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# **Debt Literacy, Financial Experience, and Overindebtedness**

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## **Debt Literacy, Financial Experience and Overindebtedness\***

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Using a new dataset collected from a November 2007 survey, we analyze a national sample of Americans with respect to their debt literacy, financial experience, and their judgments about the level of their indebtedness. Debt literacy is measured by a set of questions testing knowledge of fundamental concepts related to debt and by a measure of self-assessed financial knowledge. Financial experience is measured by the participant's experience with a wide range of traditional borrowing, alternative borrowing, and investing activities. Overindebtedness is a self-reported measure. Overall, we find that debt literacy is low, especially among certain demographic groups. Even after controlling for demographics, we find a strong relationship between debt literacy and both financial experiences and debt loads. Generally, individuals with lower levels of debt literacy tend to transact in high-cost manners (incurring fees and using high cost borrowing). The less literate also report that their debt loads are excessive or that they are unable to judge whether their debt is appropriate.

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In the current economy, there is much concern about individuals' abilities to make wise financial decisions. Reflecting this anxiety, in January 2008, the President's Advisory Council on Financial Literacy was established, underscored by a belief that poor financial skills lead to poor decisions which ultimately lead to weaknesses in families, communities, and the economy. Many of the most recent concerns focus on specific deficiencies with regard to credit and debt decisions; in particular, whether individuals are making wise choices about student debt, subprime mortgages, or revolving credit card debt.

Based on the results of a new survey, done in conjunction with the global market research firm TNS, we seek to shed light on the topic of "debt literacy," an important component of overall financial literacy. Debt literacy refers to the ability to make simple decisions regarding debt contracts, in particular basic knowledge about interest and compounding, measured in the context of everyday financial choices. We find a widespread pattern of strikingly low levels of debt literacy.

Beyond merely measuring debt literacy, we also seek to understand the relationship between debt literacy and three factors. The first factor is household demographics. We find lower levels of debt literacy among groups including women, the elderly, certain minority groups, and people with lower income and wealth.

The second factor is financial experience. Most individuals engage in many financial transactions, from opening a checking account, to buying bonds and stocks, to borrowing using banks, credit cards, and other sources of credit. Savers and borrowers have to navigate a complex system of financial contracts. Some transactions, such as credit card borrowing are repeated over time, others are discrete events done only once or twice over a lifetime. We create a new measure of financial experience that translates the rich multi-dimensional set of experiences into a more compact set of consumer segments. We identify four experience segments and find that financial literacy is related to the types of experiences that people have had. Individuals who transact in ways that incur high fees (e.g., only pay minimums on their credit card bills, incur late and overlimit fees) and those who use high cost alternative financial services are less debt literate, even after controlling for many individual characteristics.

Finally, we examine overindebtedness as measured by self-assessed debt loads. We ask individuals whether they have too much, too little, or the right amount of debt. In

November 2007, when this national survey was administered, only 2% felt credit constrained, but 26% felt they had too much debt. Another 11% were unable to judge whether the level of debt was appropriate. We find that perceived overindebtedness is not only related to demographic traits, but also to levels of financial knowledge. In particular, those who have the highest levels of debt literacy are more likely to judge their debt loads to be appropriate, while those with lower levels of debt literacy tend to judge their debt as excessive or are unsure about whether it is appropriate.

While this study cannot answer whether increases in financial literacy would lead to different behavior, it provides some sobering new evidence. We confirm earlier results that financial literacy is weakest among certain demographic groups that have sometimes been vulnerable targets: the elderly, women, and those with low incomes and financial assets. We further show that debt literacy is related to both financial behaviors and debt loads, even after controlling for demographics. People who transact in high cost manners (pay minimum balances on credit cards, incur late fees on cards, and use alternative sources of credit) tend to be less financially knowledgeable. The less knowledgeable also are more likely to either judge their debt to be excessive—or find themselves unable to judge the appropriateness of their debt. All together, these findings suggest that the widespread lack of financial skills may be a reasonable cause for concern.

## **1. Methodology and Survey Design**

There is mounting evidence that financial literacy is an important determinant of saving, retirement planning, and investment in stocks, but little work exists on the link between financial literacy and debt behavior.<sup>1</sup> This gap is important, as subprime mortgage borrowing has fueled the current credit crisis and some predict that the \$950 billion in credit card borrowing might be troubling, particularly among some demographic groups.<sup>2</sup> While these are important and pressing issues, there is little work on both debt literacy and debt behavior at the national level.<sup>3</sup>

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<sup>1</sup> See Lusardi and Mitchell (2007b) and Lusardi (2008) for a review of the existing work on financial literacy.

<sup>2</sup> See <http://www.federalreserve.gov/releases/g19/Current/> for recent statistics.

<sup>3</sup> There is some earlier work by Moore (2003) but the sample covers only respondents in the state of Washington.

To remedy this shortcoming, we have partnered with the market research firm TNS to develop and administer a survey that reports information on financial knowledge related to debt. In addition to testing participant's financial skills, we collect demographic characteristics, and also measure financial experience and individuals' judgment about the level of their indebtedness.

Our approach to measuring financial literacy has three elements. First, we devised questions to assess key debt literacy concepts, such as the power of interest compounding. Second, these questions can be solved with simple reasoning and do not require a calculator. Our aim is to assess *debt literacy* among the population, i.e., to measure knowledge and skills closely related to debt.<sup>4</sup> In addition, we ask participants to judge their knowledge of finance, and can relate this self-assessment to their performance on our questions.

The survey was fielded in November 2007 by the staff of TNS, one of the leading market research firms.<sup>5</sup> The data were collected via a phone interview from a sample of US respondents. Weights were constructed to make the final sample representative of the US population with respect to income, gender, age and other observable traits, such as household size, region, and market size. The survey reports information on several demographic characteristics, such as age, gender, race and ethnicity, marital status, employment, region of residence, family type and family size. In addition, it provides self-reported information on family income and wealth. Respondents identify which income group their household income falls into (four groups are reported) and in which group their total *investable* assets fall into (ten brackets are provided). Total assets include any sums in cash, checking or savings accounts, stocks, bonds mutual funds, insurance policies and any money in IRAs.<sup>6</sup> The total number of observations is 1,000 respondents.

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<sup>4</sup> Given the information collected in the literacy questions, we are not able to distinguish between pure financial knowledge and ability, including numeracy and cognitive ability—an issue which can be important when considering the elderly and those with low education attainment. Thus, we use the word “financial literacy” and “debt literacy” to encompass all of these characteristics. However, in our empirical work, we always account for income and wealth. Thus, our measures of literacy will capture knowledge and ability above and beyond what is accounted for by income and wealth.

<sup>5</sup> See <http://www.tnsglobal.com/>

<sup>6</sup> Respondents are required to exclude primary residence, real estate, closely-held businesses or assets in any employer-sponsored savings or retirement plans including a 401(k) plan from their measure of investable assets.

## 2. Measuring Debt Literacy

Our partnership with TNS enabled us to design and test questions measuring financial knowledge related to debt. While there exist a few national surveys that measure financial knowledge in the United States, such as the Health and Retirement Study (HRS), the Rand American Life Panel (ALP), and the Survey of Consumers, very few ask questions that can be directly related to borrowing and debt behavior.<sup>7</sup> We designed three survey questions to measure debt literacy, and specifically knowledge about the power of interest compounding, the working of credit card debt, and the more advantageous mean of payment between two options.<sup>8</sup> To be able to classify respondents according to their level of financial knowledge and, furthermore, to evaluate the link between financial knowledge and borrowing behavior, for each question we have listed a set of answers that allow us to rank respondents according to their degree of correct and incorrect responses.

The first question measuring interest compounding is as follows:

*Suppose you owe \$1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?*

- (i) 2 years;*
- (ii) less than 5 years;*
- (iii) 5 to 10 years;*
- (iv) more than 10 years;*
- (v) Do not know.*
- (vi) Refuse to answer.*

**Table 1, panel A**, reports the responses to this question. Ignoring interest compounding would lead to doubling in 5 years; someone who knew about interest on interest might have selected a number less than 5; someone who knew the “Rule of 72” heuristic would know that it would be about 3.6 years. Answers above five years reflect gross misunderstanding of the concept of interest accrual.

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<sup>7</sup> These surveys cover the adults. Surveys of high school students include those by the Jump\$tart Coalition for Personal Financial Literacy and the National Council on Economic Education.

<sup>8</sup> To keep the survey short, we were limited to three questions, although in future work, one could ask a longer battery of debt literacy questions.

A little less than 36% of respondents answer this question correctly. This is a rather low percentage given how frequently individuals are confronted with this type of calculations. However, this finding is consistent with the evidence reported by Lusardi and Mitchell (2006) that many older respondents cannot do simple interest rate calculations. It is also consistent with the findings in Lusardi and Mitchell (2007a) that only a small fraction of respondents between the age of 51 and 56 perform a correct interest-compounding calculation when asked to report how the amount in a saving account would grow over a two-year periods at an interest rate of 10%. A large fraction, 43%, simply performed a simple interest rate calculation, without taking into accounting that interest grows on interest. The evidence reported in panel A points to two other results. First, a sizable proportion of respondents, close to 20%, simply do not know the answer to this question. As reported in other papers (Lusardi and Mitchell (2006, 2007a) and van Rooji, Lusardi and Alessie (2007)), “do not know” answers identify respondents with the lowest level of financial knowledge. Second, more than 30% of respondents over-estimate, sometimes by a wide margin, the number of years it would take for debt to double when borrowing at a high rate; more than 13% of respondents think it will take more than 10 years for the credit card debt to double at an interest rate of 20%. Overall, while many individuals deal frequently with credit cards and credit card debt, there seems to be limited knowledge in the population about the working of interest compounding.

Similar evidence emerges when considering the second literacy question, which asks respondents to calculate how many years it takes to eliminate credit card debt when making minimum payments equal to the interest payments on the outstanding debt. Given that one is only paying interest, the principal will never decline. The exact wording of the question is as follows:

*You owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?*

- (i) Less than 5 year;*
- (ii) Between 5 and 10 years;*
- (iii) Between 10 and 15 years;*
- (iv) Never, you will continue to be in debt;*
- (v) Do not know;*
- (vi) Prefer not to answer.*

Similarly to the previous question, this question assesses whether individuals can do interest rate calculations and how well they navigate credit card debt. We again find that many respondents do not seem knowledgeable about the working of credit card payments. **Table 1, panel b** shows that only a little more than 35% of respondents figure out that making minimum payments equal to the interest payment on the outstanding debt will never eliminate debt. A sizable fraction heavily under-estimate the amount of time it would take to eliminate debt; more than 15% of respondents think it will take less than 10 years to eliminate debt, and another 20% think that it will take between 10 to 15 years to eliminate debt. Note also that a substantial fraction of respondents, more than 21%, simply do not know the answer to this question.

Not surprisingly, responses to these two questions are highly correlated. More than half (56%) of those who respond correctly to the first question also respond correctly to the second question. The “do not know” responses exhibit an even higher correlation. As many as 80% of those who do not know the answer to the first question also do not know the answer to the second question. Thus, those who are not knowledgeable about interest compounding are also not knowledgeable about how to eliminate credit card debt. Mistakes are more scattered, but it is interesting to note that more than 36% of those who think it will take more than 10 years for credit card debt to double also think it will take from 10 to 15 years to eliminate credit card debt with minimum payments. Thus, individuals may not do hard calculations when dealing with credit cards and may not be fully aware of the consequences of borrowing at a high interest rate.

The third question seeks to understand whether people understand the notion of the time value of money. The precise wording of the question is as follows:

*You purchase an appliance which costs \$1,000. To pay for this appliance, you are given the following two options: a) Pay 12 monthly installments of \$100 each; b) Borrow at a 20% annual interest rate and pay back \$1,200 a year from now. Which is the more advantageous offer?*

- (i) Option (a);*
- (ii) Option (b);*
- (iii) They are the same;*
- (iv) Do not know;*
- (v) Prefer not to answer.*

We expected this would be a relatively simple question: by paying \$100 a month versus \$1200 in a year, one gives money away earlier and loses the ability to earn



interest. As reported in **panel C of table 1**, a very small proportion of respondents—close to 7%—responded correctly to this question. A very high fraction of respondents, 40%, chose option (a).<sup>9</sup> In fact, the stream of payments to finance the purchase of an appliance carries an implicit interest rate much higher than 20%. Another and equally sizable fraction of respondents, 39%, thought that the two payment methods are the same, effectively failing to recognize the time value of money. Interestingly, the fraction of those who profess to not know the answer to this question is much lower than in the previous two questions. However, this simply indicates that many respondents may not be fully aware of the terms at which they are borrowing when offered a constant stream of payments to repay their debt. Specifically, individuals may underestimate the interest rate at which they are borrowing. This finding confirms the evidence reported in Stango and Zinman (2007) that individuals are systematically biased toward underestimating the interest rate out of a stream of payments.<sup>10</sup>

When considering the relationship between the answers to this question and the answers to the first two questions, we find that those who chose option (a), thus underestimating the interest rate implicit in the stream of payments, are also more likely to answer the first two questions incorrectly. However, many of those who thought that the payment options are the same are able to answer correctly to the first two questions. This indicates that financial knowledge is not pervasive and that the large majority of respondents are apt to make mistakes when confronted with the calculations implicit in many types of debt and borrowing.

### **3. Who is Debt Literate?**

Based on our metrics, debt illiteracy is widespread, and as we report here, particularly acute in specific demographic groups. First we show responses by age,

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<sup>9</sup> This could reflect their willingness to enter into a “self-control” contract that did budgeting on their behalf, even at the cost of giving up interest.

