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Exclusion and Discrimination in the Market for Consumer Credit

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Abstract

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Keywords: Consumer Credit, Racial Discrimination

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1. Introduction

Racial discrimination has resurfaced again in recent public debate in the UK. The issue was voiced at the highest level by Deputy Prime Minister Nick Clegg who put the banks under the spotlight. He accused banks of excluding certain racial minorities from financial services (Clegg, 2011) pointing out that although 35 percent of individuals from black African origin assert their willingness to start a business only 6 percent achieve this goal due to discrimination in obtaining credit. He also argued that firms owned by individuals of black African origin are four times more likely than so-called 'white firms' to be denied loans outright. Mr. Clegg, however, stressed that the aforementioned evidence was mostly anecdotal. The aim of this paper, therefore, is to shed further light on the debate of racial discrimination in financial services by presenting an empirical analysis of household behavior in the market for UK consumer credit.

An extensive U.S literature on discrimination in credit markets exists and most focuses on mortgage lending. Empirical attention has analysed two types of discrimination, the first, known as individual discrimination, relates to the refusal to lend to individuals due to various non-economic characteristics. The second, called ‘redlining’, concerns the refusal to lend to certain neighbourhoods, again, due to non-economic features. Early empirical analysis of racial discrimination in mortgage lending was prompted by analysis of data compiled by the Federal Reserve Bank of Boston under the requirements of the Home Mortgage Disclosure Act (HMDA) 1975 that sought to monitor minority access to the mortgage market (Munnell et al., 1992, 1996). Typically, blacks and Hispanics have higher mortgage application rejection rates and are offered less attractive terms than whites with similar credit and other features (Black et al., 1978; Munnell et al. 1996; Ross and Yinger 1999, 2002). Other

evidence points to blacks paying more for their mortgages, around 0.5 percent, even when factors such as income levels, property dates and the age of buyer are controlled for (Oliver and Shapiro, 1997). Smaller, yet adverse, pricing differentials for minority mortgages are found in Black et al. (2003), Courchane and Nickerson (1997) and Crawford and Rosenblatt (1999), although these higher rates may be counteracted with more favourable terms (longer low rate lock-ins) elsewhere (Crawford and Rosenblatt 1999). Mortgage default rates may also be higher (Berkovec et al., 1996) or no differe nt (Berkovec et al., 1998)[1]. Han (2011) develops a model of creditor learning and uses the mortgage market data of Munnell et al. (1996) and finds that racial disparity in mortgage approval rates falls substantially for blacks the longer their credit history.

Features of U.S. racial residential segregation have been widely documented (Massey and Denton, 1993) and academic interest in racial redlining increased after the passing of the 1974 Equal Credit Opportunity Act (which outlawed redlining), and the Community Reinvestment Act of 1977 (which made it illegal for lenders to have a smaller amount of mortgage funds available in minority neighbourhoods compared to similar white neighbourhoods). Early work found little evidence of redlining (Schafer and Ladd, 1981; Benston and Horsky, 1992; Munnell et al., 1996; Tootell, 1996) although the majority of later studies found that poor and minority neighbourhoods have less access to mortgage funding (Phillips-Patrick and Rossi, 1996; Siskin and Cupingood, 1996; Ross and Yinger, 1999) and are also more likely to be subject to predatory lending practices than comparable white neighbourhoods (Calem et al. 2004; Williams et al. 2005; Dymski, 2006).

[1] Also see Ladd (1998) for a review of the issues associated with mortgage discrimination.

Literature on discrimination in the consumer credit market is (again) typically U.S. focused yet less developed than that on mortgage financing[2]. Early studies that use Household Survey data tend to be mixed with some finding evidence that minorities are not discriminated against in terms of access to consumer credit (Lindley et al., 1984; Hawley and Fujii, 1991) while other studies find that loan approval rates are lower for minorities (Duca and Rosenthal, 1993)[3]. A number of studies look at auto loan pricing and find no evidence of discrimination (Goldberg, 1996; Martin and Hill, 2000) although this could be because non-price terms differ for minorities compared to whites leading those discriminated against to drop out of the market (Ayres and Siegelman, 1995). Edelberg (2007) uses data from the tri-annual Surveys of Consumer Finance (SCF) to investigate consumer loan pricing and finds 'that interest rates on loans issued before the 1995 show a statistically significant degree of unexplained racial heterogeneity even after controlling for the financial costs of issuing debt'(p.2). Edberg also find that discrimination is more robust among homeowners than renters. More recently Lin (2010) uses SCF data and finds that lenders chose to discriminate against black and Hispanics because, on average, they have higher default risk[4].

Outside the extensive U.S literature on discrimination the academic and policy focus has mainly been on problems associated with household access to financial services. The inability to access financial services is termed financial exclusion (Simpson and Buckland, 2009). Financial exclusion is regarded as a setback for the general welfare of society as it is linked to social exclusion (Claessens, 2006; Gloukoviezoff, 2007; Carbo et al. 2007; Beck and

[2] See Pager and Shepherd (2008) for an excellent review of the U.S. racial discrimination literature.

[3] Cavalluzo et al. (2002) also find higher rates of rejection among (otherwise equivalent) minority-owned small businesses looking to borrow.

[4] Becker (1971) referred to this as statistical discrimination. If lenders lent even less than was suggested by higher default rates to minorities this would suggest what Becker termed 'prejudicial discrimination'.

Demirgüc-Kunt, 2008). Those who lack access to financial services are also often excluded in other areas of society.

Empirical studies on financial exclusion[5] (Honohan, 2008 – a cross country analysis, Hogarth et al., 2005 on the US; Devlin, 2005 and Kempson and Whyley, 1999 on the UK; Simpson and Buckland, 2009 for Canada; Carbo et al., 2007 on the EU) typically find that it is determined by factors such as levels of income, net worth, education, employment status, age, and ethnicity[6]. Dymski (2010) speculates that in the U.S., prior to the 1990s, financial exclusion existed primarily in forms of redlining and discrimination. In terms of ethnicity, Kempson and Whyley (1999) use data from the U.K. Family Resources Survey and show that financial exclusion is higher among black, Pakistani and Bangladeshi households. This generally confirms the observations of Pollin and Riva (2001) and Kahn (2008) who note that financially excluded households include a disproportionate number of ethnic minority households.

In this paper we use data obtained from the Living Costs and Food Survey gathered by the Office of National Statistics in the UK to investigate access to consumer credit by households of different ethnic origin. We are specifically interested in identifying the groups that appear excluded from access to credit by formal financial institutions and whether discrimination is based on racial origin. Additionally, we examine the impact of the recent financial crisis on discrimination. A better understanding of credit exclusion and how it functions could improve policy makers' proposals for social development policies in the UK.

[5] Usually defined as having access to a bank account

[6] A recent survey of research issues relating to financial exclusion is included in World Bank (2007). Also see European Commission (2008) and FITF (2009).

The remainder of the paper is organized as follows: The next section describes the data sources, provides descriptive statistics and explains the empirical methodology used in the analysis. The results of estimations are presented and discussed in Section 3. Section 4 concludes.

2. Data and methodology

2.1. *Data*

We collect our data from the Living Costs and Food Survey gathered by the Office of National Statistics in the UK. This is an annual exercise to collect data on private household expenditure on goods and services. The results are multipurpose thereby serving as an instrumental source of economic and social data. The survey targets a representative UK sample of approximately 6,000 households and between 13,000 and 16,000 individuals every calendar year. Most of the questions address issues relating to household characteristics such as, race, family relations, employment details, as well as information on household spending and income features.

The anonymised version of the survey results from 2001 to 2009 is obtained from the Economic and Social Data Service (ESDS) a division of the UK Data Archive. The total sample amounts to 59,477 households. Following previous literature, the household reference person is assumed to be the most influential within the household (Donoso et al., 2011; Kempson and Whyley, 1999) even though certain responses require that variables are aggregated for all household members.

