Institute for Fiscal Studies

Credit Counseling: A Substitute for Consumer Financial Literacy?

IFS Working Paper W14/32

Richard Disney
John Gathergood
Jorg Weber

Credit Counseling: A Substitute for Consumer Financial Literacy?

RICHARD DISNEY*

Department of Economics, University College London
Institute for Fiscal Studies, London
University of Sussex

JOHN GATHERGOOD†

University of Nottingham, School of Economics
Network for Integrated Behavioural Science

JÖRG WEBER‡

University of Nottingham, School of Economics
Centre for Decision Research and Experimental Economics

October 30, 2014

ABSTRACT

Is financial literacy a substitute or complement for financial advice? In this paper we analyze the decision by consumers to seek financial advice in the form of credit counseling concerning their credit and debt. Credit counseling is an important component of the consumer credit sector for consumers facing debt problems. We combine instrumental variable approaches to account for the endogeneity of an individual's financial situation to financial literacy, and the endogeneity of financial literacy to exposure to credit counseling. Our results show credit counseling substitutes for financial literacy. Individuals with better financial literacy are 60% less likely to use credit counseling. These results suggest credit counseling provides a safety net for poor financial literacy.

Keywords: Credit Counseling, Financial Advice, Financial Literacy, Household Finance

JEL Classifications: D10, D12, I22

* Corresponding author. *Email address:* richard_d@ifs.org.uk.

† *Email address:* john.gathergood@nottingham.ac.uk.

‡ *Email address:* joerg.weber@nottingham.ac.uk.

We acknowledge research funding which contributed towards this work under ESRC grants RES-061-25-0478 and ES/K002201/1. The data used in this study was provided by YouGov UK Plc. The authors would like to thank YouGov for incorporating questions into their household survey and making the data available for the purposes of this research project.

1 INTRODUCTION

This paper estimates the impact of financial literacy on the demand for financial advice, specifically the demand for professional 'credit counseling' among consumers facing financial problems. The consequences of poor financial literacy might be less severe if consumers can turn to the assistance of an advice provider when faced with a financial problem or challenge. We focus on credit counseling as consumers with debt problems typically exhibit poorer financial literacy and so might benefit most from financial advice. We show that, for a given debt problem, financial literacy decreases the likelihood of an individual seeking help and assistance from a credit counselor by approximately 60%. Our results support the view that credit counseling is a substitute, and maybe a safety net, for poor financial literacy.

The prior literature has focused on the implications of financial literacy for a variety of financial outcomes but, to our knowledge, has not investigated the interplay between financial literacy and financial advice. Previous studies have shown that financial literacy is important for saving behavior (Bernheim, 1995, 1998; Chan & Stevens, 2008; Lusardi & Mitchell, 2007, 2011; Behrman et al., 2012), investment and portfolio decisions (Christelis et al., 2010; van Rooij et al., 2011; Yoong, 2011) and choices in the credit market (Lusardi & Tufano, 2009; Disney & Gathergood, 2013; Gerardi et al., 2013). In addition, existing studies show financial literacy arises in part due to institutional features such as public provision of saving, but also familial background and upbringing and education (Carpena et al., 2011; Jappelli, 2010). For a recent review of the financial literacy literature see Lusardi & Mitchell (2014).

Financial literacy is seen as key to financial decision making and financial independence. Is financial literacy, therefore, a substitute or a complement for financial advice? If an individual's financial literacy removes the need to seek advice from others in financial decisions, then financial literacy could be a substitute for professional advice, which in many settings is available only at some cost, including the time cost of liaising with an advisor. Alternatively, if financial advice is readily available at low cost, consumers might choose not to invest in learning and use advice as a cheaper substitute. In both scenarios financial advice and financial literacy are substitutes.

However, there may be reasons why financial literacy and financial advice act as complements. Financial literacy might be important for the realization that advice is required. It also might be necessary in order to benefit from financial advice and put advice into practice. As such, financial literacy may be a complement to financial advice. The potential for both substitution and complementarity between financial literacy and financial advice is the key issue we address in this paper.

To our knowledge the interplay between financial literacy and financial advice has not been investigated in the prior literature. Bernheim (1995) shows that many workers

are unaware of their financial illiteracy, suggesting they may not realize the need for financial advice. Cole et al. (2011) show individuals with better financial literacy are more likely to choose basic financial services such as bank accounts. However, Moulton et al. (2013) argue that first-time home-buyers who underestimate or overestimate their total debt or misunderstand monthly debt payments are more likely to seek financial counseling. This may also be true for advice concerning debt repayments in general.

The context we focus on is that of 'credit counseling' in the consumer credit market. Credit counseling is a form of financial advice on credit and debt typically used by individuals facing over-indebtedness or problems relating to credit and debt repayment. Credit counseling typically occurs via an 'interview' with a client about their financial situation which leads to some advice, or an intervention provided by the credit counseling agency including negotiation with creditors, re-organization of client budgets and repayment plans and potentially assistance with bankruptcy filings. Credit counseling is normally available for free from charities and/or government providers and in the UK most users of credit counseling make use of a free-to-client advice provider. There is a large credit counseling sector in the US and UK comprising charitable and fee charging advice providers. Staten (2006) estimates that 5–6 million US individuals use a credit counseling advisor each year. For the UK, the Money Advice Service (2013) estimates 2 million UK individuals seek advice from an advice provider. In the UK nearly all credit counseling occurs via the telephone or via the internet.

This context of consumer debt is particularly appropriate for analyzing whether financial advice can act as a 'safety net' for those with poor financial literacy. Individuals with credit and debt repayment problems typically show poor financial literacy Gathergood (2012). Evidence on the effectiveness of credit counseling should focus not just on the self-selection of individuals into credit counseling by their financial existing situation (as in Xiao et al., 2006, Nurcan & Bičáková, 2010 and Elliehausen et al., 2007), but also by their individual financial capabilities. This latter question lies at the heart of the present paper.

2 METHODOLOGY

We use a unique survey dataset from the UK into which we inserted survey questions on financial literacy and other behavioral characteristics of consumers. Our dataset comprises survey data for approximately 1,300 UK individuals with financial problems drawn from a subset of the YouGov Debt Tracker survey. The Debt Tracker Survey is a representative cross-section survey of approximately 3,000 UK individuals conducted on a quarterly basis since the year 2000. In each wave, the survey asks individuals about their financial situation and the extent to which they face debt problems on a self-reported scale. Individuals who state they sometimes 'struggle' with their financial

commitments then receive an additional series of questions on what steps they have taken to address their financial commitments, including use of credit counseling. This sample forms the analysis sample in our paper.