<sup>10</sup> Given the low correct response rate in all questions, one may wonder whether the framing of the question influences the way individuals respond. We are not able to address this issue in this survey. However, the evidence in other modules on financial literacy that one of the authors designed indicates that the framing of the questions matters for questions measuring advanced rather than basic financial knowledge (see Lusardi and Mitchell 2007c, and van Rooij, Lusardi and Alessies , 2007). In this respect, framing may have influenced the responses to the third question, which required some reasoning. When evaluating the empirical work, one has to keep in mind that financial knowledge may be measured with error.

gender, marital status and income, then, we report a multinomial logit relating debt literacy to a range of demographic characteristics.

**Table 2, panel A**, reports the distribution of the responses to the three literacy questions across age groups. Several findings emerge from this table. First, the elderly (those older than 65) display the lowest amount of knowledge about interest compounding. Not only are they less likely to answer correctly to this question, but they are also more likely to report they do not know the answer to this question. The elderly also display difficulty answering the second question. More than 30% of respondents older than 65 do not know the answer to the second question. Young respondents (younger than age 30) do best on the first question, but are incorrect about the second and third question. Thus, debt literacy is not high among the young, even though some of them may be just a few years out of school.<sup>11</sup> The fraction of correct responses to the second question is low in every age group, but differences across age are not as large as in the first question. Note that many respondents grasp that it will take a long time to eliminate debt, at least more than 10 years, but a sizable proportion—higher than 20% among the young—think it will take less than 10 years to eliminate debt. Patterns of responses to the third question show that, in every group, respondents show more confidence in responding to this question than is warranted. While the proportion of “do not know” is relatively low in every age group, the large majority of respondents in every group got this question wrong.

While in a single cross-section, we cannot differentiate between age and cohort effects, differences in literacy are sizable across age/generations. In particular, the elderly display low literacy. This is an important finding, as there is some evidence of the prevalence of financial mistakes among the elderly (Agarwal et al (2007)). Moreover, as reported in Lusardi and Mitchell (2006), older respondents display difficulty even in answering a simple question about interest rate and the fraction of correct responses declines sharply with age. While this finding may capture declines in both knowledge and cognition, older households still have to make financial decisions until late in life, including making sure their wealth lasts a lifetime.

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<sup>11</sup> On the other hand, young respondents have less experience in dealing with credit card debt. See also Agarwal et al. (2007).

**Table 2, pnel B**, reports sharp differences between male and female debt literacy levels. In each of the three questions on financial literacy, women are much less likely to respond correctly than are men, sometimes by as much as 20 percentage points. Furthermore, many female respondents state they do not know the answer to the literacy questions. For example, as many as 25% female respondents report they do not know the answer to the first question, 28% do not know the answer to the second question, and 13% do not know the answer to the third question. The corresponding fractions among men are much lower, even though this does not always translate into higher fraction of correct answers. Lusardi and Mitchell (2008a) already reported very large differences in literacy among older men and women, even when considering a set of questions measuring basic financial concepts. Since our survey covers the entire age group, we have also investigated gender differences among the very young (younger than 30) and the very old (older than 65) to see whether the gap in literacy is less sharp among younger women/generations. The literacy gap is still large among the young,. Only 37% of young women answer correctly to the first question, compared with a 58% correct response rates among young men. In the second question, only 28% of young women answer correctly in comparison to a 54% correct response rate among young men. The fraction of correct responses is equally low in the third literacy question; both male and female have a correct response rate of 6%.<sup>12</sup> Differences magnify when considering older respondents. Only 13% of female respondents older than 65 answer correctly to the first question and only 17% answer correctly to the second question. The fraction of correct responses among older men is 48 and 51% respectively. The fraction of correct responses to the third question is only 3% among older women and a little more than 8% among older men. The sharp differences in knowledge among older men and women may be causes for concern, particularly given that women's life expectancy is longer than for men.

**Table 2, panel C**, reports differences in literacy across marital status. Differences exist not only between the married and the non-married, but also within the non-married. For example there are sizable differences between those who never married versus those

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<sup>12</sup> These findings confirm the evidence reported by Mandell (2008) for very young respondents. He examines financial literacy among high school students and show there are gender differences in literacy even at a young age.

who are divorced/widowed/separated. This latter group displays the lowest level of literacy, both in terms of the much lower fraction of correct responses in every question and the much higher proportion of “do not know” responses. This is particularly the case for the second question where the fraction of “do not know” responses among the divorced/separated/widowed is as high as 27%. This finding may be due to the fact that divorced/separated/widower includes a high proportion of female and elderly respondents. The never married group as well includes a high proportion of female respondents.

A relatively high fraction of respondents who are divorced/separated/widowed and the never married are African-Americans and differences in literacy are also large across race and ethnicity. Only 14% African-Americans respond correctly to the first question, 18% respond correctly to the second question, and 3% respond correctly to the third question. The fraction of correct responses among Hispanics is 26, 27, and 2% respectively, while the fraction of correct responses among Whites is much higher at 37, 38, and 7% respectively.<sup>13</sup> This confirms the findings in several other papers that financial literacy is low among minorities even when considering other and often simpler questions about financial literacy (Lusardi and Mitchell 2006, 2007a, 2007b).

In the last panel of **Table 2**, we consider debt literacy across income groups. For each question, the fraction of correct answers increases rather sharply with income. For example, the fraction of correct responses to the first question goes from 26% among those whose income is below \$30,000 to 48% among those whose income is greater than \$75,000. In the second question, the fraction of correct responses goes from 28% to 43%. The much lower proportion of correct responses among the low income respondents is mostly due to the fact that they do not know the answers to these questions. For example, more than 26% of low income respondents do not know the answer to the first question and more than 28% do not know the answer to the second question. Note, however, that literacy is not particularly high even among those with high income. Correct response rates never go above 50% in any of the three questions. Moreover, as many as 42% of high income respondents think a stream of payments versus a lump sum are not different options. Thus, while financial illiteracy is particularly severe among specific groups,

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<sup>13</sup> For brevity, these statistics are not reported but are available upon request.

illiteracy is present in all segments of the population.<sup>14</sup> We find similar findings when examining debt literacy among wealth groups (for brevity not reported in the tables). Those in the lowest asset bracket (holding less than \$50,000) display a lower rate of correct answers than those in higher asset groups, and debt literacy increases with asset levels, but the relationship is not monotonic and tends to weaken at high values of assets.

Given that income and wealth are lower among the young and the elderly, female, minorities, and those who are not married, we assess next which demographic characteristics remain significant when we account for all these demographic variables together. We perform a multinomial logit regression, shown in **Table 3**, for each of the three debt literacy questions. We include dummies for age groups, being female, African-Americans and Hispanics (the reference group is White respondents), and for marital status (the reference is those who are married). We also add dummies for household income (the reference group is those with income lower than \$30,000) and household wealth (the reference group is those with wealth greater than \$250,000).<sup>15</sup>

Even after accounting for all of these demographic variables simultaneously, both age and gender continue to be statistically significant when considering the responses to the first literacy question. Thus, women and the elderly continue to display lower knowledge of the power of interest compounding even after accounting for many demographic characteristics. African-Americans also continue to display low knowledge of the power of interest compounding. Differences across marital status are no longer significant in a multivariate framework, while differences in literacy across income are large and statistically significant, particularly for those whose income is greater than \$75,000. We find similar results when considering the responses to the second question. Age (being older than 65), gender, race, and income continue to be predictors for differences in literacy. Differences are not only statistically significant but also sizable. For example, differences in male versus female respondents, and differences for those at the top of the income distribution continue to be large even after accounting for many demographic characteristics. When considering the third question, the variables that continue to predict differences in literacy are gender and high income. Race and ethnicity

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<sup>14</sup> These findings are consistent with those reported in other surveys. For a review, see Lusardi and Mitchell (2007b), Smith and Stewart (2008) and the 2005 OECD report on financial literacy.

<sup>15</sup> Because we do not have information about educational attainment in the survey, income and wealth can also proxy for education.

is important, in this case highlighting Hispanics, who are less likely to respond correctly to this question and are much more likely to report they do not know the answer to this question.

While debt literacy levels are low, the relatively poorer performance by certain groups—women, the elderly, and minorities—is particularly troubling.

#### 4. Who *thinks* they are financially literate?

In addition to asking questions about some specific concepts related to debt, we have also asked respondents to judge their financial knowledge. The wording of this self-assessment is as follows:

*On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?*

We asked this question for several reasons. First, the questions on debt literacy we have designed cover specific concepts, but they hardly exhaust the list of topics that can affect debt behavior. Thus, we can rely on a comprehensive measure of financial knowledge without adding a long list of questions. Second, we can evaluate and compare the answers to this self-reported measure of literacy with the answers to more objective measures of literacy and assess how they compare: do people know what they know? Third, it provides a simple and easy to answer question.<sup>16</sup>

**Table 4** reports the answers to the self-reported literacy across the whole sample. Contrary to the evidence of widespread debt illiteracy we find when assessing the answer to the three debt literacy questions discussed before, most respondents think they are above average in term of their financial knowledge. The average score in the sample is 4.88 and more than 50% of respondents chose a score as high as 5 or 6. Conversely, only a little more than 10% of respondents chose a score below 4.

In general, self-reported literacy correlates with our measures of debt literacy, which indicates that people who think they know more generally do (although at a level lower than one might imagine.) For brevity we do not report how self-reported literacy varies across demographic groups, but we find a similar pattern as in the other measures

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<sup>16</sup> This question was asked to respondents before the 3 debt literacy questions.

of debt literacy in **Tables 2**. For example, women's self-reported levels of literacy are much lower than men. African-Americans and Hispanics also report lower level of literacy, even though differences in the self-reported measures across race and ethnicity are less sharp than across measures of debt literacy. Self-reported literacy increases steadily with income and wealth.

While self-reported literacy correlates strongly with debt literacy, there are some notable discrepancies between self-reported measures of literacy and actual measures of debt literacy across some specific groups. For example, while the elderly display very low levels of debt literacy across the three questions, they rank themselves highest in term of financial knowledge; the average score among respondents older than 65 is 5.3! Similarly, those who are divorced/separated/widowed display very low levels of debt literacy but rank themselves rather high in term of self-reported literacy; the score in this group is 4.79. Because the four measures all capture important aspects of knowledge, we will use all of them in our empirical work.

## **5. Measuring Financial Experience**

In addition to being related to demographic characteristics, debt literacy may also relate to financial experience. Individuals engage in many financial transactions that require careful consideration of interest rates and comparisons of alternatives. Those who are less knowledgeable may engage in higher-cost borrowing or less advantageous financial contracts, suggesting that we will see a negative relationship between literacy and certain wealth-depleting financial behaviors.<sup>17</sup> At the same time, we might expect a positive relationship between financial knowledge and more wealth-enhancing activities.

*Experience measures.* The TNS survey allows us to characterize a wide range of borrowing and investing experiences and transaction patterns of respondents. While we cannot measure their intensity or frequency, we can identify the types of transactions in

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<sup>17</sup> Financial experience could also affect financial knowledge, and we will discuss this issue in more detail in the empirical work. We note here that, even after accounting for many demographic characteristics, those who borrow more heavily on credit cards and thus incur interest and other charges are no more likely to answer correctly to the debt literacy questions. Thus, the extent of learning by experience may be rather limited.

which individuals have engaged.<sup>18</sup> This typology includes the four large related classes of transactions: traditional borrowing, alternative financial service borrowing, saving/investing and credit card usage. The parenthetical headlines below were not part of the survey, but are given here to organize this information for the reader.

(1) (*Experience with traditional borrowing*) Have you ever...

- a. Took out a loan for student education
- b. Took out an auto loan
- c. Took out a home equity loan
- d. Got (or refinanced) a mortgage

(2) (*Experience with alternative financial service borrowing.*) Have you ever...

- a. Got a short-term “payday” or “salary advance” loan
- b. Got a “refund anticipation loan” to accelerate the receipt of my taxes
- c. Got an auto title loan
- d. Used a pawn shop
- e. Bought goods on a lay-away plan or at a rent-to-own store

(3) (*Experience with savings/ investing and payments.*) Have you ever...

- a. Opened a checking or debit card account
- b. Opened a savings account or bought a CD
- c. Bought a savings bond or other bonds
- d. Invested in mutual funds
- e. Invested in individual stocks

(4) (*Typical transaction mode for credit cards.*) In the last, twelve months, which of the following describes your use of credit cards?

- a. I don’t have any credit cards or did not use them
- b. I always paid my credit cards in full
- c. In some months, I ran an outstanding balance and paid finance charges
- d. In some months, I paid the minimum payment only
- e. In some months, I was charged a late charge for late payments
- f. In some months, I was charged an over the limit charge for charging more than my credit limit
- g. In some months, I used the cards for a cash advance
- h. My account was closed down by the credit card company.

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<sup>18</sup> The failure to engage in certain transactions could be a function of individual choice or of supply constraints, i.e., the product was not available to the individual. For example, some may not have credit cards by choice, while others might be unable to obtain a card.



While not exhaustive, this simple list contains many of the transactions in which a person might have needed to make a financial calculation regarding interest or fees versus interest.<sup>19</sup>

**Table 5** provides the weighted incidence of the various transaction types for our sample population. Some activities are quite common, with 91% of the population having experience with checking accounts, 81% with experience with savings accounts or CDs, and 79% currently having credit cards. Other activities are fairly rare. For example, in our sample only 4.4% had ever gotten a refund anticipation loan, 6.5% an auto title loan and 7.8% payday loan.

*Experience segments.* A number of studies look at single activities, intensively studying consumers who use payday lending, refund anticipation lending, or credit cards, but these single-dimensional characterizations of consumer behavior cannot capture the fact that consumers engage in many activities simultaneously. **Table 6** provides a two-way matrix of the incidence of each experience conditional on a second characteristic. For example, while the unconditional incidence of having used a pay-day loan is 7.8%, conditional on not having a credit card, the incidence is 15% while conditional on paying credit card each month on time is only 3%.