2.2. *Methodology*

2.2.1. *The baseline model*

We use probit and logistic estimators to examine the household characteristics that lead to credit exclusion. The baseline model is as follows:

$$\Pr(credit) = f(racial\ origin, age, education, gender, tenure, income, household\ size, region, marital\ status, benefits, expenditure, year) \quad (1)$$

where,

Credit is a binary dependent variable indicating household's access to consumer credit. A household is said to have access to credit when they either have a credit card or are paying off a loan (Simpson and Buckland, 2009). Hence the variable *Credit* takes the value of 0 when a household owns a credit card or is paying off a loan and 1 otherwise. We also employ two alternative dependent variables, *loan* and *credit card*, in relation to specific credit tools. *Loan* equals 0 if the household is paying off a loan and 1 otherwise. *Credit card* equals 0 if the household owns a credit card and 1 otherwise.

The independent variables are described below and are mainly drawn from earlier studies on discrimination (such as Duca and Rosenthal, 1993; Munnell et al., 1996; Goldberg, 1996; Tootell, 1996; Han, 2011) and financial exclusion (such as Kempson and Whyley, 1999; Finney and Kempson, 2009; Devlin, 2005; Hogarth and O'Donnell, 2000):

- *Racial Origin* represents the racial origin of the household's head. The first category refers to those of white racial origin, followed by those of mixed racial backgrounds, then those of Asian and African or Afro-Caribbean (or black) descent coded in order

of numerical ascension. We also utilise an aggregated variable, *all other races*, which takes the value of 1 if the household head has a racial origin other than white and 0 otherwise.

- *Age* represents the age of the household head. The variable is categorized into ten year bands prior to the creation of relevant indicator variables for each of the bands ranging from 16 to 65+.
- *Education* indicates the educational attainment of the household's head. We use the age when full time education is completed to measure education levels. The bands are 0-16, 17-19 and 20 or over.
- *Gender* indicates the sex of the household reference person.
- *Tenure* represents the housing tenure of the respondent. Based on responses from the survey, this variable has been coded into owner occupiers, those paying off mortgages, those living in rented homes and those living in rent-free accommodation.
- *Household Size* indicates the number of persons in a household.
- *Region* indicates the region where the household is located. The regions considered in the study include thirteen government office regions: North East, North West, Merseyside, Yorkshire and the Humber, East Midlands, West Midlands, Eastern, London, South East, South West, Wales, Scotland and Northern Ireland.
- *Marital Status* indicates the marital status of the household reference person categorised as married, co-habiting, single, widowed, divorced and separated.
- *Income* indicates the total weekly income of the household. It is classified in three bands – Low (<£201), medium (£201 - £600) and high (£601+), computed from a lower threshold of £10,000 per annum as against higher income levels in excess of £30,000 per annum.

- *Benefits* represents those households receiving any form of benefit payments from the Department for Work and Pensions or the Social Security Agency.
- *Expenditure* captures weekly household current expenditure on goods and services thus, both consumption and non-consumption expenditure. The coding used here is identical to that of 'weekly income'; £0 – £200, £201 – £600, £601+.
- *Year* captures the effect of the macroeconomic environment on bank lending practices coded as dummy variables between 2001 and 2009.

2.2.2. *Controlling for selection bias*

Our measure of access to credit is whether a household has a credit card or a loan. However one could argue that certain households loathe the whole idea of borrowing and do not use any form of credit by choice. Borrower's application decision may cause sample selection bias.[7] To tackle this potential setback we use a two-step estimating procedure with a selection equation using two alternate variables. Similar strategies are used in the discrimination literature in studies such as Goldberg (1996) and Duca and Rosenthal (1993). For the first dependent variable we assume that households who do not have any savings would likely be in need of credit. With this assumption we estimate the following selection equation prior to running the estimates described above in equation 1:

$$\Pr(savings) = f(age,\ income,\ household\ size,\ expenditure) \qquad (2)$$

where,

Savings equals to 1 if households does not have any savings and 0 otherwise. Descriptions of variables *age, income, household size, and expenditure* are as described above. We base the

[7] See for example Yezer et al. (1994) and Longhofer and Peters (2005).

saving capacity on household size, total weekly income, the level of weekly expenditure and the age of the household's head.

For the second dependent variable of the selection equation we take the difference between weekly expenditure and income. We assume that households who declare to be spending more than they earn are likely to need credit. The following selection equation is estimated for the alternative dependent variable:

$$\Pr(\textit{income gap}) = f(\textit{age, household size}) \quad (3)$$

where,

Income gap equals 1 if the household's weekly expenditure is higher than the weekly income and 0 otherwise.

2.2.3. *Descriptive statistics*

General household characteristics: Table 1 provides summary statistics of the general features of households and their access to consumer credit. Access to such credit is from two sources, namely, loans and credit cards. We show cases where neither sources of credit are available to households. As mentioned earlier, the household is represented by the characteristics of a reference person and he/she is assumed to be the most influential within the household to make decisions. Variables represented by the household reference person cover *racial origin, age, employment status and age finished full time education.* Other variables reflect the attributes of the household.

Households of white racial origin constitute 94.3 percent of the total sample, followed by those of Asian and black racial origin. A majority of households are either mortgagors or outright owners of the homes they live in. Average weekly household income is £419 while average expenditure is £451. Around 50 percent of households in the sample earn between £200 and £600 per week. Average household size is 2.4 members with the most common category being 2 members per household. Average age for the household reference person is 51.6 and 59.2 percent of all household heads are employed. Average age to finish full time education for a typical household reference person is 17.3 years. 50.6 percent of all household reference persons are married and 72.1 percent of these receive state benefits. In terms of gender, 62.1 percent of all household reference persons are male.

3. Empirical results

3.1. *Baseline model*

We estimate the probability of households having access to consumer credit using probit and logistic regressions, following previous discrimination/exclusion literature (such as Duca and Rosenthal, 1993; Munnell et al., 1996; Tootell, 1996; Han, 2011; Finney and Kempson, 2009; Devlin, 2005). Results of the baseline model are presented in Table 2. First, we utilise the aggregated racial origin variable, *all other races* (proxying for non-white households), in Models 1 and 2. As defined in the methodology, the main dependent variable refers to household access to credit, which equals 1 if households do not have a loan or credit cards, and 0 otherwise. Controlling for other household characteristics, we find that the probability of having no access to consumer credit is 1.365 times higher for non-white households. In Models 3 and 4 we use dummy variables indicating each racial group in the sample. Coefficients show that households of Asian and black racial origin are more likely to face

credit exclusion. We do not find significant coefficients for households of mixed race and of 'any other origin'. Overall, our findings from the baseline model show that consumers applying for credit may be discriminated because of their racial origin and households from Asian and black origins are most affected.

Subsequently, we test the relationship between race and credit access for loans and credit cards separately. Results are presented in Table 3. The dependent variables in the models 1, 2, 5 and 6 take the value 1 if the household is not paying off a loan and 0 otherwise. The dependent variable in models 3, 4, 7 and 8 takes the value 1 if the household has no credit card and 0 otherwise. Our findings confirm earlier results. There is a positive and significant relationship between *all other races* and exclusion from consumer loans and credit cards. Households of non-white racial origin have less access to consumer credit.

In models 5 through 8, we analyse the relationship for each racial category. Asian households are 1.86 times more likely than whites to have no bank loans. For credit cards, the odds ratio for Asian households falls to 1.12 and the coefficient is significant, again suggesting they are less likely to have credit cards compared to whites. Similarly, households from black racial origin are also 1.39 times more likely to be excluded from credit cards when compared to whites. However, we find a negative and significant relationship between being of black racial origin and having access to bank loans. In other words, and contrary to our findings about Asian households, blacks are less likely to be excluded from consumer loans compared to white households.