Our empirical approach is based on a dual strategy to address first the endogeneity of an individual's debt problems to financial literacy, and second the endogeneity of financial literacy to exposure to credit counseling. In our data we observe an individual's financial literacy as measured using survey questions, an individual's self-reported financial situation and information on whether an individual has sought professional credit counseling within the last 6 months. The first component of our empirical strategy is a Heckman selection correction model to address the endogeneity of an individual's debt problems to his or her financial literacy. Our interest is in how financial literacy affects the decision to seek credit counseling when facing financial difficulty. However, financial difficulty itself may be due to poor financial literacy. A negative relationship between financial literacy and credit counseling could arise because individuals with better financial literacy are less likely to face debt problems, and hence have less need for credit counseling.

We address this endogeneity problem by instrumenting selection into having a 'debt problem' using a series of variables which capture exogenous shocks to the individual's financial circumstance unrelated to financial literacy. The shocks we exploit are employment shocks, income shocks and health shocks. These are arguably exogenous to an individual's financial literacy but, as we show, predict the likelihood of an individual facing a debt problem. Therefore our results on the relationship between financial literacy and credit counseling are estimated using exogenous variation arising due to shocks.

Second, we instrument financial literacy which may arise endogenously with receipt of credit counseling. Our interest is in how financial literacy affects the decision to seek credit counseling, but in our data observed financial literacy at the time of the survey could arise due to the effects of credit counseling received previously. Credit counseling often takes the form of advice relating to remedial actions for the client's finances, but also often includes the offer of financial education opportunities. This may create a reverse causation channel in our data.

We therefore adopt an Instrumental Variables approach and instrument current financial literacy using the extent of economics- and finance education in school. We combine this IV strategy with the Heckman selection model to create a two-step estimation procedure which employs the selectivity correction adjustment and instrumental variables method to account for these two forms of endogeneity simultaneously. We show results with and without the two instrumental variable methods.

Our key finding is that, for a given debt problem, financial literacy reduces the likelihood that an individual has sought financial advice. A one unit increase in financial literacy, which in our analysis means answering an additional financial literacy question

correctly, reducing the likelihood of an individual seeking credit counseling by approximately 60%. This finding occurs in our baseline specification without instruments, a specification including the Heckman selectivity correction and a hybrid model which incorporates the selectivity correction adjustment into an Instrumental Variables model in which financial literacy is instrumented by early life financial education. We conduct further robustness analysis to show this finding is not sensitive to alternative definitions of 'debt problem' used in the selectivity correction model.

The remainder of the paper is structured as follows: in the next section we describe the survey dataset, including the questions relating to financial literacy which we commissioned within the survey. This section also presents summary statistics for our data. Following that, the next section presents the econometric models. The penultimate section presents sensitivity analysis ahead of the conclusion.

3 DATA & SUMMARY STATISTICS

3.1 Survey Summary

Our data drawn from the YouGov Debt Track survey focuses on consumer credit and debt including topics such as consumer debt product holdings, credit applications and repayment behavior and difficulties. The survey is conducted via the internet once per quarter and takes approximately 40 minutes to complete. Individuals are paid approximately £10 for participation. The survey sample is a representative cross-section of the UK population. YouGov makes internet access available to households without access to the internet at home in order to achieve a representative sample. The total sample comprises approximately 3,000 individuals.

We now describe the construction of our 'debt problem' measure from the survey and how it relates to the survey data design. All respondents are asked early-on in the survey:

- 'Which one of the following statements *best* describes how well you [and your partner] are keeping up with your bills and credit commitments at the moment?'

Respondents select a multiple-choice option from six categories:

(1) I am/we are keeping up with all bills and commitments without any difficulties;
(2) I am/we are keeping up with all bills and commitments, but it is a struggle from time to time;
(3) I am/we are keeping all bills and commitments, but it is a constant struggle;
(4) I am/we are falling behind with some bills or credit commitments;
(5) I am/we are having real financial problems and have fallen behind with many bills or credit commitments;

(6) I/we don't have any bills or credit commitments.

Individuals who choose an answer (2)–(5) from the above list are identified as being at risk of debt problems and are then asked further questions about their bills and credit commitments including details of problems repaying their debts and use of professional credit counseling advice. Individuals who answer (1) or (6) are not asked these questions and their use of professional credit counseling advice is not observed. The dataset we use comprises 1,268 observations for individual respondents who answered (2)–(5).

All individuals in our sample are presented with a series of financial literacy questions. These questions are based upon those constructed by Lusardi & Tufano (2009) and we have used them elsewhere in Gathergood (2012), Disney & Gathergood (2013) and Gathergood & Weber (2014). The questions are designed to test the respondent's understanding of simple interest, compound interest and (non-)amortization. The questions are framed in the context of consumer credit debt which is relevant for our interest in credit counseling in particular. The three financial literacy questions are:

Simple Interest Question:

1. 'Cheryl owes £1,000 on her bank overdraft and the interest rate she is charged is 15% per year. If she didn't pay anything off, at this interest rate, how much money would she owe on her overdraft after one year?'
   - £850 - £1,000 - £1,150 - £1,500 - Do not know

Compound Interest Question:

2. 'Sarah owes £1,000 on her credit card and the interest rate she is charged is 20% per year compounded annually. If she didn't pay anything off, at this interest rate, how many years would it take for the amount she owes to double?'
   - Less than 5 years - Between 5 and 10 years
   - More than 10 years - Do not know

Minimum Payments Question:

3. 'David has a credit card debt of £3,000 at an Annual Percentage Rate of 12% (or 1% per month). He makes payments of £30 per month and does not gain any charges or additional spending on the card. How long will it take him to pay off this debt?'
   - Less than 5 years - Between 5 and 10 years - More than 10 years
   - None of the above, he will continue to be in debt - Do not know

From respondent answers to these three questions we create a financial literacy 'score' taking a value of 0–3 (the mean value is 1.75).