While it is possible to analyze each type of experience in **Table 6** one at a time, or to consider dyads or triads, the large matrix obviously contains a set of correlated activities. To reduce the dimensionality of this matrix, we rely on techniques used in marketing and market research. In particular, we use cluster analysis, a technique—related to principal components analysis or factor analysis—that reduces the dimensionality of a rich dataset. In this case, the cluster analysis is used to determine groups of individuals who have had similar financial experiences, or in the language of markets, could be considered market segments. This segmentation is carried out solely on the basis of transaction activity, not with reference to demographics, literacy or self-judged indebtedness. Our procedure is to first create the segments on the basis of common experiences, and then relate these to the other information.

Cluster analysis is a data-analysis tool used to characterize high-dimensional data.<sup>20</sup> This technique is used commonly in biology, linguistics and marketing than in

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<sup>19</sup> For space considerations, we were not able to include some other choices, including the use of bank overdraft lines, car leases, variable annuity products, and other insurance products.

economics. It is used to characterize a heterogeneous population into groups that are more homogeneous. Essentially, it uses orthogonal factors to parse the data into groups, testing for differences among groups as it divides the data into 2, 3, 4, or more groups.<sup>21</sup> For our purposes, a key analytic question was which transaction types to include in the analysis. We include *all* of the transaction activity listed above in defining the cluster. The procedure groups the data into any arbitrary number of clusters, and one must use of statistics, judgment and sensitivity testing to ensure that the clustering is sensible.

Based on the results of the cluster analysis, we reliably identify four main segments defined by common experiences. **Table 7** identifies the transaction characteristics of these four groups. Cluster 1, the “**in-control**,” comprising about 26% of the sample, are people firmly in the traditional financial system and under control of their money. These individuals all have credit cards, but do not carry any revolving balances (i.e., commonly called “transactors”). They have relatively high (but not the highest) experience with mutual funds, stocks, and bonds. Among the four clusters they are most likely to have a mortgage, and fairly likely to have some experience with auto loans and home equity loans. However, among the four groups, they have the lowest levels of alternative financial services usage (payday lending, pawn shops, tax refund loans. etc.)

At the other end of the spectrum are the 30% of our sample that one might consider “**fringe**” users of the financial service sector (Cluster 4). Most (68%) do not have credit cards—although when they do have them, they pay them in full, such as in a secured card. When compared with the “in control,” their usage of alternative financial services is considerably more frequent, using payday loans, tax refund loans and pawn shop usage 5, 16 and 9 times more frequently. At the same time, the likelihood that they have ever invested in a stock, a bond, or a mutual fund—or held a mortgage—is about one fifth that of the in-control group.

In between are two groups that comprise 43% of Americans: Virtually all have credit cards and virtually all carry revolving balances most months. They are virtually all “banked” with checking or debit accounts. The smaller subgroup, accounting for about

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<sup>20</sup> See Lehman, Gupta and Steckel (1998).

<sup>21</sup> Cluster analysis is related to factor analysis; the latter identify common traits and the former identifies similar populations of individuals on the basis of underlying factors.

12% of the sample are what we call the “**Borrower/savers**” (Cluster 2). This group has the highest level of experience with savings and investments of any of the four clusters, with 98% having experience with savings or CD products, 83% owning mutual funds, 83% owning stocks, and 65% owning bonds or savings bonds. At the same time, they have the highest levels of debt exposure too, with the most frequent experience with student loans (46%), home equity lines (54%), auto loans (94%) and virtually the highest levels of mortgage loans (77%). Despite this well rounded appearance, this group seems much more extended than the “in control” group, with 95% carrying a revolving balance on their credit card, 27% paying the minimum balance only, 12% incurring late fees, and 6% going beyond their credit limit and incurring over-the-limit fees.

The final 31% of the sample are what we call the “**Over-extended**” (Cluster 3). In many ways they look like the borrower/savers, except that they have less experience with savings and more markers of extended credit. Relative to all three other groups, this group has the highest likelihood of paying the minimum amount due on their credit cards (56%), running late fees on their credit cards (17%), incurring over-the-limit fees (11.8%) and using their card to get cash advances (16.1%). At the same time, they have far less experience than the borrower/savers or the in-charge with respect to mutual funds, stocks, or bonds, as well as less experience than these other groups with home equity and mortgage loans and auto loans.

## 6. Characteristics by Experience Segment

Our segmentation captures meaningfully different behavior modalities, even though the four clusters are defined only with respect to shared experiences, not on the basis of demographics, financial literacy, or perceived level of indebtedness. Nevertheless, we would expect a relationship between demographics, debt literacy and these clusters. Are the “in control” financially better off (e.g., in terms of income or wealth), more financially knowledgeable, and more secure in their level of indebtedness? Are the “fringe” financially worse off, less financially literate, and less secure in their level of indebtedness? Finally, what can we make of borrower/savers and the overextended? **Table 8** provides descriptive statistics for these four clusters with respect to their demographics (panel A) and financial literacy (panel B). Following that we

report the results of a multinomial logit analysis which examines cluster assignment as a function of these factors.

With respect to demographics, the in-control have the highest income (53% over \$75,000 per year) and wealth (74% with financial assets in excess of \$50,000). They are more likely to be married, and to be white than are the other three clusters. Borrower/savers have incomes almost as high as the in-control, similar levels of marriage, are the second oldest group, and tend to be men (62%). In terms of wealth, this group is not quite as wealthy as the in-control group, with only 52% having financial assets above \$50,000. The fringe group has the lowest income (53% below \$30,000 per year), and is most likely to be women (58%) who are single or separated (47%). Finally, the extended group looks most like the “average” American, with income distributed roughly similar to the overall sample, and other demographics (age, gender, marital status and race) roughly comparable to the entire sample. Both the fringe and over-extended have considerably less financial assets than do the other two groups, with only 24-28% having financial assets in excess of \$50,000.

With respect to debt literacy, the in-charge and borrower/savers are both more knowledgeable and more confident than either the overextended or fringe segments. Looking across the three questions, these two former groups have considerably larger fractions correct on the three questions than do the latter two groups. What is striking is that a large fraction of the overextended and fringe admit to not knowing the answers to the questions. These patterns also are reflected in measures of self-reported financial literacy. The overextended and fringe judge themselves to be much less well knowledgeable than do members of the in-control and borrower/saver groups. We can see this both in the average scores as well as in the distribution of scores. For example, about 48% of those “in-control” and 53% of the borrower/savers ranked themselves in the top two scores with respect to their financial knowledge. In comparison, for the overextended and fringe, these percentages are 15.3 and 23.5% respectively. In short, from the univariate statistics, the two clusters that seem to pay the highest credit card fees and to access the highest cost borrowing methods, the overextended and fringe, tend to be financially worse off and have lower levels of debt literacy.

Of course, all of these univariate measures are likely correlated, and therefore we must consider all of the demographic variables simultaneously. Furthermore, we must

use a multivariate approach if we hope to understand the marginal relationship between debt literacy and behavior. Since the dependent variable is an indicator for the four clusters we have identified in the data, we use a multinomial logit.

We have four correlated measures of financial literacy: the self-reported measure of literacy and objective measures resulting from the answers to the three questions discussed above. We have further organized these data when performing the empirical work in order to characterize the types of errors individuals make. For example, the incorrect answers to the question about interest compounding can be divided into underestimates versus over-estimates of how quickly debt can double and we split respondents into these two groups. Moreover, we add a dummy for those who do not know the answer to this question as this is a sizable and also distinct group of respondents. As we argued earlier, prior research suggests that this group tends to characterize those with the lowest level of knowledge. We also include a dummy for those who refuse to answer the literacy questions.<sup>22</sup> Incorrect responses to the second literacy question are all underestimates of how many years it would take to eliminate credit card debt. We aggregate the responses into those who make large underestimates (answer it would take less than 5 years and between 5 and 10 years to eliminate credit card debt) versus those who choose a longer time period (between 10 and 15 years). The erroneous answers to the third question characterize two distinct types of respondents: those who fail to realize that the implicit interest rate out of a stream of payment is higher than 20%, and those who fail to recognize that the stream of payments has a higher present value and incorrectly state that the two payment options are the same, and we keep these two groups separate. For the second and third measure of literacy we again add dummies for those who do not know the answer or refuse to answer.

Among the demographic variables, we include age and age squared to capture the potential non-linear impact of age. We also include dummies for gender, race and marital status. We add dummies for larger household sizes, characterizing those with 4 members and those with 5 or more members, and a dummy for those who are not employed; these families may be more vulnerable to shocks. Finally, we add dummies for household income and wealth. We include these dummies to proxy for both the resources that

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<sup>22</sup> This is a small but rather heterogeneous group of respondents. For some questions, there is a high prevalence of African-Americans who refused to answer the literacy questions.

respondents have available for their consumption and also to buffer themselves against shocks. Moreover, income and wealth can control for skills and ability (in addition to education) as well as control for individual preferences, such as patience and thriftiness.

**Table 9** reports the marginal effect of each variable in the multinomial logit across the four clusters. We first consider the self-reported measure of literacy, which is the most comprehensive measure of knowledge. Those who display higher levels of literacy are more likely to locate in the first cluster (in control). Levels of literacy above the mean score (score higher than 4) are associated with higher chances of being among those “in control” and chances become higher at top levels of knowledge (scores of 6 and 7). In other words, those who report higher levels of financial knowledge are more likely to pay credit cards on time. Note that African-Americans and Hispanics and those with large families are less likely to locate in the in-control cluster. Individuals in this cluster are also those with high income (income greater than \$75,000) and high wealth; individuals in cluster 1 are less likely to report financial assets in the three lowest brackets, and particularly below \$50,000.

Self-reported financial knowledge is not related to the behavior of those in cluster 2, our borrower/savers.<sup>23</sup> Those individuals have relatively high income, as noted before, and they do not display characteristics that are usually associated with debt problems (large families, not employed, split families, etc.). Income and race (not being Hispanics) are the only variables that characterize those in cluster 2. However, the borrower/savers do carry balances and tend to pay finance charges. The behavior in this group may simply be due to “inattention” as pointed out in other papers that look at credit card mistakes.<sup>24</sup>

The dummies for self-reported high financial literacy turn negative when considering cluster 3, the overextended. Even after controlling for many demographic traits, respondents in this cluster are much less likely to report high levels of literacy, and estimates are larger and more negative for those who chose the highest score. These respondents are also those more likely to have lower levels of wealth, to be African-Americans, and to have large families. However, even after accounting for demographics,

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<sup>23</sup> Note that this finding goes against the argument of “learning by experience.” Respondents in cluster 2 have the highest experience with saving and borrowing. They own the highest percentage of assets and have used borrowing the most. Nevertheless they carry balances on their credit cards and pay fees and finance charges.

<sup>24</sup> See Scholnick, Massoud and Saunders (2008).

income, and wealth, literacy remains an important and significant predictor for being “over-extended.”

Low levels of financial literacy also characterize those in cluster 4, the fringe group. These respondents are much less likely to report high levels of literacy. Respondents in this cluster also have low levels of income; for example they are disproportionately more likely to have income less than \$30,000. They are also more likely to report they are not employed. Employment status, income, and self-reported literacy are the most important predictors for the respondents in this cluster.

In panels b through d of **Table 9** we have replaced the self-reported measure of literacy with the three measures of debt literacy. Since the estimates of the demographic variables are not affected by the measure of literacy we use, this discussion focuses on coefficients related to debt literacy. Those who over-estimate how long it takes for debt to double may be lulled into borrowing more or not paying on time. Indeed, those who are less likely to be knowledgeable about interest compounding, both because they over-estimate the number of years it takes for debt to double or because they do not know the answer to this question, are less likely to be “in control” (cluster 1) and more likely to belong to the fringe (cluster 4). As mentioned above, these two clusters characterize very different types of borrowing behavior and debt literacy remains a predictor of these two groups even after accounting for a rich set of characteristics, including income and wealth. Being unable to answer the question about interest compounding also characterizes those who belong to cluster 3, the overextended who tend to carry balances and pay finance charges and penalty fees. On the other hand, those who do not know the answer to the question about interest compounding are less likely to belong to cluster 2, our borrower/savers who are likely to carry balances and not pay on time.

Turning to the question about minimum credit card payments, we find that those who make mistakes in answering this question, both small and large, are significantly more likely to belong to the fringe group (cluster 4). Those who display the lowest level of debt literacy, i.e., do not know the answer to this question, are also more likely to belong to this group. Conversely, those who make small mistakes or do not know the answer to the question are *less* likely to belong to the in-control or borrower/saver clusters.

Estimates for the third question of financial literacy, which was answered correctly only by a small fraction of respondents, show similar findings; those who answered this question incorrectly (chose option (a) or thought the two options are the same) or do not know the answer to the question are much less likely to belong to in-control cluster. On the other hand, those who make mistakes in answering this question are more likely to belong to the overextended cluster 3. As with other literacy questions, those who are less knowledgeable are also less likely to belong to cluster 2, again emphasizing the differences between this cluster and clusters 3 and 4.<sup>25</sup>

In summary, for each measure of financial literacy, there is a strong relationship between literacy and debt behavior. The more financially knowledgeable who grasp basic concepts about debt are much more likely to be in control of their finances, while those less literate are more likely to be over-extended or be fringe borrowers. Thus, the relationship illustrated in Table 8 continues to hold even after accounting for demographic traits. The curious group is those in cluster 2, our borrower/savers who are rather knowledgeable and also have high income, yet tend to carry credit card balances and pay finance charges. One may argue that these charges are not sizable and are not of much consequence for borrowers. In the next section we try to address this issue by examining self-reports of debt loads.