3.2. *Socio-demographic determinants of household access to consumer credit*

We control for a variety of socio-demographic determinants including the age, education and gender of the household head. In addition, other factors such as tenure, the region in which they lived, size of household and marital status were also controlled for. Finally, various financial attributes were included covering: household income, expenditure and whether the household was in receipt of state benefits. We find that variables that have a significant influence on access to credit relate to: tenure, household income, age, gender and education of the household head and expenditure levels. Particularly, low income and spending households were more likely to have no access to credit. Below, we briefly comment on the various control variables:

Tenure: Previous studies have found that owner occupiers are more likely to have access to credit compared to households that pay rent or live in social housing (FSA, 2000); hence, we select owner occupiers as the base category. Similar to Duca and Rosenthal (1993), we find that mortgagors are least likely to be without credit as compared to both owner occupiers and renters and within the tenure variable, renting households are most likely to have no credit access.

Income levels: Income is highly significant and a strong predictor of credit access. Predictably, the regression results indicate that, compared to households within the high income bracket, the odds of having no access to consumer credit was 2.3 times higher for households within the low income bracket as compared to an odds ratio of 1.3 for middle income households. Thus, the likelihood of having no access to consumer credit falls with increasing levels of income.

Social Security Benefits: This variable represents households receiving any form of social security benefits, whether means tested or not. Despite the limitations of including a variable that does not distinguish between different types of benefits, the results suggest that benefit recipients were more likely than non-recipients to have no access to consumer credit. A similar finding is also reported by Duca and Rosenthal (1993) regarding access to loan markets.

Age: Evidence from the regression results show that households headed by persons aged 65 and above were 1.40 times more likely to encounter difficulty in accessing credit. Some of other age groups are also significant; however, as FSA (2000) and Devlin (2005) posit, age does not seem to be a particularly strong predictor of access to consumer credit.

Household Size: Hogarth and O'Donnell (2000), Duca and Rosenthal (1993) and Mundell et al. (1996) identified household size as an influencing factor on credit access – members of large households were more likely to be financially excluded. Results reported here also confirm that households with two and three members are more likely to have access to credit compared with larger households.

Age Finished Full Time Education: There is some evidence that household's whose heads leave full-time education at a younger age were more likely to be without financial products (Kempson and Whyley, 1999). Our findings support this assertion with reference to credit. Results indicates that in comparison with those leaving full time education at or after the age of 20 (base), household heads who left school at age 16 or younger were 1.49 times more likely to have no credit access. This suggests that increasing levels of education is negatively related to credit exclusion.

Region: Finney and Kempson (2009) provide evidence that household location can be a strong predictor of access to banking services. Using South East England as the base since households in this region were least likely to have no access to consumer credit we find that, Northern Irish households were most likely to have no bank loan or credit cards followed by those in Wales, Merseyside, and the North East of England. Households located in London, Scotland and West Midlands were less likely to have no loan or credit cards.

Gender: FSA (2000) described gender *per se* as an insignificant predictor of access to credit. However, similar to Munnell et al.'s (1996) findings, we show that, compared to males, females are less likely to be without either credit cards or loans.

Marital status: Using married household heads as the reference category we find that widowed households are more likely to have no access to consumer credit. Similar findings are reported by Duca and Rosenthal (1993), Munnell et al. (1996) and Tootell (1996). Single household heads rank directly behind widowed household heads.

Expenditure levels: Hogarth et al., (2005) posit that households that spend all their income were more likely to have no access to banking and credit services. Our results confirm this finding. Household spending levels are a strong predictor of access to consumer credit in all the models tested. Using high spending households as the base (£601+), we find that those within the low and mid-level spending band (£0-£200 and £201-£600, respectively) were more likely to be without credit.

3.3. *Robustness Check with Selection Bias Adjusted Estimations*

In Table 4, we present the results with the selection model based on household savings[8]. Here we assume that households without savings are more likely to apply for credit. Overall, the main results outlined above still hold. In Model 1, controlling for all other household characteristics, we find a positive and statistically significant relationship between *all other races* and access to credit. Compared to whites, households of any other racial origin are more likely to be excluded from credit markets. We also report positive and significant coefficients for access to both loans and credit cards (in Models 2 and 3, respectively).

Subsequently, we compare each racial category individually in Models 4 to 6. Consistent with the earlier findings, households of both Asian and black racial origin have a higher likelihood of being excluded from credit markets when we use the aggregate consumer credit access variable (Model 4). The only differences with the selection bias adjusted estimations are observed when the loan and credit card access variables are employed separately. We find that Asian households are more likely to have less access to loans. The relationship between being Asian and access to credit cards is not significant. On the other hand, blacks are more likely to have less access to credit cards but they are not disadvantaged with regard to access to in loans compared to whites. We also find that households from other racial backgrounds are more likely to have less access to the loan market.

Results for the second robustness check, based on the selection of households who face an income gap are reported in Table 6. Here we assume that households who spend more than they earn will be in need of credit. The findings match those of the first selection bias adjusted estimations. The only difference is the loss of significance for the coefficient of *all*

[8] Complete results including the control variables are presented in Table A1 in Appendix 1.

other races in Model 3, where we look at credit card exclusion. Adjusting for selection bias, we report that the possibility of having no access to credit cards in relation to racial background is rather limited whereas inability to access loans is widespread and supported in all model specifications.

3.4. *Access to consumer credit and the business cycle*

In order to examine household access to credit services over the business cycle the sample period is divided into three sub-sections in accordance with the stages of the UK economic cycle. We define 2001 and 2003 as a period of economic slowdown and 2004 to 2007 as the boom[9]. A number of studies provide evidence of a relaxation in lending standards and increasing exposure to greater credit risk during the latter period (Mian and Sufi, 2009; Krinsman, 2007; Hull, 2009 and Keys et al., 2009). Given the increased credit risk and concomitant relaxation of screening and monitoring activities, we hypothesize that racial discrimination may have been reduced during this period. Finally, we define 2008 and 2009 as the crises period.

Results are presented in Table 6. We report estimations adjusted for selection bias using the income gap as the selection criteria. Firstly, we observe that access to credit results are driven by loan rather than credit card access (and coefficients for estimations with credit card access are only significant in the crisis period). Secondly, controlling for other household characteristics, we find positive and significant coefficients for all other races for all periods.

[9] We classify 2007 within the boom period. Although the turmoil in the banking sector started around the second half of 2007, the impact of crises on bank lending behaviour was not instantaneous and is adjusted with a lag. Additionally, the household survey for 2007 is undertaken through the year and we assume that the full impact of the financial turmoil both on households' budgets and bank lending policies are more likely to be observed starting from 2008.

Results suggest the presence of racial discrimination regardless of the business cycle. Furthermore, the size of the coefficient for all other races is largest and most significant in the boom period. This suggests a rise in discrimination in consumer credit markets during this period. The empirical evidence presented above suggests that racial discrimination is observed in all periods. Households from a racial origin other than white seem to face difficulty in accessing credit even though they have comparable (economic) characteristics. The increase in the likelihood of being excluded from credit during the boom period suggests that the relaxation in lending standards by banks only applied to whites. Hence, this further increased the gap of credit accessibility for households of a non-white racial origin. During the economic crises, we observe that the probability of no access to credit for households from a non-white racial origin drops. This is more evident especially in the case of access to loans. Furthermore, the strength of the statistical significance increases over the boom period.

Overall, our results suggest a presence of racial inequality in access to consumer credit services in the UK. However, we need to bear in mind the (typical) limitations of the above analysis. While doing our best to control for a wide range of factors that explain access to credit services, it could be that our analysis is subject to the criticism of omitted variable bias (Berkovec et al., 1998; Pager and Shepherd, 2008; Han, 2011). This is because a large number of social, economic, and cultural differences may be correlated with racial differences and their omission could bias our discrimination results. Data sources used to investigate discrimination may also have their limitations (Horne 1994) and there can be potential endogeneity issues (Ross and Yinger, 1999) that statistical approaches cannot always entirely eradicate. We cannot claim that the modelling approach presented in this

paper eliminates all such biases although we argue that potential for such bias are minimised due to wide array of variables and general modelling approach undertaken.