In addition to these questions, all respondents are asked about their financial education while in full-time education which we later use as instrument for current financial literacy:

- 'When you were in full time education (school, college or university) how much of your education was devoted to finance, economics and business?'
  - A lot • Some • A little • Hardly at all

All respondents are also asked about their use of credit counseling. The question asked is:

- 'Have you contacted anyone in the last 6 months to seek professional advice to help sort out any debt problems?'

to which respondents answer 'yes' or 'no'. The question itself does not uniquely identify credit counseling providers, but in answers to a follow-up question on where the individual sought advice, 74% of respondents state the name of a credit counseling provider and a further 10% state they sought advice from their bank or credit provider. In such cases UK banks and credit providers routinely refer-on individuals to a credit counseling provider. Hence, we are confident that, in the large majority of cases, answers to this question identify seeking advice from a credit counselor. In all cases individuals naming a credit counselor cited an organization or agency providing online or telephone counseling services.

In addition to these questions the survey includes a range of questions covering the individual's demographic and socio-economic characteristics including age, gender, marital status, children within the household, educational background, income and employment. The survey also includes a series of questions on 'shocks' the household faced within the previous sixth months. We describe additional questions we use as instruments later in the results sections.

3.2 Summary Statistics

Summary statistics for our analysis sample are provided in the first column of Table 1. The sample of 1,268 households comprises those among a representative sample of the UK population who report they struggle to meet their bills and credit commitments at least 'occasionally'. Our sample comprises mostly working age respondents, the majority of whom are married and one third of whom have dependent children. Nearly three-quarters of respondents are employed and close to half has a spouse or partner who is also employed. Approximately half of respondents are home owners with mortgage debt. Average household income is close to the UK average at £33,000 with individuals on average holding approximately £3,500 in liquid savings and consumer credit debt plus mortgage debt of approximately £25,000.

Column 2 splits the analysis sample into two groups by whether they recently sought credit counseling. Approximately 13% of the analysis sample had sought counseling within the previous 6 months. Those seeking credit counseling show very similar demographic characteristics in age, gender, marital status and dependent children to those

not seeking counseling. They are slightly less likely to be employed or have a partner or spouse in employment. Those seeking counseling are more likely to be private renters or social renters. They have lower incomes, less savings and approximately twice the consumer credit debt of those not seeking counseling.

A comparison of summary statistics by whether the individual has a 'debt problem' is shown in Column 3. Here, an individual is classed as being in the 'debt problem' group if they answer the question about whether they struggle to meet their bills and credit commitments by stating it is a struggle 'from time to time' (answer 2) or more frequently (answers 3, 4 and 5). Hence individuals who report they struggle to meet their bills and credit commitments only 'occasionally' (answer 2) comprise the 'no' group shown in the table. Summary statistics show the two groups are similar in age. Those with debt problems are slightly more likely to be female, less likely to be married, less likely employed and more likely to be a private renter or social renter. They receive on average less income, hold lower savings with more consumer credit debt. These summary data, therefore, show a similar pattern in differences between those who do and do not seek credit counseling and those who do and do not have debt problems.

Table 2 provides summary statistics for the financial literacy score and additional variables. In the whole sample the average literacy score is 1.75. The average literacy score is lower for those with debt problems and also lower for those seeking credit counseling. The table also shows two alternative measures of 'debt problems'. The problem debt group shown in Column 3 comprises respondents who state they have problems meeting their bills at credit commitments which are a 'constant struggle' or worse (answers 3, 4 or 5 to the question stated above). This group has 449 observations. We also construct a narrower definition of only if the respondent states they are 'falling behind with commitments or have 'real financial problems'; (answers 4 and 5). This group includes 118 individuals, 26% of the wider definition debt problem group.

We also present another measure of problem debt based on whether the individual reports their financial situation is worse than 12 months ago. A specific question asks respondents to describe their financial position compared with a year ago. Among five possible answers the 'worst' is: 'I/we were in financial difficulties 12 months ago and things are now even worse'. We use this as an alternative definition of (potentially more severe) problem debt. 32% of those in the debt problem group answer 'yes' to this question as do 29% of those seeking credit counseling.

The table also provides summary data for financial shocks experienced by the individual in the previous six months. These data show those in the debt problem group are more likely to have received a financial shock. We later use these shocks as instruments in the selection model for the debt problem group.

On the basis of these summary data it is unsurprising that those seeking credit counseling have, on average, lower financial literacy. This is because those with debt

problems typically exhibit lower financial literacy than those without debt problems, and having a debt problem correlates with seeking credit counseling. Table 3 shows this correlation by tabulating the credit counseling dummy variable against categorical answers to the question used to identify debt problems. Among the 819 individuals reporting they 'struggle from time to time' only 45 (5.5%) seek credit counseling, whereas among the 54 individuals with 'real financial problems' 32 (60%) seek credit counseling. Our definition of the relevant 'debt problem' group comprises those answering 2, 3 or 4 among which 117 out of 449 (26%) seek credit counseling. We later show that econometric results are robust to defining the debt problem group more narrowly.

4 EMPIRICAL STRATEGY & ECONOMETRIC RESULTS

Our interest is in understanding how financial literacy affects the decision to seek credit counseling. Summary statistics indicate that individuals seeking credit counseling typically have both debt problems and lower literacy. Hence in order to estimate the impact of financial literacy on credit counseling an empirical approach needs to be adopted which accounts for this potential selection bias. A randomized control trial in which a group of individuals with varying levels of financial literacy are randomly assigned debt problems is not possible.

Our empirical strategy exploits exogenous variation in the likelihood of a debt problem unrelated to financial literacy. We use a Heckman selectivity correction model with a selection equation for the debt problem indicator variable which uses recent financial shocks experienced by the household as instruments. These shocks are measured by the dummy variables for employment shock, income shock and health shock described in Table 2. These shocks affect the likelihood that an individual faces a debt problem, but are assumed independent of the individual's financial literacy.

Table 4 shows results from the selectivity correction model, plus a baseline probit model without the selectivity correction. The baseline model is shown in Column 1. The dependent variable is the 1/0 dummy variable for whether the individual has sought credit counseling. The model includes covariates in age, employment, housing and household finances. Coefficient estimates for covariates show the likelihood of seeking credit counseling is decreasing in age, homeownership and household income and increasing in consumer credit debt.

The coefficient on the literacy score variable is negative and statistically significant at the 0.1% level of confidence. The averaged marginal effect takes a value of -0.041 implying a one point increase in the literacy score is associated with a 4.1 percentage point reduction in the likelihood of seeking credit counseling. The baseline predicted probability from the model is 12.8%, so the 4.1 percentage point reduction is a 32% reduction in the likelihood. This baseline estimate takes no account of the selection

problem described earlier.