## **7. Too much, too little or the right amount of debt?**

According to the intertemporal model of consumption, consumers borrow to smooth consumption over the life-cycle. Variations in debt over time and across individuals would not necessarily indicate that anyone was “overlevered” or “underlevered.” Yet imperfections and shocks might lead individuals to conclude that their debt was inappropriate. Some may suffer from credit constraints, and are unable to borrow as much as they would like. Others may be hit by unexpected negative shocks and carry higher debt loads than they might otherwise consider appropriate.

In the survey, we sought to understand whether people judged their debt loads to be appropriate. While we recognize the potential problems with self-reported measures of debt comfort, these self-perceptions give a sense about credit constraints and a clue

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<sup>25</sup> If debt literacy is measured with error and the errors are random (the classical measurement error problem), then our estimates of debt literacy underestimate the true effect.



about consumers' interest in additional borrowing. To gauge debt levels, we asked individuals the following question:

*Which of the following best describes your current debt position?*

*(a) I have too much debt right now and I have or may have difficulty paying it off.*

*(b) I have about the right amount of debt right now and I face no problems with it.*

*(c) I have too little debt right now. I wish I could get more.*

*(d) I just don't know.*

In aggregate, 26.4% of the sample said they had “too much debt” (overburdened) and 60.5% indicated they had the “right amount” of debt. Only 2.0% thought they had “too little debt” (credit constrained). Finally, 11.1% “just didn't know” (unsure) if they had too much debt. Before analyzing the characteristics of these groups, it is instructive to note that traditional credit constraints seemed not to feel binding for the people in our sample. Secondly, one in nine individuals felt incapable of assessing whether their debt load was appropriate.

Paralleling our analysis in the last section, we first report on the traits of these different groups in univariate terms (**Table 10**) and then providing a multinomial logit analysis of debt levels (**Table 11**). Given the small number of individuals who felt that they had too little debt, the discussion below focuses on those who feel overburdened and the unsure relative to the mass who consider themselves to have the right amount of debt.

Looking at **Table 10**, one can see that relative to those comfortable with their level of debt, the overburdened are a bit younger, have lower financial assets, and lower incomes. They are disproportionately drawn from the “overextended” cluster, as one might expect, and almost none are part of the “in-charge” segment. In terms of debt literacy, the overburdened rank themselves the lowest of the four groups, although their actual level of debt literacy (as measured by percentage correct) was only somewhat lower than those who considered their debt levels to be about right.

The “unsure,” the 11% who were unable to judge whether they had too much or too little debt, tended to be disproportionately women (nearly 70%), black (18%), and unmarried (60%). With respect to income, they are disproportionately drawn from the lowest income group (59% making under \$30,000 per year), and have considerably less wealth than the 60% who categorized their debt load as “about right.” With respect to financial literacy, they *judge* themselves to be about as knowledgeable as people who

were comfortable with their debt levels, although their actual debt literacy was considerably weaker than of either those who judged their debt to be about right or even too high. (Perhaps not surprisingly, people in this group were also more likely to select “do not know” as the answer to the debt literacy questions than were the other two groups.) They are disproportionately drawn from the “fringe” segment, with 60% being from this group.

We perform a multinomial logit analysis of the three groups mentioned above: the overburdened, the unsure, and those with the right amount of debt. As predictors for these debt outcomes, we use demographic variables including age and age squared, and dummies for gender, marital status, race, family size, employment status and income and wealth. Moreover, we add dummies for the different measures of financial literacy.

We find that self-reported literacy again shows a very strong relationship with debt. Those who reports higher levels of literacy are more likely to belong to the group who report having the “right amount of debt.” The effect is not only sizable but it increases with higher scores for self-assessed literacy. Conversely, those who less literate are much more likely to report having “too much debt” and again there is a monotonic (negative) relationship between financial literacy and having too much debt. Although the estimates are less sizable than for those who have too much debt, the unsure as well are much less likely to display high levels of literacy. Demographic variables are also related to debt loads. Those who are employed and have higher income and higher wealth are much more likely to report they have the right amount of debt. Finally, women, African-Americans and those with low income and wealth are more likely to be unable to judge whether their debt load is appropriate.

When we consider the other measures of literacy, we find similar results. Moreover, and most importantly, these results are consistent with the multinomial logit for the experience segments. Specifically, those who overestimate the number of years it takes for debt to double (recall that these respondents are much more likely to belong to the “fringe” groups and much less likely to belong to the “in-control” group) are also more likely to report they have too much debt. On the other hand, those who make mistakes in answering this question or do not know the answer to this question are much less likely to report they have the right amount of debt, while they are more likely to belong to the unsure group.

Knowledge about how to eliminate credit card debt by making minimum payments (second literacy question) is also related to self-assessed levels of debt. In this case, those who display the lowest amount of knowledge, i.e., claim not to know the answer to this question, are less likely to report having the right amount of debt. Those who claim not to know the answer or make large mistakes are more likely to belong to the unsure group. Similar patterns were found for the clusters; for them as well, being unable to answer the question is an important determinant of debt behavior as characterized by the clusters.

Turning to the answer to the question about the more advantageous payment option, we find again that those who are not able to answer this question are less likely to report having the right amount of debt while they are more likely to belong to the unsure.

For completeness, in **Table 12** we report the estimates where we also account for the three dummies characterizing different clusters (the first cluster is the reference group). In this way, we can assess whether financial experiences have a direct effect on the amount of debt that respondents have and whether the effect of financial literacy remains significant after accounting for the debt behavior characterized by the four clusters. As shown in **Table 12**, the effects of literacy weakens only for the third measure of debt literacy, otherwise there is still an effect even after accounting for the clusters. Thus, financial literacy can affect debt loads above and beyond the effect it has on financial experiences. Moreover, even after accounting for a large set of characteristics, those who report having too much debt are disproportionately likely to belong to the three segments that are not “in control.” Conversely, members of clusters 2, 3 and 4 are much less likely to report they have the right amount of debt. Note that not just the over-extended and the fringe borrowers report having troubles with debt, but also those in cluster 2, who carry some balances and pay some finance charges, end up with too much debt.

## **8. Implications and Conclusions**

With this work, we hope to break new ground in a few ways. First, we focus attention on an important component of financial literacy—debt literacy. Secondly, we consider the rich set of financial experiences that individuals have, rather than focus

simply on one behavior. Thirdly, we listen to individuals about their own debt levels. Fourth, we tease out relationships among literacy, demographics, experience, and debt loads. Finally, we designed a collaborative research project that blended scholarly research with timely commercial market research. Our conclusions suggest a complex set of interactions among literacy, experience, demographics and debt loads. While future research must refine some of the findings, there seems to be a few emerging results.

Low levels of debt literacy are the norm, and understanding of the basic mechanics of debt are especially limited among certain groups including the elderly, women, certain minorities, and people with lower incomes and wealth. Particularly intriguing—and worthy of additional research—is the notion that certain groups, like the elderly, *think* they know considerably more than they actually do. This disparity may help explain the incidence of financial frauds perpetrated against the elderly. Moreover, women display substantially lower debt literacy than men and this finding holds true even among the young .

Second, people have a rich set of financial experiences. Our work collapses these experiences down into four segments, but future work can refine this segmentation even more. Nevertheless, our high-level segmentation shows that the segments are closely linked with both demographics and financial knowledge. While it may be reassuring to know that the people who are “in control” of their finances are more financial skilled, it is troubling that people whose financial transaction patterns are characterized by high-cost borrowing are those who come from vulnerable demographic groups and—even after controlling for these factors—are less debt literate. People who are making financial choices that others might consider mistakes (e.g., only paying the minimum balance on their credit cards, incurring late or over-the-limit fees, using alternative financial service credit such as payday loans, tax refund loans, or pawnshops) are those with weaker grasps of debt. While our sample did not specifically study subprime mortgages, it would be fascinating to know if subprime borrowers were disproportionately drawn from the low literacy groups.

Finally, in November 2007, over a quarter of Americans felt overburdened with respect to their debt loads and another 11% were unable to assess whether their debt loads were appropriate. Almost no one wished they could get more debt. Given how extensively financial service firms have pushed to make credit available, this is not

surprising. Perhaps also not surprising is that those in too much debt were drawn from certain demographic groups, had common financial experiences, and tended to have lower levels of financial literacy.

We think there are a number of implications from our findings. If poor financial decisions partly result from lack of financial knowledge, then in certain circumstances, one may be able to design financial choices to compensate for this lack of knowledge. These solutions might be embodied in auto-default mechanisms, such as studied by Choi et al (2003, 2004a, 2004b, among others). However, once one recognizes the wide range of financial choices that consumers will face, it becomes harder to conceive that all of them can be solved in this fashion. For example, someone who needs additional funds will have to search for and compare alternatives ranging from extending their borrowing on their credit cards, taking out a home equity loan, overdrafting a bank account, taking out a payday loan, or going to a pawn shop. As much as we try to circumscribe their alternatives, individuals will need to make active choices. Our work suggests that financial literacy is related to the choices that people make, with people with less knowledge making more costly decisions—even after controlling for a host of other factors. We interpret this to mean that additional research on financial literacy—and education to enhance financial literacy—can complement, and not substitute for, auto-default and other creative approaches.

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**Table 1. TNS Survey Financial Literacy Questions: Weighted Results****Panel A: First literacy question**

*Suppose you owe \$1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?*

	<b>Total</b>
2 years	9.56%
Less than 5 years	35.88%
Between 5 and 10 years	18.78%
More than 10 years	13.14%
Do not know	18.32%
Prefer not to answer	4.33%
Number of observations	1,000

**Panel B: Second literacy question**

*You owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?*

	<b>Total</b>
Less than 5 years	3.81%
Between 5 and 10 years	12.41%
Between 10 and 15 years	21.56%
Never, you will continue to be in debt	35.41%
Do not know	21.69%
Prefer not to answer	5.12%
Number of observations	1,000

**Panel C: Third literacy question**

*You purchase an appliance which costs \$1,000. To pay for this appliance, you are given the following two options: a) Pay 12 monthly installments of \$100 each b) Borrow at a 20% annual interest rate and pay back \$1200 one year from now. Which is the more advantageous offer, in other words which one will cost less?*

	<b>Total</b>
Option (a)	40.62%
Option (b)	6.93%
They are the same	38.83%
Do not know	9.17%
Prefer not to answer	4.46%
Number of observations	1,000



**Table 2.** TNS Survey Financial Literacy: Descriptive Statistics**Panel A: Literacy and Age**

*First literacy question: Suppose you owe \$1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?*

	Total	Age groups (weighted)				
		Less than 30 years	31 - 40 years	41 - 50 years	51 - 65 years	Over 65 years
2 years	9.56%	9.73%	13.84%	9.58%	6.72%	9.79%
Less than 5 years	35.88%	43.16%	33.44%	34.15%	38.04%	28.62%
Between 5 and 10 years	18.78%	22.38%	20.18%	21.00%	15.70%	15.92%
More than 10 years	13.14%	5.01%	10.68%	14.42%	18.06%	11.28%
Do not know	18.32%	16.18%	16.10%	19.20%	16.32%	28.37%
Prefer not to answer	4.33%	3.54%	5.75%	1.66%	5.06%	6.01%
Number of observations	1,000	141	189	226	328	116

*Second literacy question: You owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?*

	Total	Age groups (weighted)				
		Less than 30 years	31 - 40 years	41 - 50 years	51 - 65 years	Over 65 years
Less than 5 years	3.81%	6.79%	2.77%	4.54%	3.62%	1.07%
Between 5 and 10 years	12.41%	15.89%	13.62%	11.05%	10.91%	12.87%
Between 10 and 15 years	21.56%	20.51%	24.31%	23.24%	21.41%	15.29%
Never, you will continue to be in debt	35.41%	36.11%	31.45%	33.85%	39.80%	32.35%
Do not know	21.69%	17.02%	20.07%	24.72%	19.31%	30.68%
Prefer not to answer	5.12%	3.68%	7.78%	2.60%	4.94%	7.74%
Number of observations	1,000	141	189	226	328	116

*Third literacy question: You purchase an appliance which costs \$1,000. To pay for this appliance, you are given the following two options: a) Pay 12 monthly installments of \$100 each b) Borrow at a 20% annual interest rate and pay back \$1200 one year from now. Which is the more advantageous offer, in other words which one will cost less?*

	Total	Age groups (weighted)				
		Less than 30 years	31 - 40 years	41 - 50 years	51 - 65 years	Over 65 years
Option (a)	40.62%	42.97%	41.72%	39.97%	39.93%	39.02%
Option (b)	6.93%	6.45%	6.17%	7.70%	7.50%	5.75%
They are the same	38.83%	37.49%	41.25%	37.21%	39.52%	37.59%
Do not know	9.17%	9.90%	4.99%	11.10%	9.49%	10.78%
Prefer not to answer	4.46%	3.20%	5.87%	4.02%	3.57%	6.86%
Number of observations	1,000	141	189	226	328	116

**Table 2.** TNS Survey Financial Literacy: Descriptive Statistics**Panel B: Literacy and Gender**

*First literacy question: Suppose you owe \$1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?*

	<b>Gender (weighted)</b>		
	<b>Total</b>	<b>Male</b>	<b>Female</b>
2 years	9.56%	8.54%	10.59%
Less than 5 years	35.88%	46.28%	25.47%
Between 5 and 10 years	18.78%	16.06%	21.50%
More than 10 years	13.14%	14.11%	12.17%
Do not know	18.32%	11.44%	25.20%
Prefer not to answer	4.33%	3.58%	5.07%
Number of observations	1,000	505	495

*Second literacy question: You owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?*