4. Conclusion

Here we investigate whether discrimination is prevalent in the UK consumer credit market. Controlling for selection bias, we utilise probit and logistic estimations to examine 59,477 households' access to loans and credit cards between 2001 and 2009. Overall, we present evidence of racial discrimination in access to consumer credit services in the UK. Non-white households are more likely to be excluded from consumer credit even if they have comparable credentials. Compared to white households, those of Asian origin are more likely to have less access to bank loans, whereas blacks are more likely to be excluded from the credit card market. Our findings are robust to alternative specifications and control for selection bias.

Also, the presence of racial discrimination in access to consumer credit in the UK holds over the business cycle. Surprisingly, we observe a rise in discrimination during the boom period between 2004 and 2007, a time when banks are reported to have relaxed lending standards. It maybe that relaxation of credit standards only applied to white households and this is likely to have further increased the gap of credit accessibility for non-white households.

The possible reasons behind racial discrimination in access to consumer credit in the UK is unclear and beyond the scope of this paper. However, being aware of the link between access to credit and social exclusion, policy makers should seek to develop policies and mechanism

aimed at reducing such inequalities. We argue that there is a strong case for policymakers to consider U.S. style legislation to counter such discrimination.

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Table 1: Descriptive statistics

	Total observations	No of observation	Percentage of total	Percentage of the group with Loan	Credit card	No loan or credit card
Racial Origin						
White	59,337	55,951	94.3%	28.6%	60.7%	31.7%
Mixed	59,337	334	0.6%	33.2%	55.1%	33.2%
Asian or Asian British	59,337	1,512	2.5%	20.5%	63.4%	32.5%
Black or Black British	59,337	1,039	1.8%	32.4%	49.6%	39.6%
Other	59,337	501	0.8%	20.2%	64.7%	31.1%
Tenure						
Other	59,477	14,400	24.2%	31.5%	60.2%	31.3%
Owner Occupier	59,477	14,364	24.2%	11.5%	61.4%	36.2%
Mortgagor	59,477	17,509	29.4%	40.7%	76.7%	16.3%
Rent	59,477	12,589	21.2%	27.5%	37.9%	48.6%
Rent Free	59,477	615	1.0%	21.6%	48.9%	44.4%
Gross Weekly Income						
£000-£200	59,474	18,795	31.6%	16.5%	37.0%	54.1%
£201-£600	59,474	29,852	50.2%	32.6%	66.6%	25.3%
£601+	59,474	10,827	18.2%	37.5%	84.3%	11.2%
Mean (£)	419					
Age						
16-24	59,477	1,897	3.2%	38.5%	43.6%	37.4%
25-34	59,477	8,703	14.6%	46.4%	64.3%	22.7%
35-44	59,477	12,357	20.8%	39.8%	67.9%	22.1%
45-54	59,477	11,130	18.7%	34.8%	68.1%	23.5%
55-64	59,477	19,983	33.6%	29.1%	66.7%	26.4%
65+	59,477	15,342	25.8%	6.4%	45.8%	52.0%
Mean (years)	51.6					
Household Size						
1	59,477	15,050	25.3%	16.4%	46.1%	48.1%
2	59,477	20,253	34.1%	26.2%	64.5%	29.3%
3	59,477	8,451	14.2%	39.0%	66.1%	23.3%
4	59,477	7,557	12.7%	42.1%	70.8%	19.2%
5+	59,477	8,166	13.7%	32.7%	61.8%	28.9%
Mean	2.4					
Employment Status						
Employed	59,477	35,218	59.2%	38.6%	72.8%	19.5%
Unemployed	59,477	1,256	2.1%	30.5%	32.9%	46.3%
Retired	59,477	15,296	25.7%	6.2%	44.8%	53.1%
Unoccupied	59,477	7,707	13.0%	25.9%	40.0%	44.0%
Age Finished Full Time Education						
0-16	56,769	34,873	61.4%	26.8%	52.7%	38.2%
17-19	56,769	11,658	20.5%	34.1%	70.5%	22.1%
20+	56,769	10,238	18.0%	33.2%	79.9%	16.0%
Mean (years)	17.3					

Table 1: Descriptive statistics (continued)

Region						
South East	59,477	2,488	4.2%	28.5%	51.5%	38.7%
Northeast	59,477	5,039	8.5%	29.4%	58.3%	33.3%
Northwest	59,477	1,219	2.0%	27.7%	50.3%	40.3%
Merseyside	59,477	4,954	8.3%	30.7%	60.4%	31.1%
Yorkshire	59,477	4,206	7.1%	29.3%	64.0%	29.3%
East Midlands	59,477	4,892	8.2%	27.2%	58.1%	34.4%
West Midlands	59,477	5,263	8.8%	27.8%	67.0%	27.1%
Eastern	59,477	5,158	8.7%	26.0%	63.8%	30.4%
London	59,477	5,268	8.9%	26.6%	65.3%	28.8%
Southwest	59,477	7,911	13.3%	29.6%	69.3%	24.0%
Wales	59,477	2,889	4.9%	25.7%	53.4%	38.6%
Scotland	59,477	5,040	8.5%	30.7%	58.7%	32.3%
Northern Ireland	59,477	5,150	8.7%	28.4%	46.3%	42.9%
Gender						
Male	59,477	36,941	62.1%	29.5%	65.0%	28.2%
Female	59,477	22,536	37.9%	26.7%	53.0%	37.9%
Marital Status						
Married	59,343	30,037	50.6%	30.6%	70.2%	23.9%
Cohabit	59,343	5,331	9.0%	45.8%	67.2%	20.7%
Single	59,343	8,733	14.7%	28.6%	49.5%	38.6%
Widowed	59,343	7,007	11.8%	7.3%	37.7%	59.6%
Divorced	59,343	5,936	10.0%	26.4%	51.6%	38.3%
Separated	59,343	2,299	3.9%	28.0%	52.4%	35.9%
Benefits						
Non Recipient	59,477	16,609	27.9%	37.9%	73.7%	19.4%
Recipient	59,477	42,868	72.1%	24.7%	55.4%	63.1%
Gross Weekly Expenditure						
£000-£200	59,476	14,242	23.9%	12.3%	28.3%	27.1%
£201-£600	59,476	31,032	52.2%	29.5%	64.6%	11.0%
£601+	59,476	14,202	23.9%	42.1%	83.8%	36.7%
Mean (£)	359					
Year						
2001	59,477	7,473	12.6%	32.2%	59.3%	32.0%
2002	59,477	6,927	11.6%	30.7%	61.1%	30.6%
2003	59,477	7,048	11.8%	31.8%	63.3%	28.6%
2004	59,477	6,798	11.4%	29.0%	61.9%	30.6%
2005	59,477	6,785	11.4%	26.5%	60.5%	32.9%
2006	59,477	6,645	11.2%	26.2%	60.7%	32.7%
2007	59,477	6,136	10.3%	26.9%	59.0%	33.6%
2008	59,477	5,843	9.8%	25.6%	59.6%	33.2%
2009	59,477	5,822	9.8%	25.5%	58.6%	33.3%

Table 2: Probability of household borrowing

This table presents the coefficients from probit and logit models estimating the probability of borrowing. The dependent variable takes the value 1 if the household does not have a loan or a credit card and 0 otherwise. Dependent variables are characteristics of the household and household head. Only odd ratios are presented for logit models. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. SE is standard errors of the coefficients. OR are the odd ratios for the logit models.