Estimates from the selection correction model are shown in Columns 2 and 3, where the employment shock, income shock and health shock dummies are used as instruments in the first stage equation which predicts the likelihood of individuals having a 'debt problem'. The income and health shock dummies are both statistically significant at the 1% level or lower. The marginal effects imply that experience of an income shock raises the likelihood of debt problem by 11 percentage points and experience of a health shock raises the likelihood by 33 percentage points. The baseline predicted probability of a debt problem from the selection equation is 35%, hence the marginal effects of the instruments are statistically large.

The second stage regression is shown in Column 3. The Wald test of independence rejects the null of non-independence of equations at a 2.8% level of confidence. In this model the coefficient on the financial literacy score is negative and statistically significant at the 1% level. The value of the averaged marginal effect is -0.073, implying a one point increase in the literacy score lowers the likelihood of an individual seeking credit counseling by 7.3 percentage points. Against the baseline predicted probability of 20.4% this equates to a 36% decrease in the likelihood of seeking credit counseling. These estimates suggest financial literacy has a large negative effect on the likelihood of seeking credit counseling and suggests substitution between financial literacy and credit counseling.

These results show that, accounting for exogenous selection into a debt problem, financial literacy reduces use of credit counseling. However, while this addresses the endogeneity of an individual's financial situation to financial literacy, the possible endogeneity of financial literacy to exposure to credit counseling remains a confounding factor in our estimates. In our cross-section data we observe current financial literacy and information of credit counseling received within the previous six months. Credit counseling may improve financial literacy, in which case our estimate of the relationship between financial literacy and credit counseling would be biased upwards.

We address this potential reverse causality between credit counseling and financial literacy by incorporating an Instrumental Variables model for financial literacy. The previous literature on financial literacy has used alternative instruments for current financial literacy, including parental background (van Rooij et al., 2011), mathematical ability (Jappelli & Padula, 2013) when young, and previous experience of education in economics and finance (Bernheim et al., 2001; Lusardi & Tufano, 2009). We follow Lusardi & Tufano (2009) by instrumenting current financial literacy using multiple-choice responses to the question on economics and finance education at school described earlier. As Jappelli & Padula (2013) show, the ideal instrument for financial literacy is the pre-labor market entry endowment of literacy. This is determined before exposure to the financial environment which might cause literacy to form endogenously. In our

scenario, it is important that the instrument captures literacy formed before exposure to problem debt and specifically credit counseling. Financial education when young is appropriate in this context as is pre-dates problem debt or credit counseling.

The model we estimate, therefore, combines a selectivity-correction in the assignment into debt problem on the basis of financial shocks with an instrumentation of current financial literacy using financial education when young. This is a hybrid of a Heckman selectivity correction model and an IV probit model. We implement this hybrid approach practically by calculating the inverse mills ratio from the selection correction equation in the two-step model and including it as an additional covariate in an IV Probit model. The selectivity correction model can be implemented through manual calculation of the inverse mills ratio, which is then included in the second-stage regression with adjusted standard errors. We adopt this approach and include the inverse mills ratio in the IV Probit model with robust standard errors.

Table 5 shows results from this hybrid model. The coefficient on the financial education instrument in the first stage regression is positive and statistically significant at the 0.1% level. The coefficient value of 0.152 implies a one unit increase in the instrument value (on the scale 'hardly at all', 'a little', 'some' and 'a lot') causes a 0.15 unit increase in the financial literacy score. In the second stage regression the coefficient on the instrumented financial literacy score is negative and statistically significant at the 0.1% level of confidence. The coefficient on the literacy score is -0.298, compared with -0.73 in the selectivity correction model in Table 4. This confirms our intuition that not instrumenting the financial literacy score causes an upward bias on this coefficient arising from the reverse causality between credit counseling and financial literacy. The coefficient value of -0.298 implies a one unit increase in the financial literacy score lowers the likelihood of an individual seeking credit counseling by 30 percentage points. Evaluated against a baseline likelihood of 49%, this is a 61% decrease in the likelihood of seeking credit counseling.

This result from the hybrid model shows that financial literacy decreases the likelihood that, for a given debt problem, an individual seeks credit counseling. Hence financial literacy and credit counseling are substitutes in consumer decisions. Our data do not allow us to estimate whether financial literacy and credit counseling are substitutes in determining outcomes for individuals faced with problem debt – we do not know whether own financial literacy compared with credit counseling advice from an organization or agency are more or less effective for helping consumers address their debt and credit problems. Our results do allow us to conclude, however, that lack of financial literacy is not a barrier to seeking advice. Lack of financial literacy could potentially leave consumers unable to understand the appropriate form of assistance they require to help them address their debt problems. Our results show this ignorance hypothesis is not borne out in our data.

5 SENSITIVITY ANALYSIS

In this section we present results for alternative definitions of 'debt problem'. In the previous section we use a definition of 'debt problem' based on categorical answers to the question asking consumers how well they are keeping up with their credit repayments and other commitments. The definition we use is somewhat arbitrary, so we now present sensitivity estimates based on a different classification of categorical answers and also based on a different variable used to identify debt problem status.

First, we alter the classification of categorical answers to the question about credit repayments and other commitments and form a narrower definition of debt problem based on more severe difficulty meeting repayments. From Table 3, which shows the categorical answers, we form an alternative narrower definition of debt problem based on answers 4 and 5 in the table only which refer to 'falling behind with commitments' and 'real financial problems'. Hence individuals who respond that they face a 'constant struggle with commitments' are no longer classified as having a debt problem. By this alternative definition 118 individuals are classified as having a debt problem.

Table 6 presents results from the hybrid model based on this alternative definition. Results are very similar to those from the earlier estimates using the first definition of debt problem. In these results the coefficient on the literacy score variable is again negative and statistically significant at the 0.1% level of confidence. The average marginal effect value of -0.289 is very similar to the equivalent value of -0.298 from the previous hybrid model in Table 5. The baseline predicted probability from this model is 48%, hence a one unit increase in the literacy score causes a 60% reduction in the likelihood of seeking credit counseling, near identical to the 61% reduction from the previous model. Hence results are very similar indeed under this narrower definition of debt problem.

We also show sensitivity results for another alternative definition of debt problem. Here we define an individual as facing a debt problem if they report they have experienced a worsening of their financial situation within the previous 12 months. This identifies a debt problem as a negative change in financial circumstance. This differs from the concept of ability to repay credit commitments and bills. The new measure may be better at capturing transitory debt problems. Arguably, individuals who persistently report they face problems repaying their credit commitments and bills may exhibit long-term lack of income or poverty for which credit counseling may not be appropriate. The new measure might better capture transitory events which may be more readily addressed via credit counseling.