	<b>Gender (weighted)</b>		
	<b>Total</b>	<b>Male</b>	<b>Female</b>
Less than 5 years	3.81%	2.03%	5.60%
Between 5 and 10 years	12.41%	11.39%	13.43%
Between 10 and 15 years	21.56%	21.27%	21.84%
Never, you will continue to be in debt	35.41%	45.01%	25.82%
Do not know	21.69%	15.66%	27.71%
Prefer not to answer	5.12%	4.64%	5.61%
Number of observations	1,000	505	495

*Third literacy question: You purchase an appliance which costs \$1,000. To pay for this appliance, you are given the following two options: a) Pay 12 monthly installments of \$100 each b) Borrow at a 20% annual interest rate and pay back \$1200 one year from now. Which is the more advantageous offer, in other words which one will cost less?*

	<b>Gender (weighted)</b>		
	<b>Total</b>	<b>Male</b>	<b>Female</b>
Option (a)	40.62%	36.28%	44.96%
Option (b)	6.93%	9.29%	4.58%
They are the same	38.83%	44.61%	33.04%
Do not know	9.17%	5.33%	13.02%
Prefer not to answer	4.46%	4.51%	4.41%
Number of observations	1,000	505	495

**Table 2.** TNS Survey Financial Literacy: Descriptive Statistics**Panel C: Literacy and Marital Status**

*First literacy question: Suppose you owe \$1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?*

	<b>Total</b>	<b>Marital status (weighted)</b>		
		Now married	Never Married	Divorced/Widowed/Separated
2 years	9.56%	8.54%	12.43%	10.53%
Less than 5 years	35.88%	40.34%	31.56%	25.00%
Between 5 and 10 years	18.78%	18.31%	18.38%	20.62%
More than 10 years	13.14%	13.69%	7.01%	16.30%
Do not know	18.32%	16.23%	21.43%	22.52%
Prefer not to answer	4.33%	2.89%	9.18%	5.04%
Number of observations	1,000	681	143	176

*Second literacy question: You owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?*

	<b>Total</b>	<b>Marital status (weighted)</b>		
		Now married	Never Married	Divorced/Widowed/Separated
Less than 5 years	3.81%	2.90%	2.55%	7.76%
Between 5 and 10 years	12.41%	11.84%	13.30%	13.55%
Between 10 and 15 years	21.56%	22.47%	21.83%	18.40%
Never, you will continue to be in debt	35.41%	39.02%	29.59%	28.52%
Do not know	21.69%	19.69%	22.99%	27.03%
Prefer not to answer	5.12%	4.08%	9.74%	4.74%
Number of observations	1,000	681	143	176

*Third literacy question: You purchase an appliance which costs \$1,000. To pay for this appliance, you are given the following two options: a) Pay 12 monthly installments of \$100 each b) Borrow at a 20% annual interest rate and pay back \$1200 one year from now. Which is the more advantageous offer, in other words which one will cost less?*

	<b>Total</b>	<b>Marital status (weighted)</b>		
		Now married	Never Married	Divorced/Widowed/Separated
Option (a)	40.62%	40.23%	39.36%	42.86%
Option (b)	6.93%	7.77%	6.32%	4.72%
They are the same	38.83%	40.66%	36.47%	34.84%
Do not know	9.17%	8.03%	9.09%	12.88%
Prefer not to answer	4.46%	3.30%	8.76%	4.70%
Number of observations	1,000	681	143	176

**Table 2.** TNS Survey Financial Literacy: Descriptive Statistics**Panel D: Literacy and Household Income**

*First literacy question: Suppose you owe \$1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?*

	Total	Household income (weighted)			
		Under \$30,000	\$30,000 - \$49,999	\$50,000 - \$74,999	Above \$75,000
2 years	9.56%	13.61%	6.89%	10.26%	6.37%
Less than 5 years	35.88%	25.57%	32.42%	38.65%	48.44%
Between 5 and 10 years	18.78%	18.15%	19.40%	20.32%	18.09%
More than 10 years	13.14%	10.27%	18.19%	17.29%	10.17%
Do not know	18.32%	26.45%	18.07%	11.40%	13.54%
Prefer not to answer	4.33%	5.96%	5.03%	2.08%	3.38%
Number of observations	1,000	264	163	193	380

*Second literacy question: You owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?*

	Total	Household income (weighted)			
		Under \$30,000	\$30,000 - \$49,999	\$50,000 - \$74,999	Above \$75,000
Less than 5 years	3.81%	6.26%	1.32%	1.70%	4.13%
Between 5 and 10 years	12.41%	15.40%	10.77%	13.59%	9.40%
Between 10 and 15 years	21.56%	16.16%	25.51%	26.27%	21.93%
Never, you will continue to be in debt	35.41%	28.03%	35.43%	36.55%	43.16%
Do not know	21.69%	28.07%	21.94%	19.38%	15.63%
Prefer not to answer	5.12%	6.08%	5.03%	2.52%	5.74%
Number of observations	1,000	264	163	193	380

*Third literacy question: You purchase an appliance which costs \$1,000. To pay for this appliance, you are given the following two options: a) Pay 12 monthly installments of \$100 each b) Borrow at a 20% annual interest rate and pay back \$1200 one year from now. Which is the more advantageous offer, in other words which one will cost less?*

	Total	Household income (weighted)			
		Under \$30,000	\$30,000 - \$49,999	\$50,000 - \$74,999	Above \$75,000
Option (a)	40.62%	45.98%	39.67%	39.20%	36.03%
Option (b)	6.93%	3.72%	5.92%	8.94%	10.07%
They are the same	38.83%	32.81%	41.85%	41.59%	41.82%
Do not know	9.17%	12.30%	7.96%	6.62%	8.07%
Prefer not to answer	4.46%	5.20%	4.60%	3.66%	4.00%
Number of observations	1,000	264	163	193	380

Variables	First measure of literacy					Second measure of literacy					Third measure of literacy			
	2 years	Correct	5 - 10 years	More than 10	Do not know	< 5 years	5 - 10 years	10 - 15 years	Correct	Do not know	Option (a)	Correct	Same	Do not know
30 < age <= 40	0.045 (0.042)	-0.195*** (0.050)	-0.024 (0.046)	0.093 (0.071)	0.081 (0.059)	-0.019** (0.009)	-0.012 (0.037)	0.035 (0.055)	-0.116** (0.055)	0.113* (0.064)	0.009 (0.060)	-0.013 (0.026)	0.018 (0.060)	-0.014 (0.030)
40 < age <= 50	-0.003 (0.034)	-0.204*** (0.050)	-0.031 (0.045)	0.128 (0.072)	0.110* (0.059)	-0.015 (0.010)	-0.047 (0.034)	0.02 (0.054)	-0.119** (0.055)	0.162** (0.064)	-0.016 (0.059)	-0.003 (0.027)	-0.036 (0.059)	0.055 (0.039)
50 < age <= 65	-0.029 (0.031)	-0.129** (0.055)	-0.079* (0.043)	0.163 (0.068)*	0.074 (0.052)	-0.020* (0.011)	-0.051 (0.034)	0.012 (0.052)	-0.023 (0.058)	0.082 (0.057)	-0.02 (0.057)	-0.006 (0.026)	-0.007 (0.057)	0.033 (0.033)
Age 65+	-0.004 (0.040)	-0.198*** (0.055)	-0.091** (0.044)	0.063 (0.077)	0.229*** (0.083)	-0.029*** (0.008)	-0.042 (0.037)	-0.066 (0.055)	-0.086 (0.068)	0.224*** (0.081)	-0.036 (0.070)	-0.015 (0.029)	0.005 (0.071)	0.046 (0.048)
Female	0.019 (0.021)	-0.229*** (0.035)	0.065** (0.029)	-0.003 (0.024)	0.148*** (0.028)	0.013 (0.010)	0.014 (0.025)	0.039 (0.030)	-0.202*** (0.035)	0.136*** (0.030)	0.077** (0.036)	-0.038** (0.017)	-0.108*** (0.035)	0.069*** (0.019)
Never married	0.006 (0.029)	-0.031 (0.052)	0.005 (0.043)	-0.038 (0.035)	0.057 (0.045)	-0.014 (0.010)	-0.016 (0.033)	0.029 (0.047)	-0.038 (0.052)	0.04 (0.047)	-0.053 (0.051)	0.017 (0.029)	0.016 (0.052)	0.02 (0.030)
Divorced/Sep.	-0.008 (0.027)	-0.014 (0.051)	0.038 (0.043)	0.028 (0.034)	-0.043 (0.032)	0.031 (0.020)	0.005 (0.033)	-0.014 (0.042)	-0.004 (0.049)	-0.018 (0.038)	-0.036 (0.048)	0.01 (0.027)	0.015 (0.049)	0.011 (0.024)
Afr. American	0.143** (0.063)	-0.212*** (0.059)	0.037 (0.064)	0.021 (0.054)	0.012 (0.056)	0.090** (0.045)	0.044 (0.058)	-0.004 (0.063)	-0.154** (0.065)	0.025 (0.064)	0.129* (0.072)	-0.031 (0.026)	-0.066 (0.070)	-0.031 (0.028)
Hispanic	0.017 (0.054)	-0.133* (0.076)	0.087 (0.079)	-0.004 (0.063)	0.032 (0.072)	0.026 (0.034)	0.058 (0.067)	0.004 (0.075)	-0.102 (0.080)	0.014 (0.076)	-0.001 (0.087)	-0.045* (0.025)	-0.107 (0.082)	0.153** (0.073)
30K < Y <= 50K	-0.054*** (0.021)	-0.019 (0.051)	0.025 (0.043)	0.082 (0.042)	-0.032 (0.033)	-0.025*** (0.009)	-0.046* (0.028)	0.103** (0.049)	0.003 (0.050)	-0.034 (0.038)	-0.075 (0.048)	0.018 (0.031)	0.063 (0.050)	-0.006 (0.023)
50K < Y <= 75K	-0.031 (0.024)	0.035 (0.055)	0.029 (0.046)	0.062 (0.043)	-0.095*** (0.031)	-0.019* (0.010)	-0.025 (0.032)	0.099* (0.053)	-0.002 (0.054)	-0.054 (0.039)	-0.084 (0.051)	0.05 (0.037)	0.052 (0.054)	-0.018 (0.024)
Y > 75K	-0.077*** (0.022)	0.189*** (0.053)	-0.018 (0.041)	-0.01 (0.036)	-0.084** (0.033)	-0.005 (0.011)	-0.071** (0.029)	0.056 (0.048)	0.122** (0.053)	-0.103*** (0.037)	-0.125*** (0.048)	0.058* (0.034)	0.076 (0.051)	-0.009 (0.024)
W < 50K	-0.022 (0.032)	0.039 (0.050)	-0.046 (0.043)	-0.015 (0.033)	0.044 (0.040)	-0.005 (0.015)	-0.052 (0.036)	-0.033 (0.043)	0.048 (0.049)	0.041 (0.045)	-0.023 (0.051)	-0.026 (0.022)	0.04 (0.050)	0.009 (0.025)
50K < W <= 100K	-0.024 (0.032)	0.116* (0.066)	-0.007 (0.049)	-0.048 (0.033)	-0.037 (0.047)	0.008 (0.021)	-0.051 (0.033)	0.054 (0.056)	-0.041 (0.062)	0.029 (0.059)	0.109* (0.064)	-0.034* (0.019)	-0.011 (0.063)	-0.064*** (0.020)
100K < W < 250K	-0.011 (0.037)	0.068 (0.065)	-0.029 (0.049)	-0.04 (0.035)	0.012 (0.056)	-0.007 (0.015)	-0.062* (0.033)	-0.078* (0.045)	0.071 (0.065)	0.076 (0.065)	-0.056 (0.063)	-0.013 (0.021)	0.079 (0.064)	-0.01 (0.030)
Observations	959	959	959	959	959	949	949	949	949	949	957	957	957	957

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.** TNS Survey Financial Literacy: Self-reported Literacy (weighted)

*On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?*

	<b>Total</b>
1 = Very low	2.00%
2	2.90%
3	7.70%
4	19.50%
5	31.90%
6	19.00%
7 = Very High	10.70%
Do not know	2.30%
Prefer not to answer	3.90%
Average score	4.88
Number of observations	1,000

Note: The average score excludes the survey answers "Do not know" and "Prefer not to answer."

**Table 5. Financial Experience Measures, Total Sample**

This table reports the mean and standard deviation of the frequencies of the various financial experiences by 1000 survey respondents. All frequencies are weighted. The survey was conducted in November 2007 by TNS Global.

<b>In the last twelve months, which of the following describes your use of credit cards?</b>	<b>Short name</b>	<b>Sample mean</b>	<b>Sample SD</b>
I always paid my credit cards in full	CC PIF	36.75%	48.24%
I don't have any credit cards or did not use them	CC None	20.62%	40.48%
In some months, I ran an outstanding balance and paid finance charges	CC Balance	30.75%	46.17%
In some months, I paid the minimum payment only	CC Min	21.28%	40.95%
In some months, I was charged a late charge for late payment	CC Late	7.58%	26.49%
In some months, I was charged an over the limit charge for charges exceeding my credit line	CC OTL	4.42%	20.56%
In some months, I used the cards for a cash advance	CC Advance	5.23%	22.27%
My account was closed down by the credit card company	CC Closed	1.52%	12.24%
<b>Which of the following financial transactions have you EVER done?</b>	<b>Short name</b>	<b>Sample mean</b>	<b>Sample SD</b>
I opened a checking or debit card account	Checking	91.44%	28.00%
I opened a savings account or bought a CD	Savings	80.62%	39.54%
I invested in mutual funds	Mut. Fund	38.77%	48.75%
I invested in individual stocks	Stocks	34.13%	47.44%
I bought savings bonds or other bonds	Bonds	34.85%	47.67%
I took out a loan for student education	Loan: Stu	27.03%	44.44%
I took out an auto loan	Loan: Auto	63.65%	48.12%
I took out a home equity loan	Loan: HE	30.48%	46.06%
I got (or refinanced) a mortgage	Loan: Mort	49.32%	50.02%
I got a short term "payday" or "salary advance" loan	Loan: Payday	7.82%	26.86%
I got a "refund anticipation loan" to accelerate the receipt of my tax payments	Loan: Refund	4.36%	20.44%
I got an auto title loan	Loan: Title	6.54%	24.73%
I used a pawn shop	Loan: Pawn	10.72%	30.95%
I bought goods on a lay-away plan or at a rent-to-own store	Lay-A-Way/Rent	19.05%	39.29%

**Table 6. Conditional Financial Experience Measures, Total Sample**

Each cell represents the fraction of individuals who have certain financial experiences, conditional on having experience with the activity listed at the top of the column. Table 6 reports the unconditional probabilities. The survey of 1000 people was conducted by TNS Global in November 2007.