	1 - Probit		2 - Logit		3 - Probit		4 - Logit	
	β	SE	OR	SE	β	SE	OR	SE
Ethnic Origin								
White (base)								
All other races	0.178 ***	0.027	1.365 ***	0.062				
Mixed					0.037	0.079	1.088	0.145
Asian or Asian British					0.229 ***	0.039	1.486 ***	0.098
Black or Black British					0.179 ***	0.046	1.374 ***	0.106
Other					0.100	0.067	1.193	0.137
Tenure								
Other	-0.040	0.027	0.953	0.045	-0.038	0.027	0.956	0.045
Owner Occupier (base)								
Mortgagor	0.046 **	0.020	1.095 ***	0.038	0.046 **	0.020	1.096 ***	0.038
Rent	0.339 ***	0.019	1.789 ***	0.060	0.343 ***	0.019	1.800 ***	0.060
Rent Free	0.176 ***	0.061	1.364 ***	0.139	0.177 ***	0.061	1.367 ***	0.139
Gross Weekly Income								
£000-£200	0.482 ***	0.025	2.317 ***	0.103	0.481 ***	0.025	2.314 ***	0.103
£201-£600	0.148 ***	0.021	1.332 ***	0.051	0.148 ***	0.021	1.334 ***	0.051
£601+ (base)								
Age								
16-24	0.043	0.038	1.075	0.069	0.043	0.038	1.076	0.069
25-34	-0.056 ***	0.021	0.908 ***	0.034	-0.058 ***	0.021	0.905 ***	0.034
35-44 (base)								
45-54	0.011	0.020	1.021	0.035	0.009	0.020	1.017	0.035
55-64	0.044 **	0.021	1.086 **	0.039	0.044 **	0.021	1.086 **	0.039
65+	0.196 ***	0.037	1.405 ***	0.088	0.198 ***	0.037	1.411 ***	0.088
Household Size								
1 (base)								
2	-0.051 **	0.022	0.914 **	0.034	-0.049 **	0.022	0.918 **	0.034
3	-0.059 **	0.027	0.903 **	0.042	-0.059 **	0.027	0.903 **	0.042
4	-0.045	0.031	0.930	0.050	-0.044	0.031	0.931	0.050
5+	0.022	0.033	1.055	0.059	0.021	0.033	1.052	0.059
Employment Status								
Employed (base)								
Unemployed	-0.013	0.040	0.971	0.065	-0.011	0.040	0.974	0.066
Retired	0.104 ***	0.034	1.174 ***	0.066	0.102 ***	0.034	1.169 ***	0.066
Unoccupied	-0.015	0.021	0.968	0.035	-0.016	0.021	0.967	0.035

Table 2: Probability of household borrowing (continued)

	1 - Probit		2 - Logit		3 - Probit		4 - Logit	
	β	SE	OR	SE	β	SE	OR	SE
Age Finished Full Time Education								
0-16	0.226 ***	0.019	1.491 ***	0.051	0.227 ***	0.019	1.494 ***	0.051
17-19	0.042 **	0.021	1.085 **	0.042	0.043 **	0.022	1.087 **	0.042
20+ (base)								
Region								
South East (base)								
Northeast	0.235 ***	0.033	1.504 ***	0.086	0.236 ***	0.033	1.505 ***	0.086
Northwest	0.188 ***	0.027	1.383 ***	0.064	0.188 ***	0.027	1.382 ***	0.064
Merseyside	0.277 ***	0.044	1.599 ***	0.119	0.277 ***	0.044	1.600 ***	0.119
Yorkshire	0.066 **	0.027	1.125 **	0.053	0.067 **	0.027	1.125 **	0.053
East Midlands	0.062 **	0.029	1.127 **	0.056	0.062 **	0.029	1.126 **	0.056
West Midlands	0.200 ***	0.027	1.412 ***	0.066	0.199 ***	0.027	1.410 ***	0.065
Eastern	0.062 **	0.027	1.116 **	0.052	0.063 **	0.027	1.117 **	0.052
London	0.131 ***	0.028	1.255 ***	0.061	0.131 ***	0.028	1.255 ***	0.061
Southwest	0.081 ***	0.027	1.160 ***	0.054	0.082 ***	0.027	1.161 ***	0.054
Wales	0.315 ***	0.032	1.724 ***	0.093	0.316 ***	0.032	1.727 ***	0.093
Scotland	0.118 ***	0.027	1.241 ***	0.058	0.118 ***	0.027	1.241 ***	0.058
Northern Ireland	0.486 ***	0.026	2.295 ***	0.103	0.485 ***	0.026	2.293 ***	0.104
Gender								
Male (base)								
Female	-0.075 ***	0.015	0.880 ***	0.022	-0.074 ***	0.015	0.881 ***	0.022
Marital Status								
Married (base)								
Cohabit	-0.002	0.024	0.993	0.042	0.001	0.024	0.998	0.043
Single	0.106 ***	0.025	1.196 ***	0.051	0.110 ***	0.025	1.205 ***	0.051
Widowed	0.204 ***	0.029	1.392 ***	0.067	0.204 ***	0.029	1.394 ***	0.068
Divorced	0.035	0.026	1.058	0.047	0.038	0.026	1.063	0.047
Separated	0.057 *	0.034	1.095	0.063	0.061 *	0.034	1.102 *	0.063
Benefits								
Non Recipient (base)								
Recipient	0.092 ***	0.018	1.172 ***	0.037	0.092 ***	0.018	1.172 ***	0.037
Gross Weekly Expenditure								
£000-£200	0.900 ***	0.025	4.631 ***	0.200	0.899 ***	0.025	4.615 ***	0.200
£201-£600	0.364 ***	0.018	1.947 ***	0.066	0.361 ***	0.018	1.938 ***	0.066
£601+ (base)								
Year								
2001	0.042 *	0.024	1.072 *	0.043	0.043 *	0.024	1.073 *	0.043
2002 (omitted)								
2003	-0.200 ***	0.025	0.713 ***	0.030	-0.200 ***	0.025	0.713 ***	0.030
2004	-0.085 ***	0.025	0.859 ***	0.036	-0.085 ***	0.025	0.860 ***	0.036
2005 (base)								
2006	0.024	0.025	1.044	0.044	0.025	0.025	1.045	0.044
2007	0.069 ***	0.025	1.128 ***	0.048	0.070 ***	0.025	1.129 ***	0.048
2008	0.007	0.032	1.002	0.056	0.009	0.032	1.006	0.056
2009	0.033	0.027	1.065	0.050	0.032	0.028	1.063	0.051
Constant	-1.702 ***	0.040			-1.705 ***	0.040		
Number of observations	56,663		56,663		56,518		56,518	

Table 3: Probability of household borrowing by type of consumer credit

This table presents the coefficients from probit and logit models estimating the probability of borrowing. For "loan exclusion" the dependent variable takes the value 1 if the household does not have a loan and 0 otherwise. For "credit card exclusion" the dependent variable takes the value 1 if the household does not have a credit card and 0 otherwise. Dependent variables are characteristics of the household and household head. Only odd ratios are presented for logit models. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. SE is standard errors of the coefficients. OR are the odd ratios for the logit models.

	Loan exclusion				Credit card exclusion				Loan exclusion				Credit card exclusion			
	1 - Probit		2 - Logit		3 - Probit		4 - Logit		5 - Probit		6 - Logit		7 - Probit		8 - Logit	
	β	SE	OR	SE	β	SE	OR	SE	β	SE	OR	SE	β	SE	OR	SE
Ethnic Origin																
White (base)																
All other races	0.162 ***	0.027	1.314 ***	0.059	0.088 ***	0.026	1.163 ***	0.052								
Mixed									-0.004	0.076	0.994	0.124	0.012	0.078	1.024	0.134
Asian or Asian British									0.365 ***	0.040	1.860 ***	0.129	0.066 *	0.038	1.117 *	0.073
Black or Black British									-0.114 **	0.045	0.828 **	0.062	0.195 ***	0.045	1.399 ***	0.107
Other									0.283 ***	0.069	1.626 ***	0.195	-0.044	0.066	0.927	0.105
Control for:																
Tenure			Yes				Yes				Yes				Yes	
Gross Weekly Income			Yes				Yes				Yes				Yes	
Age			Yes				Yes				Yes				Yes	
Household Size			Yes				Yes				Yes				Yes	
Employment Status			Yes				Yes				Yes				Yes	
Age Finished Full Time Education			Yes				Yes				Yes				Yes	
Region			Yes				Yes				Yes				Yes	
Gender			Yes				Yes				Yes				Yes	
Marital Status			Yes				Yes				Yes				Yes	
Benefits			Yes				Yes				Yes				Yes	
Gross Weekly Expenditure			Yes				Yes				Yes				Yes	
Year			Yes				Yes				Yes				Yes	
Constant	0.380 ***	0.037			-1.688 ***	0.038			0.365 ***	0.037			-1.683 ***	0.039		
Number of observations	56,663		56,663		56,663		56,663		56,518		56,518		56,518		56,518	

Table 4: Probability of household borrowing with sample selection based on household's savings

This table presents the coefficients from probit models with selection estimating the probability of borrowing. For "credit exclusion" the dependent variable takes the value 1 if the household does not have access to credit (either a loan or a credit card) and 0 otherwise. For "loan exclusion" the dependent variable takes the value 1 if the household does not have a loan and 0 otherwise. For "credit card exclusion" the dependent variable takes the value 1 if the household does not have a credit card and 0 otherwise. Dependent variables are characteristics of the household and household head. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. SE is standard errors of the coefficients.

