and twelve percentage points more likely for debt repayments to start to exceed 50% of household income. Furthermore, they had 0.8 more credit commitments in HAD than WAS, relative to outright owners.
114. Generally however, these results suggest that few characteristics in WAS are associated with subsequent changes in over-indebtedness between WAS and HAD. We also experimented (in both the individual and household-level analyses) with the inclusion of a dummy variable to indicate whether the HAD interview took place before or after the start of the financial crisis (September 2008). The coefficient was positive for most indicators, suggesting a higher probability of entering or remaining in over-indebtedness after the financial crisis began, but the effect was not statistically significant in any specification (and the effect was no greater if the cut-off date was moved forward to January 2009 to allow for delayed reactions to the crisis). We next examine whether there are particular life-cycle events that are associated with changes in over-indebtedness over time.

6.6 Events associated with over-indebtedness transitions

115. The previous analysis focused on the impact of characteristics in WAS on over-indebtedness transitions between WAS and HAD. However it is likely that changes in over-indebtedness over time are linked to events that people experience, such as getting or losing a job, getting married or divorced, the birth of a child or buying a home. To investigate this, we have estimated models with changes in the over-indebtedness indicator as the dependent variable ($y_{i,t+1} - y_{i,t}$), and changes in individual and household characteristics as the explanatory variables ($x_{i,t+1} - x_{i,t}$). While such 'first-

difference' specifications have the advantage of being able to examine the impact of events on changes in over-indebtedness, they are unable to estimate the impact of fixed (or almost fixed) characteristics (such as gender or education etc.). There are also sample size issues as few people experience some of the events, and therefore results should be interpreted with caution. Table 16 presents the estimates at the individual level, while Table 17 focuses on household-level over-indebtedness.

Table 16: Over-indebtedness transitions at individual level as a function of changes in characteristics

Change in:	Change in unsecured debt perceived as heavy burden (1)	Change in number of credit commitments (2)
Age/10	0.421*	3.067***
(Age/10) squared	-0.044**	-0.322***
No. of children under 16	0.008	0.207*
<i>Marital status (base is stay single)</i>		
Get married	-0.209**	-0.637**
Separate or get divorced	0.036	-0.351
Become widowed	-0.196	-0.278
<i>Activity status (base is employee)</i>		
Self-employed	-0.067	-0.055
Unemployed	0.032	-0.069
Retired	0.108	-0.046
Sick/disabled	0.081	0.034
Student	-0.088	-0.310
Looking after family	-0.038	-0.162
Other status	0.094	0.294
<i>Housing tenure (base is own outright)</i>		
Mortgage (inc part rent)	0.018	0.180
Tenant	-0.122	0.243
Rent free	-0.001	0.890
<i>N</i>	2095	2095

Notes: Explanatory variables are changes characteristics between WAS and HAD. * significant at 10%; ** significant at 5%; *** significant at 1% (significance levels account for clustering of individuals within households). Equations are estimated as first-differenced models using OLS regression. Column (1) reports marginal effects on probability of transitions evaluated at sample means; column (2) reports marginal effects on number of credit commitments. E.g. holding other variables constant, a person getting married experiences a 0.209 (21 percentage point) reduction in the probability of perceiving debt as a heavy burden; and is expected to have 0.64 fewer credit commitments compared to a person who stays single.

116. Estimates in Table 16 indicate that few events are associated with changes in over-indebtedness at the individual level between WAS and HAD. Only changes in family composition and marital status have any statistically significant effect. In particular, an additional dependent child under the age of 16 is associated with 0.2 more

credit commitments. Hence additional children increase the relative risk of over-indebtedness (see also Berthoud and Kempson 1992). Getting married reduces the probability of starting to perceive debt as a burden (and increases the probability of debt stopping to be a burden) by 21 percentage points, and reduces the number of credit commitments by 0.6 relative to staying single. These effects are consistent with the relationships seen in the cross-sectional analysis (Table 8). Neither separation nor widowhood have a statistically significant effect, by contrast with the cross-sectional analysis which showed that separated and divorced people had higher levels of over-indebtedness. The difference may be explained by “selection” or reverse causality (such that over-indebted individuals are more likely to separate); or separation and divorce may only affect over-indebtedness over the medium or long term and so do not show up in our estimates that cover a period of one year only. Changes in economic activity and housing tenure have little impact on over-indebtedness transitions at the individual level.