Conditioning Financial Experience																						
	CC:None	CC: Balance	CC: Min Pay	CC: Late	CC: OTL	CC: Cash Adv	CC: Closed	CC: PIF	Checking	Savings	Mut. Fund	Stocks	Bonds	Loan: Stu	Loan: Auto	Loan: HE	Loan: Mort	Loan: Payday	Loan: Refund	Loan: Title	Pawn	Lay-A-Way/Rent
CC:None	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.15	0.06	0.06	0.09	0.17	0.14	0.09	0.10	0.40	0.34	0.20	0.44	0.34
CC: Balance	0.00	1.00	0.52	0.64	0.67	0.55	0.21	0.03	0.32	0.34	0.32	0.31	0.36	0.45	0.39	0.35	0.36	0.33	0.27	0.41	0.24	0.38
CC: Minimum Pay	0.00	0.36	1.00	0.63	0.60	0.59	0.22	0.02	0.22	0.21	0.17	0.16	0.16	0.29	0.23	0.21	0.21	0.30	0.31	0.24	0.30	0.32
CC: Late	0.00	0.16	0.23	1.00	0.60	0.25	0.31	0.02	0.08	0.08	0.06	0.06	0.05	0.12	0.08	0.05	0.06	0.12	0.14	0.09	0.08	0.10
CC: OTL	0.00	0.09	0.12	0.35	1.00	0.21	0.27	0.00	0.04	0.05	0.03	0.04	0.04	0.07	0.05	0.03	0.03	0.09	0.08	0.06	0.02	0.04
CC: Cash Advance	0.00	0.09	0.14	0.17	0.25	1.00	0.00	0.01	0.05	0.05	0.03	0.03	0.05	0.05	0.05	0.05	0.03	0.11	0.04	0.05	0.04	0.08
CC: Closed	0.00	0.01	0.02	0.06	0.09	0.00	1.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.02	0.03	0.00	0.03	0.01
CC: PIF	0.00	0.03	0.03	0.08	0.03	0.07	0.05	1.00	0.37	0.40	0.56	0.54	0.49	0.26	0.37	0.44	0.45	0.12	0.14	0.28	0.13	0.16
Checking	0.83	0.96	0.96	0.94	0.93	0.88	1.00	0.92	1.00	0.97	0.97	0.97	0.97	0.96	0.97	0.97	0.97	0.99	1.00	0.98	0.95	0.95
Savings	0.59	0.89	0.81	0.83	0.93	0.78	0.67	0.89	0.85	1.00	0.95	0.96	0.96	0.88	0.90	0.91	0.92	0.82	0.79	0.96	0.74	0.83
Mut. Fund	0.11	0.40	0.31	0.33	0.31	0.24	0.13	0.59	0.41	0.46	1.00	0.77	0.63	0.43	0.47	0.58	0.54	0.25	0.21	0.36	0.24	0.27
Stocks	0.10	0.34	0.26	0.29	0.28	0.19	0.13	0.50	0.36	0.41	0.67	1.00	0.58	0.37	0.42	0.52	0.49	0.26	0.33	0.33	0.30	0.26
Bonds	0.15	0.41	0.26	0.24	0.30	0.31	0.21	0.47	0.37	0.41	0.57	0.60	1.00	0.41	0.45	0.49	0.48	0.25	0.31	0.42	0.21	0.31
Loan: Stu	0.22	0.39	0.37	0.41	0.44	0.28	0.13	0.19	0.28	0.30	0.30	0.30	0.32	1.00	0.34	0.35	0.32	0.36	0.41	0.37	0.28	0.33
Loan: Auto	0.44	0.80	0.71	0.71	0.79	0.59	0.38	0.64	0.68	0.71	0.78	0.78	0.82	0.81	1.00	0.87	0.85	0.75	0.73	0.85	0.62	0.71
Loan: HE	0.13	0.35	0.30	0.24	0.19	0.31	0.05	0.37	0.32	0.34	0.46	0.46	0.43	0.40	0.42	1.00	0.48	0.26	0.29	0.40	0.23	0.25
Loan: Mort	0.24	0.58	0.49	0.38	0.32	0.31	0.19	0.60	0.53	0.56	0.69	0.71	0.67	0.58	0.66	0.77	1.00	0.44	0.38	0.62	0.38	0.44
Loan: Payday	0.15	0.08	0.11	0.12	0.16	0.16	0.13	0.03	0.08	0.08	0.05	0.06	0.05	0.10	0.09	0.07	0.07	1.00	0.59	0.20	0.37	0.19
Loan: Refund	0.07	0.04	0.06	0.08	0.07	0.03	0.08	0.02	0.05	0.04	0.02	0.04	0.04	0.07	0.05	0.05	0.03	0.33	1.00	0.15	0.22	0.13
Loan: Title	0.06	0.09	0.07	0.07	0.09	0.07	0.00	0.05	0.07	0.08	0.06	0.06	0.08	0.09	0.09	0.09	0.08	0.17	0.22	1.00	0.13	0.14
Pawn	0.23	0.08	0.15	0.12	0.05	0.07	0.21	0.04	0.11	0.10	0.07	0.09	0.06	0.11	0.10	0.08	0.08	0.51	0.53	0.21	1.00	0.30
Lay-A-Way/Rent	0.31	0.23	0.29	0.26	0.17	0.31	0.09	0.08	0.20	0.20	0.13	0.14	0.17	0.23	0.21	0.15	0.17	0.47	0.59	0.41	0.53	1.00



**Table 7: Financial Experience Segments**

Reports the incidence of various financial experiences, conditional on assignment to one of the four experience clusters. The clusters were defined with reference to these experiences and not on the basis of demographic or literacy information

	Short name	Segment							
		1: In Charge		2: Borrower/Savers		3: Over-extended		4: Fringe	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<b>In the last twelve months, which of the following describes your use of credit cards?</b>									
I don't have any credit cards or did not use them	CC None	0.000	0.000	0.000	0.000	0.002	0.047	0.680	0.467
In some months, I ran an outstanding balance and paid finance charges	CC Balance	0.010	0.100	0.947	0.225	0.600	0.491	0.015	0.123
In some months, I paid the minimum payment only	CC Minimum	0.010	0.102	0.273	0.447	0.559	0.497	0.008	0.090
In some months, I was charged a late charge for late payment	CC Late	0.019	0.137	0.115	0.321	0.174	0.380	0.009	0.093
In some months, I was charged an over the limit charge for charges exceeding my credit line	CC OTL	0.000	0.000	0.060	0.238	0.118	0.324	0.000	0.000
In some months, I used the cards for a cash advance	CC Advance	0.000	0.000	0.015	0.120	0.161	0.368	0.000	0.000
My account was closed down by the credit card company	CC Closed	0.005	0.067	0.007	0.084	0.042	0.201	0.000	0.000
I always paid my credit cards in full	CC PIF	0.988	0.111	0.037	0.188	0.036	0.186	0.296	
<b>Which of the following financial transactions have you EVER done?</b>									
I opened a checking or debit card account	Checking	0.977	0.151	0.991	0.095	0.939	0.241	0.805	0.397
I opened a savings account or bought a CD	Savings/CD	0.949	0.221	0.982	0.135	0.797	0.403	0.622	0.486
I invested in mutual funds	Mutual Fund	0.723	0.448	0.839	0.369	0.156	0.363	0.156	0.364
I invested in individual stocks	Stocks	0.640	0.481	0.825	0.381	0.119	0.324	0.119	0.325
I bought savings bonds or other bonds	Bonds	0.625	0.485	0.646	0.480	0.226	0.419	0.116	0.321
I took out a loan for student education	Student Loan	0.201	0.402	0.462	0.500	0.334	0.473	0.189	0.393
I took out an auto loan	Auto Loan	0.770	0.422	0.940	0.238	0.657	0.476	0.380	0.486
I took out a home equity loan	Home Equity	0.485	0.501	0.538	0.500	0.251	0.434	0.111	0.314
I got (or refinanced) a mortgage	Mortgage	0.798	0.402	0.774	0.420	0.444	0.498	0.166	0.373
I got a short term "payday" or "salary advance" loan	Payday Loan	0.024	0.154	0.084	0.279	0.079	0.271	0.122	0.328
I got a "refund anticipation loan" to accelerate the receipt of my tax payments	Refund Loan	0.004	0.067	0.047	0.213	0.049	0.216	0.071	0.258
I got an auto title loan	Auto Title Loan	0.047	0.212	0.118	0.324	0.063	0.243	0.064	0.244
I used a pawn shop	Pawn	0.019	0.138	0.135	0.344	0.103	0.304	0.178	0.383
I bought goods on a lay-away plan or at a rent-to-own store	Lay-A-Way/Rent	0.064	0.246	0.248	0.433	0.228	0.420	0.240	0.428
Number of observations (weighted)		265.7		118.5		313.6		302.3	
Number of observations (unweighted)		292		130		305		273	

**Table 8: Characteristics of Financial Experience Segments**

This table reports the demographic and debt literacy variables for the total sample as well as for the four clusters defined in Table 7.

	Experience Segments									
	Total Sample		1: In-Control		2: Borrower / Savers		3: Overextended		4: Fringe	
<b>Panel A: Demographics</b>	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	47.8	14.4	53.1	14.4	49.5	12.9	45.1	13.3	45.4	14.9
Female	50.0%	50.0%	43.5%	49.7%	37.8%	48.7%	52.4%	50.0%	58.0%	49.5%
White	85.0%	35.7%	91.1%	28.6%	87.4%	33.3%	80.8%	39.4%	83.1%	37.5%
Black	6.4%	24.6%	2.1%	14.2%	5.2%	22.2%	10.5%	30.7%	6.6%	24.9%
Hispanic	3.6%	18.7%	1.5%	12.3%	1.4%	11.8%	4.9%	21.5%	5.1%	22.0%
Married	64.0%	48.0%	74.3%	43.8%	72.8%	44.7%	62.6%	48.5%	53.1%	50.0%
Single	16.0%	36.7%	9.5%	29.4%	8.6%	28.2%	16.9%	37.6%	23.7%	42.6%
Separated	19.9%	40.0%	16.2%	36.9%	18.6%	39.1%	20.5%	40.4%	23.2%	42.3%
Household Income:										
Under \$30,000	32.8%	47.0%	16.7%	37.3%	10.2%	30.4%	35.8%	48.0%	52.9%	50.0%
\$30,000 to \$49,999	20.4%	40.3%	20.1%	40.1%	17.3%	38.0%	21.1%	40.8%	21.3%	41.0%
\$50,000 to \$74,999	18.2%	38.6%	20.2%	40.3%	30.8%	46.3%	17.5%	38.0%	12.3%	32.9%
Above \$75,000	28.5%	45.2%	43.0%	49.6%	41.7%	49.5%	25.7%	43.8%	13.6%	34.3%
Not employed	13.9%	34.6%	7.9%	27.0%	7.0%	25.6%	12.7%	33.3%	23.2%	42.3%
Financial Assets:										
Under \$50,000	58.2%	49.3%	26.5%	44.2%	47.9%	50.1%	76.1%	42.7%	71.6%	45.2%
\$50 - \$100,000	13.1%	33.8%	18.1%	38.6%	18.9%	39.3%	9.2%	29.0%	10.4%	30.6%
\$100 - \$250,000	11.6%	32.0%	19.1%	39.3%	13.4%	34.2%	9.6%	29.5%	6.3%	24.4%
Over \$250,000	17.1%	37.7%	36.3%	48.2%	19.8%	40.0%	5.1%	22.0%	11.6%	32.1%
<b>Panel B: Debt Literacy</b>										
Question 1 (debt doubling)										
% correct	35.9%	48.0%	44.7%	49.8%	46.7%	50.1%	34.9%	47.7%	24.9%	43.3%
% do not know	18.3%	38.7%	11.7%	32.2%	10.4%	30.7%	23.6%	42.5%	21.7%	41.3%
Question 2 (min pay)										
% correct	35.4%	47.8%	42.0%	49.4%	46.1%	50.0%	38.2%	48.7%	22.5%	41.8%
% do not know	21.7%	41.2%	17.6%	38.1%	15.6%	36.4%	22.8%	42.0%	26.5%	44.2%
Question 3 (retailer)										
% correct	6.9%	25.4%	10.6%	30.9%	13.5%	34.3%	3.7%	18.9%	4.5%	20.7%
% do not know	9.2%	28.9%	7.0%	25.6%	7.2%	25.9%	9.0%	28.7%	12.0%	32.6%
Average self-self assessment (1 to 7, excludes na)	4.88	1.34	5.48	1.06	5.24	1.18	4.45	1.25	4.62	1.51
<b>Number of observations</b>										
unweighted	1000		292		130		305		273	
weighted	1000		265.7		118.5		313.5		302.3	