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Ethnic Origin												
White (base)												
All other races	0.113 ***	0.028	0.189 ***	0.035	0.055 *	0.034						
Mixed							0.029	0.074	-0.008	0.084	-0.012	0.092
Asian or Asian British							0.179 ***	0.039	0.436 ***	0.051	0.020	0.048
Black or Black British							0.136 ***	0.044	-0.003	0.051	0.139 ***	0.054
Other							0.088	0.066	0.351 ***	0.085	-0.067	0.082
Control for:												
Tenure	Yes		Yes		Yes		Yes		Yes		Yes	
Gross Weekly Income	Yes		Yes		Yes		Yes		Yes		Yes	
Age	Yes		Yes		Yes		Yes		Yes		Yes	
Household Size	Yes		Yes		Yes		Yes		Yes		Yes	
Employment Status	Yes		Yes		Yes		Yes		Yes		Yes	
Age Finished Full Tim	Yes		Yes		Yes		Yes		Yes		Yes	
Region	Yes		Yes		Yes		Yes		Yes		Yes	
Gender	Yes		Yes		Yes		Yes		Yes		Yes	
Marital Status	Yes		Yes		Yes		Yes		Yes		Yes	
Benefits	Yes		Yes		Yes		Yes		Yes		Yes	
Gross Weekly Expend	Yes		Yes		Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes		Yes		Yes	
Constant	-0.275 *	0.165	0.577 **	0.240	-1.337 **	0.265	-0.224 *	0.129	0.708 ***	0.161	-1.445 ***	0.213

Table 4: Probability of household borrowing with sample selection based on household's savings (continued)

Selection Equation: Dependent variable is 1 if the households does not have savings, 0 otherwise.

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Gross Weekly Income												
£000-£200	0.737 ***	0.020	0.739 ***	0.020	0.740 **	0.020	0.782 ***	0.019	0.783 ***	0.019	0.784 ***	0.019
£201-£600	0.318 ***	0.016	0.319 ***	0.016	0.319 **	0.016	0.318 ***	0.016	0.319 ***	0.016	0.320 ***	0.016
Age												
16-24	0.078 ***	0.030	0.079 **	0.031	0.087 **	0.031	0.082 ***	0.029	0.082 ***	0.030	0.093 ***	0.030
25-34	0.016	0.029	0.017	0.030	0.028	0.030	0.012	0.028	0.011	0.029	0.025	0.029
45-54	0.193 ***	0.018	0.196 ***	0.018	0.198 **	0.018	0.195 ***	0.018	0.198 ***	0.018	0.200 ***	0.018
55-64	-0.394 ***	0.027	-0.393 ***	0.028	-0.385 **	0.027	-0.398 ***	0.026	-0.398 ***	0.027	-0.387 ***	0.027
65+	-0.943 ***	0.029	-0.941 ***	0.030	-0.932 **	0.030	-0.969 ***	0.028	-0.968 ***	0.029	-0.955 ***	0.029
Household Size												
2	0.228 ***	0.016	0.228 ***	0.016	0.227 **	0.016	0.217 ***	0.015	0.218 ***	0.016	0.216 ***	0.016
3	0.466 ***	0.020	0.466 ***	0.020	0.466 **	0.021	0.456 ***	0.020	0.456 ***	0.020	0.456 ***	0.020
4	0.504 ***	0.022	0.508 ***	0.022	0.507 **	0.022	0.496 ***	0.021	0.500 ***	0.021	0.500 ***	0.021
5+	0.520 ***	0.021	0.523 ***	0.021	0.523 **	0.021	0.510 ***	0.020	0.513 ***	0.020	0.513 ***	0.020
Gross Weekly Expenditure												
£000-£200	0.637 ***	0.022	0.638 ***	0.022	0.637 **	0.022	0.712 ***	0.022	0.714 ***	0.022	0.712 ***	0.022
£201-£600	0.282 ***	0.015	0.284 ***	0.015	0.285 **	0.015	0.289 ***	0.015	0.291 ***	0.015	0.292 ***	0.015
Constant	-0.661 ***	0.033	-0.665 ***	0.034	-0.674 **	0.034	-0.648 ***	0.032	-0.651	0.033	-0.663 ***	0.033
Number of observations	58,084		58,084		58,084		58,084		58,084		58,084	

Table 5: Probability of household borrowing with sample selection based on household's income gap

This table presents the coefficients from probit models with selection estimating the probability of borrowing. For "credit exclusion" the dependent variable takes the value 1 if the household does not have access to credit (either a loan or a credit card) and 0 otherwise. For "loan exclusion" the dependent variable takes the value 1 if the household does not have a loan and 0 otherwise. For "credit card exclusion" the dependent variable takes the value 1 if the household does not have a credit card and 0 otherwise. Dependent variables are characteristics of the household and household head. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. SE is standard errors of the coefficients.

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Ethnic Origin												
White (base)												
All other races	0.176 ***	0.041	0.204 ***	0.042	0.058	0.040						
Mixed							0.009	0.114	-0.078	0.110	-0.032	0.112
Asian or Asian British							0.249 ***	0.057	0.384 ***	0.061	0.060	0.057
Black or Black British							0.207 ***	0.073	-0.044	0.073	0.190 ***	0.072
Other							0.051	0.101	0.439 ***	0.112	-0.139	0.100
Control for:												
Tenure	Yes		Yes		Yes		Yes		Yes		Yes	
Gross Weekly Income	Yes		Yes		Yes		Yes		Yes		Yes	
Age	Yes		Yes		Yes		Yes		Yes		Yes	
Household Size	Yes		Yes		Yes		Yes		Yes		Yes	
Employment Status	Yes		Yes		Yes		Yes		Yes		Yes	
Age Finished Full Time Education	Yes		Yes		Yes		Yes		Yes		Yes	
Region	Yes		Yes		Yes		Yes		Yes		Yes	
Gender	Yes		Yes		Yes		Yes		Yes		Yes	
Marital Status	Yes		Yes		Yes		Yes		Yes		Yes	
Benefits	Yes		Yes		Yes		Yes		Yes		Yes	
Gross Weekly Expenditure	Yes		Yes		Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes		Yes		Yes	
Constant	-1.438 ***	0.141	0.452 ***	0.136	-1.485 ***	0.131	-1.428 ***	0.142	0.445 ***	0.136	-1.474 ***	0.132

Table 5: Probability of household borrowing with sample selection based on household's income gap (continued)