117. Table 17 presents the results from modelling over-indebtedness as a function of events at the household level between WAS and HAD. As for individuals, few events appear to be associated with changes in over-indebtedness, and these are generally inconsistent across over-indebtedness measures. As at the individual level, increases in household size are associated with increases in the number of credit commitments. Getting married is associated with a thirteen percentage point increase in the probability that all debt repayments start to exceed 50% of household income (although the effect is only significant at the 10% level) but does not seem to affect other dimensions of over-indebtedness. So while there is clear evidence that marriage reduces over-indebtedness for each person individually (Table 16), there is a weaker effect when we aggregate to the household level. This could reflect resource sharing within households if the debts of the new entrant are shared with existing HRP. An additional child increases the number of credit commitments by 0.4 while an additional adult increases the number by 0.6.
118. There is some evidence that having an HRP that entered self-employment was associated with increases in over-indebtedness. In particular, it increased the number of credit commitments by 0.9, and raised the probability of debt repayments starting to exceed 50% of household income by twenty percentage points relative to households in which the HRP remained as an employee. Thus self-employment is associated with the household accumulating more credit commitments and with relative increases in debt repayments (or falls in household income), which reflects the risks taken by individuals starting their own business. Retirement, however, is associated with a smaller probability of debt repayments starting to exceed 50% of household income (a higher probability of repayments falling below 50% of household income). HRPs may time their retirement decisions to coincide with the ending of financial obligations (repaying a mortgage, for example).
119. Buying a home with a mortgage is associated with increases in over-indebtedness on four out of the five measures. Of course, getting a mortgage increases the number of credit commitments (by definition), but the estimates suggest it does so by more than one (by 1.4). This suggests that getting a mortgage is also associated with accessing other forms of credit. It is also associated with increases in the probability of unsecured debt repayments starting to exceed 25% of household income (by 26 percentage points), again indicating that getting a mortgage is associated with accessing other (unsecured) credit, and with all debt repayments starting to exceed 50% of household income (by 45 percentage points). The latter is not surprising, as debt repayments include mortgages.

120. Finally, these estimates indicate that increases (falls) in household income are associated with falls (increases) in the probability of entering over-indebtedness based on both debt repayment-to-income ratios. A £100 per month increase in household income reduces these probabilities by about one percentage point. While this is not surprising, it indicates that on average households increase their debt by less than increases in their household income. This relationship between over-indebtedness and income has been highlighted by a number of previous studies (Berthoud and Kempson 1992; Ford and Kempson 1995; Herbert and Kempson 1995; Kempson 2002; Kempson et al 2004).

Table 17: Over-indebtedness transitions at household level as a function of changes in characteristics

Change in:	Change in any hh debt perceived as heavy burden (1)	Change in number of credit commits (2)	Change in unsecured repayments > 25% hh income (3)	Change in all repayments >50% hh income (4)
Age/10	-0.211	3.759*	-0.168	-0.050
(Age/10) squared	0.027	-0.311	0.095*	0.031
No. of adults	0.014	0.648***	0.026	0.033
No. of children < 16	0.017	0.409*	0.002	0.009
No. of working adult	-0.090*	0.041	-0.055	-0.024
<i>Marital status (base is stay single)</i>				
Get married	-0.115	-0.657	-0.040	0.132*
Separate or get divorced	-0.067	-0.798*	0.003	-0.014
Become widowed	-0.148	-0.530	-0.023	-0.057
<i>Activity status (base is employed)</i>				
Self-employed	-0.037	0.921**	-0.035	0.195**
Unemployed	-0.009	0.371	0.035	0.055
Retired	-0.179	-0.648	-0.054	-0.237**
Sick/disabled	0.064	0.548	0.069	0.017
Student	-0.240	0.347	-0.095	-0.149
Looking after family	-0.081	0.150	-0.040	0.025
Other status	0.018	0.938*	0.080	0.062
<i>Housing tenure (base is own outright)</i>				
Mortgage (inc pt rent)	0.130	1.398***	0.263**	0.453***
Tenant	-0.185	0.605	0.247	0.156
Rent free	0.058	1.410	0.083	-0.008
HH gross monthly inc (£100s)			-0.010***	-0.011***
<i>N</i>	1284	1284	889	889

Notes: Explanatory variables are changes characteristics between WAS and HAD. * significant at 10%; ** significant at 5%; *** significant at 1%.