**Table 9: Multinomial Logit Analyses of Characteristics of Financial Experience Segments**

Variables	Self-assessed literacy				First measure of literacy				Second measure of literacy				Third measure of literacy			
	Cluster 1: In Control	Cluster 2: Borrower / Savers	Cluster 3: Over-Extended	Cluster 4: Fringe	Cluster 1: In Control	Cluster 2: Borrower / Savers	Cluster 3: Over-Extended	Cluster 4: Fringe	Cluster 1: In Control	Cluster 2: Borrower / Savers	Cluster 3: Over-Extended	Cluster 4: Fringe	Cluster 1: In Control	Cluster 2: Borrower / Savers	Cluster 3: Over-Extended	Cluster 4: Fringe
	Control	Savers	Extended	Fringe	Control	Savers	Extended	Fringe	Control	Savers	Extended	Fringe	Control	Savers	Extended	Fringe
Lit1 (see defn below)	0.0775 (0.082)	0.0662 (0.060)	-0.0758 (0.055)	-0.0679 (0.059)	0.00229 (0.055)	-0.00213 (0.036)	-0.0519 (0.057)	0.0518 (0.065)	0.00753 (0.046)	-0.0219 (0.027)	-0.0989** (0.045)	0.113** (0.056)	-0.141** (0.055)	-0.0771** (0.032)	0.170** (0.082)	0.0481 (0.080)
Lit2 (see defn below)	0.215*** (0.077)	0.0543 (0.049)	-0.131*** (0.050)	-0.138*** (0.053)	-0.0671** (0.033)	-0.0279 (0.022)	-0.0296 (0.040)	0.125*** (0.044)	-0.0742** (0.036)	-0.0439** (0.021)	-0.0603 (0.043)	0.178*** (0.051)	-0.0911* (0.055)	-0.0768** (0.031)	0.137* (0.083)	0.0306 (0.081)
Lit3 (see defn below)	0.313*** (0.090)	0.0959 (0.064)	-0.254*** (0.043)	-0.155*** (0.055)	-0.137*** (0.034)	-0.0590** (0.024)	0.0864* (0.050)	0.110** (0.053)	-0.0852** (0.037)	-0.0533** (0.023)	-0.0374 (0.044)	0.176*** (0.050)	-0.136*** (0.048)	-0.0686*** (0.026)	0.109 (0.110)	0.0965 (0.100)
Lit4 (see defn below)	0.294*** (0.100)	0.0735 (0.070)	-0.275*** (0.040)	-0.0925 (0.068)	-0.0833 (0.058)	-0.0887*** (0.025)	-0.173*** (0.066)	0.345*** (0.084)	-0.126*** (0.045)	-0.0903*** (0.021)	-0.152** (0.063)	0.368*** (0.077)	-0.142*** (0.050)	-0.101*** (0.018)	-0.072 (0.110)	0.315*** (0.120)
Age	-0.00736 (0.007)	0.00406 (0.005)	0.00657 (0.008)	-0.00326 (0.008)	-0.00946 (0.007)	0.00289 (0.005)	0.00976 (0.008)	-0.00318 (0.008)	-0.00979 (0.007)	0.00273 (0.005)	0.00863 (0.008)	-0.00157 (0.008)	-0.00868 (0.007)	0.00309 (0.005)	0.00819 (0.008)	-0.00261 (0.008)
Age sq. /100	0.0126* (0.007)	-0.00236 (0.006)	-0.0101 (0.009)	-0.000151 (0.008)	0.0160** (0.007)	-0.000932 (0.006)	-0.0143* (0.009)	-0.000724 (0.008)	0.0162** (0.007)	-0.000857 (0.005)	-0.0128 (0.009)	-0.00252 (0.008)	0.0146** (0.007)	-0.00138 (0.005)	-0.0122 (0.009)	-0.00107 (0.008)
Female	-0.0168 (0.033)	-0.0345 (0.023)	0.0259 (0.037)	0.0253 (0.038)	-0.00708 (0.034)	-0.0272 (0.023)	0.0258 (0.037)	0.00843 (0.037)	-0.0197 (0.034)	-0.0278 (0.023)	0.04 (0.037)	0.00751 (0.037)	-0.019 (0.034)	-0.0337 (0.023)	0.0281 (0.037)	0.0246 (0.037)
Never married	-0.0247 (0.049)	-0.0127 (0.035)	-0.0224 (0.051)	0.0598 (0.055)	-0.0262 (0.050)	-0.0117 (0.035)	-0.00871 (0.052)	0.0467 (0.054)	-0.0237 (0.050)	-0.00918 (0.036)	-0.00705 (0.053)	0.0399 (0.054)	-0.0338 (0.049)	-0.0147 (0.035)	0.000575 (0.053)	0.0479 (0.054)
Divorced/Sep.	-0.0593 (0.040)	0.0453 (0.037)	-0.00903 (0.049)	0.023 (0.050)	-0.0527 (0.042)	0.0509 (0.038)	-0.00214 (0.049)	0.00389 (0.048)	-0.0519 (0.042)	0.0498 (0.037)	-0.0045 (0.049)	0.00655 (0.048)	-0.0518 (0.042)	0.0507 (0.038)	-0.000222 (0.049)	0.00129 (0.048)
Afr. American	-0.136*** (0.047)	-0.00405 (0.044)	0.217*** (0.072)	-0.0771 (0.063)	-0.132*** (0.051)	-0.00184 (0.045)	0.230*** (0.072)	-0.0965 (0.059)	-0.138*** (0.049)	-0.00408 (0.044)	0.237*** (0.071)	-0.0946 (0.058)	-0.135*** (0.050)	-0.00378 (0.044)	0.221*** (0.072)	-0.0821 (0.061)
Hispanic	-0.129** (0.058)	-0.0721** (0.033)	0.106 (0.091)	0.0947 (0.091)	-0.120* (0.065)	-0.0653* (0.038)	0.0919 (0.090)	0.0935 (0.090)	-0.138** (0.058)	-0.0701** (0.035)	0.111 (0.091)	0.0973 (0.091)	-0.125** (0.063)	-0.0684* (0.036)	0.0959 (0.090)	0.0977 (0.091)
4 members HH	-0.0583 (0.040)	0.00335 (0.030)	0.0345 (0.053)	0.0205 (0.055)	-0.0564 (0.041)	0.00374 (0.030)	0.0397 (0.052)	0.013 (0.053)	-0.0532 (0.041)	0.00543 (0.030)	0.045 (0.053)	0.0027 (0.052)	-0.0574 (0.040)	0.00376 (0.030)	0.041 (0.052)	0.0126 (0.053)
5 members HH	-0.127*** (0.037)	0.0108 (0.037)	0.123** (0.062)	-0.00675 (0.061)	-0.128*** (0.037)	0.00973 (0.036)	0.132** (0.061)	-0.0138 (0.058)	-0.119*** (0.040)	0.0178 (0.038)	0.133** (0.062)	-0.032 (0.057)	-0.129*** (0.038)	0.0113 (0.037)	0.139** (0.061)	-0.0208 (0.058)
Not employed	-0.0101 (0.050)	-0.0222 (0.033)	-0.0917** (0.045)	0.124** (0.053)	-0.0165 (0.050)	-0.0212 (0.034)	-0.0961** (0.045)	0.134** (0.053)	-0.0195 (0.050)	-0.0238 (0.033)	-0.0832* (0.046)	0.127** (0.053)	-0.0226 (0.050)	-0.0249 (0.033)	-0.0850* (0.045)	0.133** (0.053)
30K < Y <= 50K	0.0323 (0.050)	0.113** (0.051)	-0.0103 (0.051)	-0.135*** (0.041)	0.0441 (0.052)	0.119** (0.056)	-0.0217 (0.050)	-0.141*** (0.040)	0.0459 (0.052)	0.119** (0.056)	-0.0286 (0.050)	-0.136*** (0.039)	0.0334 (0.051)	0.114** (0.055)	-0.0177 (0.050)	-0.130*** (0.040)
50K < Y <= 75K	0.0201 (0.053)	0.251*** (0.070)	-0.0513 (0.054)	-0.220*** (0.040)	0.0332 (0.055)	0.254*** (0.070)	-0.06 (0.053)	-0.228*** (0.037)	0.0364 (0.056)	0.263*** (0.070)	-0.0715 (0.052)	-0.228*** (0.036)	0.0255 (0.054)	0.256*** (0.069)	-0.057 (0.053)	-0.225*** (0.037)
Y > 75K	0.119** (0.054)	0.227*** (0.059)	-0.0321 (0.051)	-0.315*** (0.038)	0.126** (0.055)	0.234*** (0.059)	-0.0521 (0.050)	-0.308*** (0.037)	0.132** (0.055)	0.238*** (0.059)	-0.0582 (0.049)	-0.312*** (0.036)	0.119** (0.054)	0.234*** (0.059)	-0.0409 (0.050)	-0.313*** (0.036)
W < 50K	-0.313*** (0.044)	0.00534 (0.026)	0.327*** (0.053)	-0.0194 (0.054)	-0.353*** (0.043)	-0.00363 (0.026)	0.360*** (0.051)	-0.00317 (0.051)	-0.358*** (0.043)	-0.00449 (0.026)	0.360*** (0.051)	0.00234 (0.051)	-0.356*** (0.043)	-0.000408 (0.026)	0.360*** (0.050)	-0.00319 (0.051)
50K < W <= 100K	-0.0552 (0.043)	0.0375 (0.043)	0.126 (0.087)	-0.108* (0.063)	-0.0913** (0.039)	0.0213 (0.040)	0.169* (0.087)	-0.099 (0.063)	-0.0858** (0.040)	0.0256 (0.041)	0.166* (0.087)	-0.106* (0.061)	-0.0847** (0.040)	0.0274 (0.041)	0.154* (0.087)	-0.0969 (0.063)
100K < W < 250K	-0.0897** (0.039)	-0.0318 (0.030)	0.243*** (0.088)	-0.121* (0.068)	-0.0979** (0.038)	-0.0351 (0.029)	0.258*** (0.086)	-0.125* (0.065)	-0.0961** (0.039)	-0.0358 (0.029)	0.249*** (0.086)	-0.118* (0.065)	-0.0975** (0.039)	-0.0329 (0.030)	0.256*** (0.086)	-0.126* (0.065)
Observations	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Pseudo R-squared	0.1769	0.1769	0.1769	0.1769	0.1629	0.1629	0.1629	0.1629	0.1628	0.1628	0.1628	0.1628	0.16	0.16	0.16	0.16

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Key for Lit1-Lit4 variables

Self-assessed literacy: Lit1= 4, Lit2=5, Lit3=6, Lit4=7. Omitted class: low literacy 1-3.

First measure of literacy: Lit1 = underestimate, Lit2 = overestimate, Lit3= do not know, Lit4 = refuse to answer. Omitted class: Correct

Second measure of literacy: Lit1 = large underestimate, Lit2 = small underestimate, Lit3= do not know, Lit4 = refuse to answer. Omitted class: Correct

Third measure of literacy: Lit1= option a, Lit2 = same, Lit3=do not know, Lit4 = refuse to answer. Omitted class: Correct.

**Table 10: Characteristics by Self-Assessment of Level of Indebtedness**

This table reports the demographic, debt literacy and experience segmentation variables for the total sample as well as for the four groups defined by their self-assessment of the level of their indebtedness.

	Total Sample		Indebtedness Self-Assessment							
	Mean	Std. Dev.	Too Much Debt		Right Amount		Too Little		Don't Know	
<b>Panel A: Demographics</b>			Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	47.8	14.4	44.1	12.7	49.8	14.5	43.7	16.9	46.6	15.8
Female	50.0%	50.0%	48.4%	50.1%	47.7%	50.0%	30.7%	47.3%	69.5%	46.3%
White	85.0%	35.7%	84.9%	35.9%	87.0%	33.7%	87.9%	33.4%	74.1%	44.0%
Afr. American	6.4%	24.6%	6.9%	25.4%	4.4%	20.4%	0.0%	0.0%	17.9%	38.5%
Hispanic	3.6%	18.7%	4.1%	19.8%	3.4%	18.1%	6.1%	24.6%	3.5%	18.5%
Married	64.0%	48.0%	62.5%	48.5%	69.2%	46.2%	59.6%	50.4%	40.0%	49.2%
Single	16.0%	36.7%	16.1%	36.8%	12.8%	33.5%	33.6%	48.4%	30.3%	46.2%
Separated	19.9%	40.0%	21.4%	41.1%	17.9%	38.4%	6.9%	26.0%	29.7%	45.9%
Household Income:										
Under \$30,000	32.8%	47.0%	41.0%	49.3%	24.2%	42.9%	38.0%	49.8%	59.3%	49.4%
\$30,000 to \$49,999	20.4%	40.3%	21.1%	40.9%	19.9%	39.9%	13.7%	35.2%	23.1%	42.3%
\$50,000 to \$74,999	18.2%	38.6%	18.3%	38.8%	20.4%	40.3%	15.0%	36.6%	6.5%	24.8%
Above \$75,000	28.5%	45.2%	19.5%	39.7%	35.5%	47.9%	33.4%	48.4%	11.1%	31.6%
Not employed	13.9%	34.6%	15.6%	36.3%	12.4%	33.0%	17.0%	38.5%	17.7%	38.4%
Financial Assets:										
Under \$50,000	58.2%	49.3%	82.7%	37.9%	46.5%	49.9%	30.2%	47.1%	68.8%	46.6%
\$50 - \$100,000	13.1%	33.8%	10.0%	30.0%	14.5%	35.2%	8.5%	28.7%	13.7%	34.6%
\$100 - \$250,000	11.6%	32.0%	4.5%	20.7%	15.8%	36.5%	26.8%	45.5%	2.7%	16.2%
Over \$250,000	17.1%	37.7%	2.9%	16.8%	23.2%	42.2%	34.3%	45.7%	14.8%	35.7%
<b>Panel B: Debt Literacy</b>										
Question 1 (debt doubling)										
% correct	35.9%	48.0%	32.1%	46.8%	41.7%	49.3%	30.8%	47.3%	14.2%	35.1%
% do not know	18.3%	38.7%	19.1%	39.4%	15.5%	36.2%	37.7%	49.7%	28.4%	45.3%
Question 2 (min pay)										
% correct	35.4%	47.8%	38.2%	48.7%	38.0%	48.6%	16.2%	37.8%	18.0%	38.6%
% do not know	21.7%	41.2%	21.6%	41.3%	19.5%	39.7%	37.7%	49.7%	30.9%	46.4%
Question 3 (retailer)										
% correct	6.9%	25.4%	6.0%	23.8%	8.3%	27.6%	8.1%	28.0%	1.7%	12.9%
% do not know	9.2%	28.9%	8.0%	27.2%	7.9%	27.0%	6.1%	24.6%	19.1%	39.5%
Average self-self assessment (1 to 7, excludes na)	4.88	1.34	4.34	1.41	5.16	1.17	6.17	1.17	4.41	1.58
<b>Panel C: Experience Clusters</b>										
1: In Control	26.6%	44.2%	2.6%	16.1%	38.1%	48.6%	62.4%	49.7%	14.4%	35.3%
2: Borrower/Saver	11.9%	32.3%	15.4%	36.1%	11.7%	32.1%	0.0%	0.0%	6.6%	25.0%
3: Overextended	31.4%	46.4%	53.3%	50.0%	25.1%	43.4%	0.0%	0.0%	18.8%	39.3%
4: Fringe	30.2%	45.9%	28.7%	45.3%	25.1%	43.4%	37.6%	49.7%	60.2%	49.2%
<b>Number of observations</b>										
unweighted	1000		248		634		20		98	
weighted	1000		264		605		20		111	