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Selection Equation: Dependent variable is 1 if the households have income gap, 0 otherwise.												
Gross Weekly Income												
£000-£200	4.269 ***	0.038	4.269 ***	0.038	4.270 ***	0.038	4.269 ***	0.038	4.269 ***	0.038	4.270 ***	0.038
£201-£600	1.992 ***	0.025	1.992 ***	0.025	1.993 ***	0.025	1.992 ***	0.025	1.992 ***	0.025	1.992 ***	0.025
Age												
16-24	-0.221 ***	0.034	-0.224 ***	0.034	-0.220 ***	0.034	-0.220 ***	0.034	-0.223 ***	0.034	-0.220 ***	0.034
25-34	-0.222 ***	0.033	-0.224 ***	0.033	-0.219 ***	0.033	-0.221 ***	0.033	-0.224 ***	0.033	-0.219 ***	0.033
45-54	-0.084 ***	0.021	-0.085 ***	0.021	-0.084 ***	0.021	-0.084 ***	0.021	-0.085 ***	0.021	-0.083 ***	0.021
55-64	-0.033	0.030	-0.035	0.030	-0.032	0.030	-0.033	0.030	-0.035	0.030	-0.032	0.030
65+	-0.245 ***	0.032	-0.247 ***	0.033	-0.245 ***	0.032	-0.244 ***	0.033	-0.246 ***	0.033	-0.244 ***	0.032
Household Size												
2	0.582 ***	0.018	0.582 ***	0.018	0.582 ***	0.018	0.581 ***	0.018	0.581 ***	0.019	0.582 ***	0.018
3	0.675 ***	0.024	0.676 ***	0.024	0.675 ***	0.024	0.674 ***	0.024	0.674 ***	0.024	0.673 ***	0.024
4	0.708 ***	0.025	0.708 ***	0.026	0.707 ***	0.025	0.707 ***	0.026	0.707 ***	0.026	0.707 ***	0.026
5+	0.592 ***	0.024	0.592 ***	0.024	0.593 ***	0.024	0.592 ***	0.024	0.592 ***	0.024	0.593 ***	0.024
Gross Weekly Expenditure												
£000-£200	-3.542 ***	0.037	-3.543 ***	0.037	-3.542 ***	0.037	-3.543 ***	0.037	-3.543 ***	0.037	-3.543 ***	0.037
£201-£600	-1.491 ***	0.022	-1.491 ***	0.022	-1.491 ***	0.022	-1.492 ***	0.022	-1.492 ***	0.022	-1.492 ***	0.022
Constant	-1.253 ***	0.038	-1.250 ***	0.038	-1.254 ***	0.038	-1.254 ***	0.038	-1.251 ***	0.039	-1.255 ***	0.039
Number of observations	58,084		58,084		58,084		58,084		58,084		58,084	

Table 6: Business cycle and credit exclusion

This table presents the coefficients from probit models with selection estimating the probability of borrowing in relation to the business cycle. The dependent variable in the models take the value 1 if the household is does not have a type of credit (either loan or credit card) and 0 otherwise. Dependent variables are characteristics of household and household head. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. SE is standard errors of the coefficients.

	Slowdown 2001-2003		Expension Period 2004-2007		Economic Crises 2008-2009	
	β	SE	β	SE	β	SE
Credit exclusion (loan and credit card)						
All other race	0.134 *	0.072	0.192 ***	0.062	0.166 *	0.087
Only loan						
All other races	0.161 **	0.068	0.251 ***	0.067	0.162 *	0.090
Only credit card						
All other races	0.006	0.069	0.050	0.062	0.169 *	0.088
Control for:						
Tenure	Yes		Yes		Yes	
Gross Weekly Income	Yes		Yes		Yes	
Age	Yes		Yes		Yes	
Household Size	Yes		Yes		Yes	
Employment Status	Yes		Yes		Yes	
Age Finished Full Time Education	Yes		Yes		Yes	
Region	Yes		Yes		Yes	
Gender	Yes		Yes		Yes	
Marital Status	Yes		Yes		Yes	
Benefits	Yes		Yes		Yes	
Gross Weekly Expenditure	Yes		Yes		Yes	
Year	Yes		Yes		Yes	
Number of observations	20697		25782		10513	

Appendix 1

Table 7: Probability of household borrowing with sample selection based on household's savings

This table presents the coefficients from probit models with selection estimating the probability of borrowing. For "credit exclusion" the dependent variable takes the value 1 if the household does not have access to credit (either a loan or a credit card) and 0 otherwise. For "loan exclusion" the dependent variable takes the value 1 if the household does not have a loan and 0 otherwise. For "credit card exclusion" the dependent variable takes the value 1 if the household does not have a credit card and 0 otherwise. Dependent variables are characteristics of the household and household head. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. SE is standard errors of the coefficients.

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Ethnic Origin												
White (base)												
All other races	0.113 ***	0.0285	0.189 ***	0.035	0.055 *	0.034						
Mixed							0.029	0.074	-0.008	0.084	-0.012	0.092
Asian or Asian British							0.179 ***	0.039	0.436 ***	0.051	0.020	0.048
Black or Black British							0.136 ***	0.044	-0.003	0.051	0.139 ***	0.054
Other							0.088	0.066	0.351 ***	0.085	-0.067	0.082
Tenure												
Other	-0.062 **	0.030	-0.132 ***	0.036	-0.001	0.037	-0.046 *	0.029	-0.139 ***	0.034	0.038	0.036
Owner Occupier (base)												
Mortgagor	0.087 ***	0.024	0.300 ***	0.034	0.042	0.029	0.079 ***	0.023	0.283 ***	0.031	0.028	0.029
Rent	0.229 ***	0.023	0.018	0.023	0.366 ***	0.024	0.242 ***	0.021	0.032	0.022	0.385 ***	0.023
Rent Free	0.069	0.070	0.004	0.086	0.105	0.084	0.086	0.066	0.037	0.081	0.115	0.081
Gross Weekly Income												
£000-£200	-0.050	0.068	0.129	0.107	0.294 ***	0.102	-0.072	0.056	0.063	0.080	0.327 ***	0.088
£201-£600	-0.089 **	0.037	-0.072	0.050	0.112 **	0.053	-0.099 ***	0.033	-0.091 **	0.039	0.115 **	0.046
£601+ (base)												
Age												
16-24	0.037	0.039	-0.181 ***	0.044	0.231 ***	0.046	0.025	0.037	-0.175 ***	0.040	0.223 ***	0.045
25-34	-0.094 ***	0.023	-0.212 ***	0.024	0.010	0.027	-0.093 ***	0.022	-0.206 ***	0.023	0.024	0.026
35-44 (base)												
45-54	-0.106 ***	0.025	-0.113 ***	0.032	0.066 *	0.036	-0.112 ***	0.023	-0.130 ***	0.027	0.084 ***	0.033
55-64	0.251 ***	0.030	0.239 ***	0.048	-0.005	0.055	0.262 ***	0.026	0.272 ***	0.034	-0.028	0.047
65+	0.634 ***	0.059	0.580 ***	0.118	0.175	0.131	0.656 ***	0.051	0.663 ***	0.083	0.127	0.116

Table 7: Probability of household borrowing with sample selection based on household's savings (continued)