Personal characteristics are those of household reference person. Repayment/income ratios use income measures that set missing benefit and investment income components to zero. Equations are estimated as first-differenced models using OLS regression. Columns (1), (3) and (4) report marginal effects on probability of making transitions evaluated at sample means ; coefficients in column (2) represent changes in number of credit commitments. E.g. holding other variables constant, the addition of a child to a household leads to 0.4 more credit commitments. And holding other variables constant, taking out a mortgage leads to a 26.3 percentage point increase in the probability that unsecured debt repayments will rise above the 25% of income threshold and a 45.4 percentage point increase in the probability that total debt repayments will rise above the 50% of income threshold.

6.7 The impact of financial advice and attitudes on over-indebtedness transitions

121. We now introduce into our models variables capturing whether or not individuals have received financial advice and people's financial attitudes, and examine the extent to which these are related to over-indebtedness transitions. We initially focus on the receipt of financial advice, with the estimates presented in Table 18. This table shows the estimated coefficient on reporting having ever received financial advice in WAS on over-indebtedness transitions between WAS and HAD using each of the over-indebtedness indicators (in column (1)). The estimates in column (2) show the association between receiving advice since WAS on over-indebtedness transitions between WAS and HAD, again using each of the over-indebtedness indicators. All models also include the full set of controls as in previous models.

Table 18: Receiving financial advice and over-indebtedness transitions

	Association of previous advice with subsequent transitions (1)	Association of new advice (since WAS) with transitions (2)
<i>Individual level</i>		
Unsecured debt is heavy burden	0.058**	0.057
Number of credit commitments	0.271***	0.337***
<i>Household level</i>		
Any debt in hh is heavy burden	0.033	0.122***
Number of hh credit commitments	0.392***	0.788***
Unsecured repayments > 25% hh income	0.105***	0.097**
All repayments >50% hh income	0.049**	0.049

Notes: Estimates in column (1) are from models of over-indebtedness transitions as a function of initial characteristics. Other controls are those in Tables 14 and 15. Estimates in column (2) are from models of over-indebtedness transitions as a function of changes in characteristics. Other controls are those in Tables 16 and 17. * significant at 10%; ** significant at 5%; *** significant at 1%. Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

122. These estimates indicate a generally positive and statistically significant association between receiving financial advice, whether prior to WAS or between WAS and HAD, and making transitions into over-indebtedness (equivalently, receiving advice is associated with a smaller likelihood of escaping over-indebtedness). This apparently indicates that the receipt of financial advice worsens people's financial situation rather than improves it, which is unexpected. However, there are several issues to consider here. Firstly, it is the most over-indebted, and those with increasing levels of over-indebtedness, who are most likely to seek financial advice. Evidence from BIS (2010) indicates that this is indeed the case. Therefore the positive impact may be capturing this effect. Another consideration is that financial advice in particular circumstances may include debt consolidation which, in the short term, may appear to increase the number of commitments etc. held. Also the financial advice may take time to filter through in terms of reducing over-indebtedness, and these longer-term effects are not being captured in the one year period between the WAS and HAD surveys. More years of data will facilitate the identification of the longer term impacts of financial advice on over-indebtedness.

123. Table 19 shows the estimated impact of attitudes to debt collected in WAS on over-indebtedness transitions between WAS and HAD. (We are unable to look at the impact of changes in attitudes on over-indebtedness transitions because these questions were not asked in HAD.) Again, these attitude variables are entered into separate models for each over-indebtedness indicator and as in the cross-sectional WAS analysis these results should be interpreted with caution as they may reflect behaviour as well as cause it. This is especially true with the attitude to credit variable. Access to more years of data will provide more robust information on the impact of attitudes to credit on debt on over-indebtedness transitions.

124. The estimates indicate that buying when unable to afford has no statistically significant impact on over-indebtedness transitions using any indicator. Identifying as a saver rather than a spender is associated with a reduction in the number of credit commitments (by 0.2 in the individual level models and 0.35 in the household level models). Not surprisingly, a tendency to buy on credit is associated with increases in credit commitments (by 0.4 in the individual models and 0.5 in the household models), and in the unsecured repayment-to-income ratio.