Results are shown in Table 7. The coefficient in the second stage regression estimates are very similar to those in the previous two models. The coefficient on the instrumented financial literacy score is negative and statistically significant at the 0.1% level. The coefficient value of 0.292 implies a one unit increase in financial literacy lowers the likelihood

of seeking credit counseling by 61%. Taken together, results from these sensitivity checks show the estimated coefficients of interest are not sensitive to alternative definition of 'debt problem' in the first stage selection equation.

6 CONCLUSION

The paper estimated the impact of financial literacy on the demand for professional 'credit counseling' among consumers facing financial problems. It used a unique UK survey dataset of indebted individuals into which we inserted survey questions on financial literacy and other behavioral characteristics of consumers. It allowed for both the endogeneity of an individual's debt problems to financial literacy, and the endogeneity of financial literacy to exposure to credit counseling, and showed that, for a given debt problem, financial literacy decreased the likelihood of an individual seeking help and assistance from a credit counselor by approximately 60%. This result supports the view that credit counseling is a substitute, and maybe a safety net, for poor financial literacy. We subject this view to various sensitivity analyzes which confirm the robustness of this conclusion.

REFERENCES

Behrman, J.R., Mitchell, O.S., Soo, C.K. & Bravo, D. (2012) How financial literacy affects household wealth accumulation. In: *American Economic Review*, vol. 102, pp. 300–304, doi:10.1257/aer.102.3.300.

Bernheim, B. (1995) Do Households Appreciate Their Financial Vulnerabilities? An Analysis of Actions, Perceptions, and Public Policy. In: *Tax Policy and Economic Growth*, pp. 1–30, Washington, DC: American Council for Capital Formation.

— (1998) Financial illiteracy, education, and retirement saving. In: O.S. Mitchell & S.J. Schieber (eds.), *Living with Defined Contribution Pensions*, pp. 36–68, Philadelphia: University of Pennsylvania Press.

Bernheim, B.D., Garrett, D.M. & Maki, D.M. (2001) Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of Public Economics*, 80:435–465, doi:10.1016/S0047-2727(00)00120-1.

Carpena, F., Cole, S., Shapiro, J. & Zia, B. (2011) Unpacking the Causal Chain of Financial Literacy. *World Bank Policy Research Working Paper*, 5798, doi:10.1596/1813-9450-5798.

Chan, S. & Stevens, A.H. (2008) What You Don't Know Can't Help You: Pension Knowledge and Retirement Decision-Making. *Review of Economics and Statistics*, 90(2):253–266, doi:10.1162/rest.90.2.253.

Christelis, D., Jappelli, T. & Padula, M. (2010) Cognitive abilities and portfolio choice. *European Economic Review*, 54(1):18–38, doi:10.1016/j.euroecorev.2009.04.001.

Cole, S., Sampson, T. & Zia, B. (2011) Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets? *Journal of Finance*, 66:1933–1967, doi:10.1111/j.1540-6261.2011.01696.x.

Disney, R. & Gathergood, J. (2013) Financial literacy and consumer credit portfolios. *Journal of Banking & Finance*, 37(7):2246–2254, doi:10.1016/j.jbankfin.2013.01.013.

Elliehausen, G., Christopher Lundquist, E. & Staten, M.E. (2007) The Impact of Credit Counseling on Subsequent Borrower Behavior. *Journal of Consumer Affairs*, 41(1):1–28, doi:10.1111/j.1745-6606.2006.00066.x.

Gathergood, J. (2012) Self-control, financial literacy and consumer over-indebtedness. *Journal of Economic Psychology*, 33(3):590–602, doi:10.1016/j.joep.2011.11.006.

Gathergood, J. & Weber, J. (2014) Self-Control, Financial Literacy & the Co-Holding Puzzle. *Journal of Economic Behavior & Organization*, (forthcoming), doi:10.1016/j.jebo.2014.04.018.

Gerardi, K., Goette, L. & Meier, S. (2013) Numerical ability predicts mortgage default. *Proceedings of the National Academy of Sciences of the United States of America*, 110(28):11,267–71, doi:10.1073/pnas.1220568110.

Jappelli, T. (2010) Economic Literacy: An International Comparison. *The Economic Journal*, 120(548):429–451, doi:10.1111/j.1468-0297.2010.02397.x.

Jappelli, T. & Padula, M. (2013) Investment in financial literacy and saving decisions. *Journal of Banking & Finance*, 37(8):2779–2792, doi:10.1016/j.jbankfin.2013.03.019.

Lusardi, A. & Mitchell, O.S. (2007) Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54(1):205–224, doi:10.1016/j.jmoneco.2006.12.001.

— (2011) Financial literacy around the world: an overview. *Journal of Pension Economics and Finance*, 10(04):497–508, doi:10.1017/S1474747211000448.

— (2014) The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52:5–44, doi:10.1257/jel.52.1.5.

Lusardi, A. & Tufano, P. (2009) Debt Literacy, Financial Experiences, and Overindebtedness. *NBER Working Paper*, 14808, doi:10.3386/w14808.

Money Advice Service (2013) Debt advice services in the UK: A snapshot of demand and supply. Tech. Rep. September.

Moulton, S., Loibl, C., Samak, A. & Collins, J.M. (2013) Borrowing Capacity and Financial Decisions of Low-to-Moderate Income First-Time Homebuyers. *Journal of Consumer Affairs*, 47(3):375–403, doi:10.1111/joca.12021.

Nurcan, N.A. & Bičáková, A. (2010) Self-control and debt: evidence from data on credit counselling. *University of Oxford, Discussion Paper Series*, 504.

van Rooij, M.C., Lusardi, A. & Alessie, R.J. (2011) Financial literacy and stock market participation. *Journal of Financial Economics*, 101(2):449–472, doi:10.1016/j.jfineco.2011.03.006.

Staten, M.E. (2006) The Evolution of the Credit Counseling Industry. In: B. Giuseppe, R. Disney & C. Grant (eds.), *The Economics of Consumer Credit*, pp. 275–300, Cambridge: MIT Press.

Xiao, J.J., Sorhaindo, B. & Garman, E.T. (2006) Financial behaviours of consumers in credit counselling. *International Journal of Consumer Studies*, 30:108–121, doi:10.1111/j.1470-6431.2005.00455.x.