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Household Size												
1 (base)												
2	-0.125 ***	0.027	-0.103 ***	0.037	0.010	0.039	-0.132 ***	0.024	-0.112 ***	0.030	0.005	0.035
3	-0.227 ***	0.037	-0.224 ***	0.057	0.055	0.064	-0.246 ***	0.032	-0.254 ***	0.041	0.059	0.054
4	-0.267 ***	0.041	-0.268 ***	0.063	0.063	0.071	-0.270 ***	0.036	-0.293 ***	0.046	0.096	0.060
5+	-0.208 ***	0.045	-0.204 ***	0.068	0.117	0.074	-0.233 ***	0.039	-0.258 ***	0.050	0.142 **	0.063
Employment Status												
Employed (base)												
Unemployed	0.030	0.043	-0.093 *	0.052	0.261 ***	0.053	0.046	0.038	-0.123 ***	0.045	0.355 ***	0.049
Retired	0.101 **	0.042	0.235 ***	0.062	0.094 *	0.053	0.114 ***	0.040	0.218 ***	0.056	0.127 **	0.051
Unoccupied	0.009	0.024	-0.076 **	0.030	0.171 ***	0.029	0.033	0.022	-0.098 ***	0.027	0.264 ***	0.028
Age Finished Full Time Education												
0-16	0.131 ***	0.024	-0.172 ***	0.027	0.334 ***	0.028	0.136 ***	0.023	-0.151 ***	0.025	0.351 ***	0.027
17-19	0.011	0.025	-0.118 ***	0.028	0.100 ***	0.030	0.018	0.024	-0.093 ***	0.027	0.101 ***	0.030
20+ (base)												
Region												
South East (base)												
Northeast	0.133 ***	0.037	-0.001	0.043	0.181 ***	0.044	0.114 ***	0.034	-0.015	0.040	0.167 ***	0.043
Northwest	0.092 ***	0.031	-0.024	0.035	0.113 ***	0.037	0.089 ***	0.029	-0.034	0.033	0.127 ***	0.036
Merseyside	0.232 ***	0.049	0.016	0.057	0.242 ***	0.058	0.206 ***	0.045	0.005	0.052	0.238 ***	0.056
Yorkshire	-0.003	0.030	-0.103 ***	0.035	0.013	0.037	-0.016	0.029	-0.108 ***	0.033	0.006	0.036
East Midlands	0.003	0.034	-0.023	0.039	-0.032	0.041	-0.010	0.032	-0.028	0.036	-0.050	0.040
West Midlands	0.121 ***	0.031	0.029	0.036	0.115 ***	0.037	0.116 ***	0.029	0.027	0.033	0.115 ***	0.036
Eastern	0.015	0.031	0.048	0.036	-0.042	0.038	-0.001	0.030	0.038	0.034	-0.057	0.037
London	0.086 ***	0.032	0.144 ***	0.038	0.000	0.039	0.098 ***	0.030	0.149 ***	0.036	0.020	0.038
Southwest	0.055 *	0.031	0.035	0.036	0.023	0.038	0.044	0.030	0.033	0.034	0.008	0.037
Wales	0.236 ***	0.037	0.121 ***	0.042	0.236 ***	0.042	0.231 ***	0.034	0.106 ***	0.039	0.249 ***	0.040
Scotland	0.060 *	0.031	-0.079 **	0.036	0.109 ***	0.037	0.064 **	0.029	-0.078 **	0.033	0.117 ***	0.036
Northern Ireland	0.286 ***	0.034	0.031	0.034	0.400 ***	0.036	0.269 ***	0.030	0.010	0.032	0.420 ***	0.035

Table 7: Probability of household borrowing with sample selection based on household's savings (continued)

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Gender												
Male (base)												
Female	-0.030 *	0.016	-0.054 ***	0.020	-0.028	0.020	-0.042 ***	0.016	-0.059 ***	0.018	-0.034 *	0.019
Marital Status												
Married (base)												
Cohabit	0.008	0.024	-0.034	0.027	0.080 ***	0.029	0.006	0.023	-0.041 *	0.025	0.091 ***	0.028
Single	0.107 ***	0.027	0.019	0.032	0.185 ***	0.033	0.099 ***	0.026	0.017	0.030	0.204 ***	0.032
Widowed	0.163 ***	0.035	0.048	0.048	0.249 ***	0.044	0.164 ***	0.033	0.072 *	0.044	0.238 ***	0.042
Divorced	0.015	0.028	-0.061 *	0.034	0.100 ***	0.034	0.031	0.026	-0.045	0.031	0.125 ***	0.033
Separated	0.040	0.035	0.080 *	0.042	0.099 **	0.043	0.052	0.033	0.078 **	0.038	0.119 ***	0.041
Benefits												
Non Recipient (base)												
Recipient	0.068 ***	0.020	0.116 ***	0.024	0.087 ***	0.024	0.066 ***	0.019	0.104 ***	0.022	0.093 ***	0.024
Gross Weekly Expenditure												
£000-£200	0.363 ***	0.078	0.423 ***	0.104	0.822 ***	0.094	0.338 ***	0.063	0.326 ***	0.080	0.913 ***	0.080
£201-£600	0.143 ***	0.045	0.196 ***	0.054	0.366 ***	0.048	0.128 ***	0.037	0.162 ***	0.043	0.378 ***	0.040
£601+ (base)												
Year												
2001	0.002	0.028	-0.060 *	0.033	0.020	0.034	0.024	0.026	-0.038	0.030	0.041	0.032
2002 (omitted)												
2003	-0.200 ***	0.030	-0.226 ***	0.034	-0.180 ***	0.034	-0.182 ***	0.027	-0.221 ***	0.032	-0.145 ***	0.033
2004	-0.095 ***	0.028	-0.105 ***	0.033	-0.075 **	0.034	-0.095 ***	0.026	-0.109 ***	0.031	-0.068 **	0.033
2005 (base)												
2006	0.027	0.027	0.031	0.033	0.027	0.034	0.021	0.026	0.021	0.031	0.026	0.033
2007	0.055 **	0.028	0.008	0.034	0.083 **	0.034	0.049 *	0.026	-0.001	0.032	0.082 **	0.034
2008	0.023	0.033	0.057	0.039	0.033	0.041	0.033	0.032	0.071 *	0.037	0.025	0.040
2009	0.033	0.029	0.036	0.034	0.110 ***	0.036	0.014	0.028	0.021	0.033	0.092 ***	0.035
Constant	-0.275 *	0.165	0.577 **	0.240	-1.337 ***	0.265	-0.224 *	0.129	0.708 ***	0.161	-1.445 ***	0.213

Table 7: Probability of household borrowing with sample selection based on household's savings (continued)

	1 - Credit exclusion		2 - Loan exclusion		3 - Credit card exclusion		4 - Credit exclusion		5 - Loan exclusion		6 - Credit card exclusion	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Selection Equation: Dependent variable is 1 if the household does not have savings, 0 otherwise.												
Gross Weekly Income												
£000-£200	0.737 ***	0.020	0.739 ***	0.020	0.740 ***	0.020	0.782 ***	0.019	0.783 ***	0.019	0.784 ***	0.019
£201-£600	0.318 ***	0.016	0.319 ***	0.016	0.319 ***	0.016	0.318 ***	0.016	0.319 ***	0.016	0.320 ***	0.016
Age												
16-24	0.078 ***	0.030	0.079 **	0.031	0.087 ***	0.031	0.082 ***	0.029	0.082 ***	0.030	0.093 ***	0.030
25-34	0.016	0.029	0.017	0.030	0.028	0.030	0.012	0.028	0.011	0.029	0.025	0.029
45-54	0.193 ***	0.018	0.196 ***	0.018	0.198 ***	0.018	0.195 ***	0.018	0.198 ***	0.018	0.200 ***	0.018
55-64	-0.394 ***	0.027	-0.393 ***	0.028	-0.385 ***	0.027	-0.398 ***	0.026	-0.398 ***	0.027	-0.387 ***	0.027
65+	-0.943 ***	0.029	-0.941 ***	0.030	-0.932 ***	0.030	-0.969 ***	0.028	-0.968 ***	0.029	-0.955 ***	0.029
Household Size												
2	0.228 ***	0.016	0.228 ***	0.016	0.227 ***	0.016	0.217 ***	0.015	0.218 ***	0.016	0.216 ***	0.016
3	0.466 ***	0.020	0.466 ***	0.020	0.466 ***	0.021	0.456 ***	0.020	0.456 ***	0.020	0.456 ***	0.020
4	0.504 ***	0.022	0.508 ***	0.022	0.507 ***	0.022	0.496 ***	0.021	0.500 ***	0.021	0.500 ***	0.021
5+	0.520 ***	0.021	0.523 ***	0.021	0.523 ***	0.021	0.510 ***	0.020	0.513 ***	0.020	0.513 ***	0.020
Gross Weekly Expenditure												
£000-£200	0.637 ***	0.022	0.638 ***	0.022	0.637 ***	0.022	0.712 ***	0.022	0.714 ***	0.022	0.712 ***	0.022
£201-£600	0.282 ***	0.015	0.284 ***	0.015	0.285 ***	0.015	0.289 ***	0.015	0.291 ***	0.015	0.292 ***	0.015
Constant	-0.661 ***	0.033	-0.665 ***	0.034	-0.674 ***	0.034	-0.648 ***	0.032	-0.651	0.033	-0.663 ***	0.033
Number of observations	58,084		58,084		58,084		58,084		58,084		58,084	

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