Table 19: Attitudes to debt and subsequent over-indebtedness transitions

	“Buy when can’t afford”	“More saver than spender”	“Buy on credit and pay later”
<i>Individual level</i>			
Unsecured debt is heavy burden	0.028	0.006	0.025
Number of credit commitments	-0.036	-0.183**	0.389***
<i>Household level</i>			
Any debt in hh is heavy burden	-0.001	0.001	0.048
Number of hh credit commitments	-0.056	-0.354**	0.486***
Unsecured repayments > 25% hh income	0.012	-0.042	0.107***
All repayments >50% hh income	0.027	0.005	-0.010

Notes: Estimates are from models of over-indebtedness transitions as a function of initial characteristics. Other controls are those in Tables 14 and 15. * significant at 10%; ** significant at 5%; *** significant at 1%. Repayment/income ratios use income measures that set missing benefit and investment income components to zero.

Summary

125. This longitudinal analysis suggests a fall in the incidence of over-indebtedness between the WAS and HAD surveys (corresponding to 2006-08 and 2007-09) among the most over-indebted households, although there was also an increase in the number of credit commitments and an increase in the numbers of arrears for those who were over-indebted. Therefore fewer people and households were over-indebted in HAD than WAS, but the situation of those that remained over-indebted on average worsened. There was also a high level of persistence in over-indebtedness over time. Household size and structure, housing tenure, and employment status, and changes in household size and structure and housing tenure emerged as key factors associated with over-indebtedness transitions.

7. Conclusion

126. The objectives of this research were to use data from the Wealth and Assets Survey (WAS) and the follow-up Household Annual Debtors survey (HAD) to extend existing knowledge about potential ways of measuring financial difficulty and over-indebtedness in particular, identify the types of people and households who are over-indebted, and those who become more or less over-indebted from one year to the next.
127. Consistent with previous studies using different data sources, we find that a small but significant minority of individuals and households in Great Britain suffers from problems of over-indebtedness. Depending on the indicator used, over-indebtedness affects between 4% and 6% of individuals (unsecured credit only) and 8% and 17% of households. Factors that consistently increase the risk of over-indebtedness at the household level are: having a young or female household reference person (HRP), living in a larger household, living in a household with a divorced or separated, unemployed or sick or disabled HRP, having a mortgage or being a tenant rather than owning the house outright.
128. However, the overlap of the indicators is far from perfect and the proportions of individuals and households scoring positively on at least one of the indicators are substantially higher: 10% of individuals and 28% of households. While this may appear to suggest that over-indebtedness is widespread in Britain, we need to bear in mind that the indicators represent different dimensions of credit behaviour which may not all be immediately problematic. While the arrears indicators reflect acute current problems caused by unsustainable debt, holding multiple credit commitments may not be a problem at all for individuals who can expect high income growth. For others, however, it could be a warning sign of debt problems to come. Thus as well as the consistent predictors of over-indebtedness listed above, we also found some differences. In particular, measures of economic success (such as belonging to a managerial or professional occupation) and having more working household members were associated with more credit commitments but fewer arrears and lower subjective debt burden. This evidence supports the idea that the heavy use of credit is not necessarily a sign of debt problems. A goal for future research should be to try to disentangle the different indicators more clearly. For example, with a long run of panel data it would be possible to see whether indicators like debt burden or repayment-to-income ratios correctly predict future arrears.
129. We also looked at the persistence of over-indebtedness using the WAS-HAD panel. With the caveat that the picture we present is partial (because the sample is of households already in heavy debt, and not household about to fall into over-indebtedness), we find a fall in the prevalence of over-indebtedness among people in the most over-indebted households between 2006–08 their follow-up interview, but an increase in the depth of over-indebtedness. About 50% of individuals and households in the most financial difficulty and who were over-indebted in WAS were also over-indebted in HAD, while between 9% and 25% of individuals and households who were not over-indebted in WAS had become over-indebted in HAD. Therefore there is a high degree of persistence in over-indebtedness among households in the most financial difficulty. Household size and structure, housing tenure, and employment status, and changes in household size and structure and housing tenure emerge as key factors associated with over-indebtedness transitions. It is also worth noting that although there is persistence in over-indebtedness, the fact that there are also transitions probably

means that cross-sectional measures of over-indebtedness underestimate the number of households affected at some point in their lives. Temporary periods of over-indebtedness may partly be a rational response to expectations of income growth over the life cycle (van de Ven and Weale 2008).