Yoong, J. (2011) Financial Illiteracy and Stock Market Participation: Evidence from the RAND American Life Panel. In: Olivia S. Mitchell & A. Lusardi (eds.), *Financial Literacy: Implications for Retirement Security and the Financial Marketplace*, pp. 76–97, Oxford and New York: Oxford University Press, doi:10.2139/ssrn.1707523.

TABLE 1: Sample Characteristics

	(1) Sample	(2) Credit Counseling		(3) Debt Problems	
		No	Yes	No	Yes
Age					
18–24	0.07	0.08	0.02	0.07	0.06
25–34	0.24	0.24	0.23	0.24	0.24
35–44	0.24	0.25	0.24	0.24	0.24
45–54	0.23	0.23	0.27	0.22	0.25
55+	0.21	0.21	0.24	0.22	0.20
Demographics					
Male (= 1)	0.44	0.43	0.45	0.45	0.41
Married / living as married (= 1)	0.64	0.65	0.60	0.67	0.59
Divorced (= 1)	0.07	0.07	0.06	0.06	0.07
Dependent children (= 1)	0.29	0.28	0.30	0.27	0.31
Financial education in school (1–4)	1.44	1.45	1.37	1.47	1.40
Employment					
Employed (= 1)	0.72	0.72	0.69	0.76	0.63
Unemployed (= 1)	0.06	0.06	0.07	0.05	0.08
Retired/Student/Housewife/Disabled	0.23	0.22	0.24	0.19	0.29
Spouse employed (= 1)	0.49	0.49	0.44	0.52	0.42
Housing					
Homeowner without mortgage (= 1)	0.14	0.15	0.05	0.16	0.10
Homeowner with mortgage (= 1)	0.47	0.48	0.39	0.50	0.40
Private renter (= 1)	0.22	0.20	0.30	0.20	0.25
Social renter including rent-free (= 1)	0.18	0.17	0.27	0.14	0.25
Household Finances					
Household income (£)	33200 (30000)	33800 (30000)	29600 (25000)	35900 (33000)	28500 (25000)
Liquid savings (£)	3500 (0)	3800 (0)	1500 (0)	4700 (100)	1300 (0)
Consumer credit debt (£)	3400 (0)	3000 (0)	6200 (900)	2700 (0)	4700 (500)
Secured credit (£)	25700 (0)	25600 (0)	26200 (0)	27500 (0)	22300 (0)
Observations	1268	1106	162	819	449

Note: Column 1 shows summary statistics for the whole sample of respondents. Column 2 separates the sample into two mutually exclusive groups by whether the respondent had sought professional credit counseling advice about their debt problems within the last six months. Column 3 separates the sample into two mutually exclusive groups by whether the respondent self-reports they currently have a debt problem (see main text for definition of 'debt problems').

Mean values are reported with median values shown in parentheses for financial variables.

TABLE 2: Financial Behavioral Characteristics and Household Shocks

	(1) Sample	(2) Credit Counseling		(3) Debt Problems	
		No	Yes	No	Yes
Financial Behavioral Characteristics					
Literacy score (0–3)	1.75	1.80	1.45	1.81	1.66
Debt Problems					
Debt problems (= 1)	0.35	0.30	0.72	0.00	1.00
Debt problems, narrower definition (= 1)	0.09	0.06	0.33	0.00	0.26
Financial situation worse than 12 months ago (= 1)	0.14	0.12	0.29	0.04	0.32
Shocks to the Household					
Employment shock (= 1)	0.09	0.09	0.14	0.06	0.15
Income shock (= 1)	0.25	0.24	0.29	0.20	0.33
Health shock (= 1)	0.04	0.03	0.10	0.01	0.08
Observations	1268	1106	162	819	449

Note: Literacy score is the sum of financial literacy questions answered correctly (see main text for details). Mean values reported.

TABLE 3: Debt Problem Characteristics by whether Respondent sought Credit Counseling

	Credit Counseling		
	No	Yes	Total
Answer 2) Struggle from time to time	774	45	819
Answer 3) Constant struggle with commitments	267	64	331
Answer 4) Falling behind with commitments	43	21	64
Answer 5) Real financial problems	22	32	54
Total	1106	162	1268

Note: Table shows the proportion of individuals seeking credit counseling by answers to the multiple-choice question 'how are you keeping up with your bills and credit commitments these days'. We define the 'debt problems' group as individuals answering 2, 3 or 4. Our narrower definition of 'debt problems' is defined as individuals answering 3 or 4.

TABLE 4: Credit Counseling Baseline and Selectivity Correction Models

	(1) Baseline Probit No instruments		(2) Selectivity Correction Model First Stage		(3) Second Stage	
	β / SE	Margin	β / SE	Margin	β / SE	Margin
Literacy score (0–3)	−0.232***	−0.041***	−0.074	−0.027	−0.195**	−0.073**
	(0.051)		(0.040)		(0.066)	
Shocks to the Houshold: Instruments in Model (2)						
Employment shock (= 1)			0.203	0.074		
			(0.152)			
Income shock (= 1)			0.299**	0.110**		
			(0.095)			
Health shock (= 1)			0.897***	0.329***		
			(0.232)			
Age						
18–24	−1.133***	−0.201***	−0.325	−0.119	−0.889*	−0.332*
	(0.288)		(0.195)		(0.392)	
25–34	−0.481**	−0.085**	−0.062	−0.023	−0.634**	−0.237**
	(0.165)		(0.137)		(0.237)	
35–44	−0.407**	−0.072**	−0.074	−0.027	−0.353	−0.132
	(0.158)		(0.136)		(0.224)	
45–54	−0.189	−0.034	0.070	0.026	−0.187	−0.070
	(0.145)		(0.122)		(0.202)	
Demographics						
Male (= 1)	0.097	0.017	−0.072	−0.027	0.293*	0.110*
	(0.099)		(0.081)		(0.132)	
Married / living as married (= 1)	−0.320	−0.057	−0.132	−0.049	−0.599*	−0.224*
	(0.196)		(0.144)		(0.259)	
Employment						
Employed (= 1)	0.104	0.019	−0.132	−0.048	0.170	0.063
	(0.126)		(0.099)		(0.168)	
Unemployed (= 1)	0.130	0.023	0.058	0.021	0.075	0.028
	(0.213)		(0.191)		(0.253)	
Housing						
Homeowner without mortgage (= 1)	−0.928***	−0.165***	−0.624***	−0.229***	−1.091**	−0.408**
	(0.212)		(0.149)		(0.400)	
Homeowner with mortgage (= 1)	−0.399**	−0.071**	−0.422***	−0.155***	−0.054	−0.020
	(0.149)		(0.121)		(0.207)	
Household Finances						
Household income (£10,000s)	−0.231**	−0.041**	−0.262***	−0.096***	−0.138	−0.052
	(0.071)		(0.064)		(0.110)	
Household income^2	0.015*	0.003*	0.014*	0.005*	0.011	0.004
	(0.006)		(0.006)		(0.009)	
Consumer credit debt (£1,000s)	0.031***	0.005***	0.028***	0.010***	0.011	0.004
	(0.006)		(0.006)		(0.009)	
Observations	1268		1268		1268	
Censored observations					819	
LR chi2	95.606		179.785		35.596	
Prob > chi2	0.000		0.000		0.024	
Wald test of independence					0.028	
Baseline predicted probability	0.128		0.354		0.204	