130. Finally, we also investigated the association of attitudes to spending and credit, and the receipt of debt advice, with over-indebtedness. Financial attitudes have a very strong cross-sectional correlation with over-indebtedness but are somewhat less successful in explaining transitions. This is consistent with the idea that at least to some extent, attitudes reflect as well as cause credit behaviour. By contrast, both past and current receipt of debt advice are strongly associated with over-indebtedness transitions – but they predict greater not less over-indebtedness. Longitudinal data should help to tease out a causal impact of advice on over-indebtedness (expected to be negative) but here it is likely that any effect is swamped by the strong association in the other direction (e.g. people getting into debt are more likely to seek advice). To separate the two effects will require more years of data, so that we can observe the long-term effect of receiving advice.

8. Appendix

Table A1: Summary statistics (means and percentages)

Variable	WAS	WAS-HAD panel	
		Wave 1 (WAS)	Wave 2 (HAD)
Age	49.6	41.0	42.0
Female	52.1	56.6	56.6
Marital status			
Married	56.2	42.4	42.9
Cohabiting	9.5	15.2	15.1
Single	18.4	23.8	23.4
Widowed	7.2	2.6	2.9
Divorced	6.2	10.8	10.6
Separated	2.2	4.8	4.5
Same sex couple	0.2	0.3	0.3
Civil partner	0.2	0.2	0.2
Former/separated civil partner	0.0		0.1
Activity status			
Employee	49.7	54.3	52.3
Self-employed	7.8	6.5	6.3
Unemployed	2.4	6.2	10.4
Student	1.8	1.5	1.9
Looking after family	5.7	10.9	9.9
Sick or disabled	5.0	11.9	11.0
Retired	26.5	6.8	7.8
Other	1.3	2.0	0.4
Highest educational qualification			
Degree	22.1	12.1	-
Other qualifications	55.3	68.1	-
No qualifications	22.6	19.8	-
Socio-economic classification			
Managerial and professional	35.8	23.0	-
Intermediate occupation	20.2	17.8	-
Routine and manual	37.0	50.2	-
Never worked / long-term	4.0	6.2	-
Not classified	3.0	2.8	-

Continue over

Table A1 continued

Variable	WAS	WAS-HAD panel	
		Wave 1 (WAS)	Wave 2 (HAD)
Region			
North east	4.5	5.1	5.1
North west	11.5	12.8	10.0
Yorkshire	9.0	8.6	8.6
East midlands	8.0	8.6	8.6
West midlands	9.2	9.7	9.7
East of England	9.9	8.4	8.4
London	10.6	11.5	11.5
South east	14.5	13.6	13.6
South west	8.5	9.7	9.7
Wales	5.4	4.9	4.9
Scotland	9.0	7.0	7.0
Unclassified			2.8
"...buy things when can't really afford"			
strongly agree	2.8	8.4	-
tend to agree	9.6	22.2	-
neither agree nor disagree	5.6	9.3	-
tend to disagree	24.1	26.5	-
strongly disagree	57.3	33.0	-
Don't know/no opinion	0.6	0.5	-
"...more a saver than spender"			
strongly agree	17.8	5.8	-
tend to agree	27.3	16.8	-
neither agree nor disagree	24.2	22.1	-
tend to disagree	19.1	28.6	-
strongly disagree	10.7	25.7	-
Don't know/no opinion	0.9	0.9	-
"...buy things on credit and pay later"			
strongly agree	4.6	8.4	-
tend to agree	15.5	23.8	-
neither agree nor disagree	7.6	9.2	-
tend to disagree	20.7	22.1	-
strongly disagree	51.0	35.8	-
Don't know/no opinion	0.6	0.7	-
"Tend to shop around for best deal on interest rates etc."			
strongly agree	24.6	21.2	-
tend to agree	27.1	23.9	-
neither agree nor disagree	19.1	21.7	-
tend to disagree	13.7	15.1	-
strongly disagree	6.5	8.6	-
Don't know/no opinion	9.0	9.5	-

Continued over

Table A1 continued

Variable	WAS	WAS-HAD panel	
		Wave 1 (WAS)	Wave 2 (HAD)
Ever sought debt advice			
Yes	7.7	40.3	17.8
No	92.3	59.7	82.2
Housing tenure			
Owned outright	35.0	6.7	7.1
Buying with mortgage	35.6	37.2	36.7
Part rent, part mortgage	0.3	0.2	0.3
Social tenant	18.1	38.8	55.1
Private tenant	9.8	16.7	-
Rent free	1.3	0.5	0.8
Household type			
Single, over SPA	14.6	3.8	-
Single, under SPA	13.9	15.7	-
Married/cohabiting, both over SPA, no children	12.4	1.5	-
Married/cohabiting, both under SPA, no children	14.5	10.9	-
Married/cohabiting, 1 over / 1 under SPA, no children	4.1	2.2	-
Married/cohabiting, dependent children	20.6	27.4	-
Married/cohabiting, non-dependent children	5.0	5.2	-
Lone parent, dependent	7.3	22.1	-
Lone parent, non-dependent	3.7	5.6	-
2+ families / other household	4.0	5.6	-
Number of working household members			
0	37.7	35.2	35.2
1	29.8	38.9	41.0
2	28.1	23.4	21.4
3	3.5	2.3	2.1
4	0.8	0.2	0.4
5	0.1	0.1	0.0
Gross annual household	32078.8	22431.6	22406.8
Individuals	54,979	2,152	2,152
Households	30,594	1,369	1,368

Notes: Statistics for housing tenure, household type and number of working household members and gross household income are calculated over all households; all other statistics are calculated over all individuals. Due to questionnaire filtering, sample sizes for spend/save preferences are 45,814 (WAS), 1,889 (WAS-HAD, wave1); for shopping around are 25,973 (WAS), 1,111 (WAS-HAD, wave1); for debt advice are 36,367 (WAS), 1608 (WAS-HAD, wave1), 1766 (WAS-HAD, wave 2). The debt advice question in the WAS-HAD panel, wave 2 (HAD) asks about debt advice sought in the last year. The housing tenure information in the WAS-HAD panel, wave 2 (HAD) does not distinguish between social and private tenancy. - denotes information not available.

Table A2: Over-indebtedness at household level – additional regressions controlling for income

	Any arrears in hh (1)	Any debt in hh is heavy burden (2)	Number of credit commits (3)
Female	0.008***	0.018***	0.213***
Age/10	0.003	0.005	-0.365***
(Age/10) squared	-0.002***	-0.002***	0.014***
No. of adults	0.019***	0.022***	0.238***
No. of children < 16	0.008***	0.015***	0.086***
No. of wking adults	-0.001	-0.005	0.353***
<i>Marital status (base is single)</i>			
Married	-0.023***	-0.016***	0.118***
Separated or divorced	0.011***	0.035***	0.166***
Widowed	-0.008	0.009	0.145***
<i>Activity status (base is employed)</i>			
Self-employed	0.005	0.009	-0.029
Unemployed	0.072***	0.082***	0.428***
Retired	-0.014**	-0.016*	0.185***
Sick/disabled	0.040***	0.062***	0.429***
Student	-0.005	0.071	0.489
Looking after family	0.015**	0.015	0.270***
Other status	0.021	0.038*	0.140
<i>Socio-econ class (base is routine/manual)</i>			
Managerial/ prof occ	-0.019***	-0.021***	0.053*
Intermediate occup	-0.008**	-0.007	0.035
Never wked / l-t unem	-0.018***	-0.030***	-0.329***
<i>Highest qualification (base is none)</i>			
Degree	-0.019***	-0.009	-0.046
Other qualifications	0.002	0.010**	0.192***
<i>Housing tenure (base is own outright)</i>			
Mortgage (inc pt rent)	0.031***	0.179***	1.709***
Social tenant	0.125***	0.127***	0.617***
Private tenant	0.114***	0.125***	0.600***
Rent free	0.029	0.027	0.114
HH gross monthly inc (£100s)	- 0.0005***	-0.0004***	-0.0005**
<i>N</i>	27980	27980	27980

Notes: Controls also included for region. * significant at 10%; ** significant at 5%; *** significant at 1%. Personal characteristics are those of household reference person. Columns (1) and (2) are estimated using probit equations and report marginal effects on probability evaluated at sample means. Column (3) is estimated using OLS regression and reports marginal effects on number of credit commitments. The income measure sets missing benefit and investment income components to zero.

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URN 11/747