Omitted variables: Employment: Student/Homebound/Disabled; Housing: Renter. Further controls for spouse employment status, dependent children, being divorced and outstanding secured credit.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standard errors in parentheses.

Note: Table shows results from probit and Heckman selection correction models in which the dependent variable is a 1/0 dummy variable indicating whether the respondent sought credit counseling from a professional advisor in the previous six months. Column 1 presents results from a probit model without instruments. Columns 2 and 3 present results from a probit model with sample correction in which the selection equation instruments the likelihood of the respondent having a 'debt problem' (which may be endogenous to financial literacy), using shocks to the household as instruments.

TABLE 5: Credit Counseling Selectivity Correction Specification with additional Instrument for Financial Literacy

	(1)	(2)	
	Selectivity Correction Model with IV Financial Literacy		
	First Stage	Second Stage	
	β / SE	β / SE	Margin
Literacy score (0–3)		−1.107***	−0.298***
		(0.029)	
Instrument			
Financial education in school (1–4)	0.152***		
	(0.030)		
Inverse Mills Ratio	1.318***	1.410***	0.380***
	(0.139)	(0.249)	
Age			
18–24	−0.548***	−0.569**	−0.153**
	(0.130)	(0.220)	
25–34	−0.261**	−0.262*	−0.071*
	(0.090)	(0.120)	
35–44	−0.150	−0.158	−0.043
	(0.091)	(0.113)	
45–54	−0.008	−0.005	−0.001
	(0.081)	(0.095)	
Demographics			
Male (= 1)	0.107*	0.149*	0.040*
	(0.054)	(0.064)	
Married / living as married (= 1)	−0.090	−0.113	−0.030
	(0.108)	(0.130)	
Employment			
Employed (= 1)	−0.077	−0.072	−0.019
	(0.071)	(0.087)	
Unemployed (= 1)	0.383**	0.411**	0.111**
	(0.122)	(0.133)	
Housing			
Homeowner without mortgage (= 1)	−0.375**	−0.439**	−0.118**
	(0.119)	(0.167)	
Homeowner with mortgage (= 1)	−0.222*	−0.257*	−0.069*
	(0.092)	(0.107)	
Household Finances			
Household income (£10,000s)	−0.309***	−0.330***	−0.089***
	(0.051)	(0.057)	
Household income^2	0.018***	0.020***	0.005***
	(0.004)	(0.004)	
Consumer credit debt (£1,000s)	0.034***	0.037***	0.010***
	(0.005)	(0.006)	
Observations	1268	1268	
LR chi2		3783.898	
Prob > chi2	0.000	0.000	
F-Statistic	8.051		
Baseline predicted probability	1.754	0.485	

Omitted variables: Employment: Student/Homebound/Disabled; Housing: Renter. Further controls for spouse employment status, dependent children, being divorced and outstanding secured credit.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standard errors in parentheses.

Note: Table shows results from a selectivity correction model (as in previous Table 4), in which 'financial literacy' is also instrumented using 'financial education at school'. This is implemented by calculating the inverse mills ratio from the selectivity correction model shown in Table 4, columns 2 and 3 and then including it as an additional control variable in the two-stage IV specification in order to implement the selectivity correction.

TABLE 6: Robustness Analysis: Narrower Definition of 'Debt Problems', Selectivity Correction with IV Financial Literacy Estimates

	(1)	(2)	
	Selectivity Correction Model with IV Financial Literacy		
	First Stage	Second Stage	
	β / SE	β / SE	Margin
Literacy score (0–3)		−1.083***	−0.289***
		(0.030)	
Instrument			
Financial education in school (1–4)	0.158***		
	(0.030)		
Inverse Mills Ratio	0.621***	0.611***	0.163***
	(0.099)	(0.185)	
Age			
18–24	−0.397**	−0.404	−0.108
	(0.131)	(0.230)	
25–34	−0.384***	−0.378***	−0.101***
	(0.098)	(0.112)	
35–44	−0.114	−0.117	−0.031
	(0.093)	(0.115)	
45–54	−0.118	−0.117	−0.031
	(0.085)	(0.092)	
Demographics			
Male (= 1)	0.227***	0.271***	0.072***
	(0.054)	(0.060)	
Married / living as married (= 1)	−0.287*	−0.306*	−0.082*
	(0.118)	(0.129)	
Employment			
Employed (= 1)	−0.021	−0.005	−0.001
	(0.073)	(0.088)	
Unemployed (= 1)	0.159	0.170	0.045
	(0.121)	(0.132)	
Housing			
Homeowner without mortgage (= 1)	−0.420**	−0.455**	−0.121**
	(0.144)	(0.165)	
Homeowner with mortgage (= 1)	−0.055	−0.072	−0.019
	(0.092)	(0.108)	
Household Finances			
Household income (£10,000s)	−0.198***	−0.200***	−0.053***
	(0.049)	(0.053)	
Household income^2	0.015***	0.016***	0.004***
	(0.004)	(0.004)	
Consumer credit debt (£1,000s)	0.022***	0.023***	0.006***
	(0.005)	(0.005)	
Observations	1268	1268	
LR chi2		3958.807	
Prob > chi2	0.000	0.000	
F-Statistic	5.365		
Baseline predicted probability	1.754	0.478	

Omitted variables: Employment: Student/Homebound/Disabled; Housing: Renter. Further controls for spouse employment status, dependent children, being divorced and outstanding secured credit.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standard errors in parentheses.

Note: Table shows results from a robustness specification of the selectivity correction model with instrumentation (Table 5). Here, the dependent variable is our narrower definition of debt problems: a dummy variable whether subjects answer 'falling behind with commitments' or 'real financial problems' to their debt problem characteristics (Table 3).

TABLE 7: Robustness Analysis: Alternative Definition of 'Debt Problems', Selectivity Correction with IV Financial Literacy Estimates

	(1)	(2)	
	Selectivity Correction Model with IV Financial Literacy		
	First Stage	Second Stage	
	β / SE	β / SE	Margin
Literacy score (0–3)		−1.094***	−0.292***
		(0.030)	
Instrument			
Financial education in school (1–4)	0.158***		
	(0.030)		
Inverse Mills Ratio	0.766***	0.784***	0.209***
	(0.092)	(0.154)	
Age			
18–24	−0.359**	−0.382	−0.102
	(0.127)	(0.245)	
25–34	−0.336***	−0.342**	−0.091**
	(0.093)	(0.120)	
35–44	0.039	0.033	0.009
	(0.092)	(0.132)	
45–54	−0.011	−0.014	−0.004
	(0.083)	(0.097)	
Demographics			
Male (= 1)	0.095	0.140*	0.037*
	(0.055)	(0.066)	
Married / living as married (= 1)	0.016	−0.008	−0.002
	(0.107)	(0.136)	
Employment			
Employed (= 1)	−0.049	−0.035	−0.009
	(0.072)	(0.088)	
Unemployed (= 1)	0.266*	0.282*	0.075*
	(0.120)	(0.129)	
Housing			
Homeowner without mortgage (= 1)	−0.147	−0.205	−0.055
	(0.112)	(0.188)	
Homeowner with mortgage (= 1)	−0.018	−0.043	−0.012
	(0.088)	(0.115)	
Household Finances			
Household income (£10,000s)	−0.189***	−0.199***	−0.053***
	(0.045)	(0.054)	
Household income^2	0.011***	0.012**	0.003**
	(0.003)	(0.004)	
Consumer credit debt (£1,000s)	0.027***	0.030***	0.008***
	(0.005)	(0.006)	
Observations	1268	1268	
LR chi2		3828.206	
Prob > chi2	0.000	0.000	
F-Statistic	7.169		
Baseline predicted probability	1.754	0.476	

Omitted variables: Employment: Student/Homebound/Disabled; Housing: Renter. Further controls for spouse employment status, dependent children, being divorced and outstanding secured credit.

* p < 0.05, ** p < 0.01, *** p < 0.001. Standard errors in parentheses.

Note: Table shows results from a robustness specification of the selectivity correction model with instrumentation (Table 5). Here, the dependent variable is a dummy variable for answers to the question 'Is your financial situation worse than it was twelve months ago?'. The variable takes a value of 1 if the respondent answered 'yes' and 0 otherwise.

Determinants of Financial Literacy

	(1) OLS β / SE	(2) Ordered Probit Margins / SE	(3) Literacy = 0 Margins / SE	(4) Literacy = 1 Margins / SE	(5) Literacy = 2 Margins / SE	(6) Literacy = 3 Margins / SE
Age						
18–24	−0.210	−0.225	0.036	0.050	−0.013	−0.074
	(0.117)	(0.132)	(0.021)	(0.030)	(0.008)	(0.043)
25–34	−0.158*	−0.175	0.028	0.039	−0.010	−0.057
	(0.079)	(0.090)	(0.015)	(0.020)	(0.005)	(0.029)
35–44	−0.009	−0.005	0.001	0.001	−0.000	−0.002
	(0.080)	(0.092)	(0.015)	(0.021)	(0.005)	(0.030)
55+	0.047	0.063	−0.010	−0.014	0.004	0.021
	(0.082)	(0.093)	(0.015)	(0.021)	(0.005)	(0.030)
Demographics						
Male (= 1)	0.178**	0.201**	−0.032**	−0.045**	0.011**	0.066**
	(0.055)	(0.063)	(0.010)	(0.014)	(0.004)	(0.020)
Married / living as married (= 1)	0.006	−0.007	0.001	0.002	−0.000	−0.002
	(0.110)	(0.126)	(0.020)	(0.028)	(0.007)	(0.041)
Financial education in school (1–4)	0.154***	0.181***	−0.029***	−0.040***	0.010***	0.059***
	(0.030)	(0.036)	(0.006)	(0.008)	(0.003)	(0.012)
Employment						
Employed (= 1)	0.069	0.088	−0.014	−0.020	0.005	0.029
	(0.073)	(0.083)	(0.013)	(0.018)	(0.005)	(0.027)
Unemployed (= 1)	0.263*	0.308*	−0.049*	−0.069*	0.017*	0.101*
	(0.125)	(0.144)	(0.023)	(0.032)	(0.009)	(0.047)
Household Finances						
Household income (£10,000s)	−0.028	−0.034	0.005	0.008	−0.002	−0.011
	(0.041)	(0.049)	(0.008)	(0.011)	(0.003)	(0.016)
Household income^2	0.004	0.005	−0.001	−0.001	0.000	0.001
	(0.003)	(0.004)	(0.001)	(0.001)	(0.000)	(0.001)
Shocks to the Houshold						
Employment shock (= 1)	−0.078	−0.091	0.015	0.020	−0.005	−0.030
	(0.108)	(0.125)	(0.020)	(0.028)	(0.007)	(0.041)
Income shock (= 1)	−0.006	−0.003	0.001	0.001	−0.000	−0.001
	(0.066)	(0.075)	(0.012)	(0.017)	(0.004)	(0.024)
Health shock (= 1)	−0.171	−0.210	0.034	0.047	−0.012	−0.069
	(0.165)	(0.189)	(0.030)	(0.042)	(0.011)	(0.062)
Observations	1268	1268	1268	1268	1268	1268
Baseline predicted probability	1.754	1.754				

Omitted variables: Employment: Student/Homebound/Disabled; Housing: Renter. Further controls for spouse employment status, dependent children, being divorced and outstanding secured credit.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standard errors in parentheses.

Note: Table shows the results from OLS and Ordered Probit model estimates in which the dependent variable is the financial literacy score (number of financial literacy questions answered correctly on a scale of 0–3. Financial education in school is the self-reported extent of education in finance and/or economics during compulsory schooling (for full question see main text).