**Table 11: Multinomial Logit Analyses of Self-Assessed Debt Levels**

Variables	Self-assessed literacy			First measure of literacy			Second measure of literacy			Third measure of literacy		
	Too much debt	Just right	Do not know	Too much debt	Just right	Do not know	Too much debt	Just right	Do not know	Too much debt	Just right	Do not know
Lit1 (see defn below)	-0.107*** (0.037)	0.145*** (0.044)	-0.0375** (0.019)	0.0149 (0.053)	-0.132** (0.066)	0.117** (0.057)	-0.039 (0.039)	-0.0347 (0.051)	0.0737** (0.037)	0.0285 (0.062)	-0.115 (0.079)	0.0865 (0.071)
Lit2 (see defn below)	-0.135*** (0.037)	0.225*** (0.042)	-0.0902*** (0.021)	0.0791** (0.037)	-0.127*** (0.042)	0.0478 (0.029)	-0.00288 (0.038)	0.0135 (0.043)	-0.0106 (0.026)	-0.0235 (0.060)	-0.0464 (0.079)	0.0699 (0.070)
Lit3 (see defn below)	-0.171*** (0.033)	0.228*** (0.039)	-0.0574*** (0.018)	0.0434 (0.045)	-0.173*** (0.054)	0.130*** (0.046)	-0.0115 (0.038)	-0.0788* (0.047)	0.0903** (0.036)	-0.0559 (0.072)	-0.233* (0.140)	0.288* (0.170)
Lit4 (see defn below)	-0.182*** (0.031)	0.217*** (0.039)	-0.0343 (0.022)	-0.162*** (0.048)	-0.197* (0.100)	0.358*** (0.100)	-0.107* (0.055)	-0.146 (0.091)	0.252*** (0.088)	-0.130** (0.064)	-0.235 (0.170)	0.365* (0.200)
Age	0.0154** (0.007)	-0.0142* (0.008)	-0.00121 (0.003)	0.0148** (0.007)	-0.0140* (0.008)	-0.000817 (0.004)	0.0163** (0.007)	-0.0160** (0.008)	-0.00032 (0.003)	0.0164** (0.007)	-0.0149* (0.008)	-0.00145 (0.004)
Age sq. /100	-0.0212*** (-0.0077)	0.0207** (-0.0081)	0.000559 (-0.0035)	-0.0209*** (-0.0075)	0.0213*** (-0.0081)	-0.000376 (-0.0036)	-0.0225*** (-0.0076)	0.0232*** (-0.0081)	-0.000738 (-0.0035)	-0.0224*** (-0.0076)	0.0218*** (-0.0081)	0.000575 (-0.0037)
Female	-0.0336 (0.032)	-0.0101 (0.035)	0.0437** (0.019)	-0.0444 (0.032)	0.0167 (0.036)	0.0278 (0.019)	-0.0334 (0.032)	2.95E-05 (0.036)	0.0334* (0.019)	-0.0407 (0.031)	0.00408 (0.036)	0.0366* (0.019)
Never married	-0.0331 (0.041)	0.00266 (0.050)	0.0305 (0.030)	-0.0184 (0.042)	0.00598 (0.049)	0.0124 (0.027)	-0.0244 (0.042)	0.00203 (0.049)	0.0224 (0.028)	-0.0204 (0.042)	0.00322 (0.050)	0.0172 (0.027)
Divorced/Sep.	0.0254 (0.044)	-0.0467 (0.049)	0.0213 (0.026)	0.0329 (0.043)	-0.0435 (0.048)	0.0106 (0.024)	0.0364 (0.044)	-0.0472 (0.048)	0.0109 (0.024)	0.0396 (0.044)	-0.0452 (0.048)	0.00552 (0.023)
Afr. American	-0.00203 (0.057)	-0.106 (0.074)	0.108** (0.052)	0.0026 (0.058)	-0.0821 (0.071)	0.0795* (0.047)	0.00741 (0.059)	-0.094 (0.072)	0.0866* (0.048)	-0.00574 (0.056)	-0.116 (0.074)	0.122** (0.055)
Hispanic	-0.0449 (0.063)	0.0183 (0.081)	0.0267 (0.054)	-0.0469 (0.061)	0.0215 (0.079)	0.0254 (0.055)	-0.0358 (0.064)	0.0118 (0.081)	0.024 (0.054)	-0.0383 (0.064)	0.0295 (0.079)	0.00884 (0.048)
4 members HH	0.0672 (0.048)	-0.0299 (0.050)	-0.0373* (0.021)	0.0756 (0.048)	-0.0324 (0.051)	-0.0432** (0.021)	0.0737 (0.048)	-0.0377 (0.051)	-0.0360* (0.022)	0.0772 (0.048)	-0.0413 (0.051)	-0.036 (0.022)
5 members HH	0.0732 (0.057)	-0.0305 (0.060)	-0.0427* (0.022)	0.0973* (0.057)	-0.0533 (0.060)	-0.0440* (0.023)	0.0915 (0.058)	-0.0441 (0.060)	-0.0474** (0.021)	0.0953* (0.058)	-0.045 (0.060)	-0.0502** (0.022)
Not employed	-0.0488 (0.037)	0.0758* (0.042)	-0.027 (0.018)	-0.0471 (0.037)	0.0621 (0.042)	-0.015 (0.020)	-0.0373 (0.038)	0.0546 (0.043)	-0.0173 (0.019)	-0.0401 (0.038)	0.057 (0.043)	-0.0169 (0.020)
30K < Y <= 50K	-0.0273 (0.039)	0.0539 (0.043)	-0.0266 (0.018)	-0.0451 (0.037)	0.0696* (0.041)	-0.0245 (0.018)	-0.0424 (0.038)	0.0645 (0.042)	-0.0221 (0.018)	-0.0391 (0.038)	0.0651 (0.042)	-0.026 (0.018)
50K < Y < 75K	-0.0415 (0.041)	0.110** (0.044)	-0.0683*** (0.017)	-0.0561 (0.039)	0.131*** (0.042)	-0.0753*** (0.017)	-0.0559 (0.040)	0.132*** (0.042)	-0.0759*** (0.016)	-0.0524 (0.040)	0.132*** (0.042)	-0.0792*** (0.017)
Y > 75K	-0.0873** (0.038)	0.170*** (0.041)	-0.0822*** (0.019)	-0.0930** (0.038)	0.177*** (0.041)	-0.0840*** (0.020)	-0.103*** (0.037)	0.189*** (0.040)	-0.0869*** (0.019)	-0.0953** (0.037)	0.186*** (0.041)	-0.0905*** (0.020)
W < 50K	0.334*** (0.051)	-0.291*** (0.053)	-0.0437 (0.027)	0.360*** (0.050)	-0.322*** (0.051)	-0.0373 (0.026)	0.356*** (0.050)	-0.316*** (0.052)	-0.04 (0.026)	0.358*** (0.050)	-0.317*** (0.052)	-0.0409 (0.026)
50K < W <= 100K	0.255** (0.100)	-0.231** (0.095)	-0.0234 (0.025)	0.297*** (0.100)	-0.273*** (0.093)	-0.0239 (0.026)	0.285*** (0.100)	-0.259*** (0.094)	-0.0262 (0.025)	0.278*** (0.100)	-0.255*** (0.094)	-0.0232 (0.027)
100K < W < 250K	0.116 (0.100)	-0.0579 (0.100)	-0.0584*** (0.023)	0.142 (0.110)	-0.0757 (0.100)	-0.0659*** (0.021)	0.129 (0.110)	-0.0633 (0.100)	-0.0654*** (0.020)	0.136 (0.110)	-0.0682 (0.100)	-0.0676*** (0.021)
Observations	980	980	980	980	980	980	980	980	980	980	980	980
Pseudo R-squared	0.189	0.189	0.189	0.1701	0.1701	0.1701	0.1641	0.1641	0.1641	0.1626	0.1626	0.1626

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Key for Lit1-Lit4 variables**

Self-assessed literacy: Lit1= 4, Lit2=5, Lit3=6, Lit4=7. Omitted class: low literacy 1-3.

First measure of literacy: Lit1 = underestimate, Lit2 = overestimate, Lit3= do not know, Lit4 = refuse to answer. Omitted class: Correct

Second measure of literacy: Lit1 = large underestimate, Lit2 = small underestimate, Lit3= do not know, Lit4 = refuse to answer. Omitted class: Correct

Third measure of literacy: Lit1= option a, Lit2 = same, Lit3=do not know, Lit4 = refuse to answer. Omitted class: Correct.

**Table 12: Multinomial Logit Analyses of Self-Assessed Debt Levels, including Experience Segments**

Variables	Self-assessed literacy			First measure of literacy			Second measure of literacy			Third measure of literacy		
	Too much debt	Just right	Do not know	Too much debt	Just right	Do not know	Too much debt	Just right	Do not know	Too much debt	Just right	Do not know
Lit1 (see defn below)	-0.0904*** (0.031)	0.131*** (0.038)	-0.0410** (0.018)	0.0326 (0.050)	-0.136** (0.066)	0.103* (0.055)	-0.0157 (0.037)	-0.0445 (0.049)	0.0602* (0.035)	0.00245 (0.054)	-0.0972 (0.080)	0.0947 (0.072)
Lit2 (see defn below)	-0.102*** (0.033)	0.193*** (0.039)	-0.0912*** (0.020)	0.0861** (0.034)	-0.119*** (0.040)	0.0326 (0.027)	0.0105 (0.034)	0.0136 (0.040)	-0.0241 (0.023)	-0.0391 (0.052)	-0.0397 (0.079)	0.0788 (0.070)
Lit3 (see defn below)	-0.125*** (0.031)	0.183*** (0.037)	-0.0572*** (0.018)	0.0211 (0.038)	-0.143*** (0.053)	0.122*** (0.046)	-0.00233 (0.034)	-0.0678 (0.045)	0.0702** (0.033)	-0.0686 (0.053)	-0.236 (0.150)	0.304* (0.170)
Lit4 (see defn below)	-0.127*** (0.032)	0.167*** (0.038)	-0.0404** (0.019)	-0.116** (0.046)	-0.178* (0.100)	0.294*** (0.100)	-0.072 (0.052)	-0.128 (0.090)	0.200** (0.082)	-0.102* (0.054)	-0.246 (0.180)	0.348* (0.200)
Borrower/Savers	0.565*** (0.082)	-0.535*** (0.074)	-0.03 (0.023)	0.572*** (0.081)	-0.537*** (0.073)	-0.0351 (0.023)	0.568*** (0.081)	-0.535*** (0.073)	-0.0327 (0.023)	0.568*** (0.082)	-0.535*** (0.073)	-0.0332 (0.024)
Over-extended	0.478*** (0.070)	-0.428*** (0.067)	-0.0500** (0.021)	0.502*** (0.068)	-0.451*** (0.065)	-0.0512** (0.021)	0.503*** (0.068)	-0.459*** (0.065)	-0.0448** (0.020)	0.503*** (0.068)	-0.455*** (0.064)	-0.0481** (0.021)
Fringe	0.334*** (0.070)	-0.365*** (0.067)	0.0313 (0.021)	0.342*** (0.077)	-0.379*** (0.069)	0.0373 (0.028)	0.349*** (0.077)	-0.390*** (0.069)	0.0412 (0.028)	0.350*** (0.077)	-0.389*** (0.068)	0.0395 (0.028)
Age	0.0120* (0.006)	-0.0115 (0.007)	-0.000498 (0.003)	0.0108* (0.006)	-0.0107 (0.007)	-7.34E-05 (0.003)	0.0122* (0.006)	-0.0122* (0.007)	5.42E-06 (0.003)	0.0120* (0.006)	-0.0111 (0.007)	-0.000874 (0.003)
Age sq. /100	-0.0168** (-0.0068)	0.0168** (-0.0075)	-0.0000402 (-0.0034)	-0.0155** (-0.0067)	0.0165** (-0.0074)	-0.000976 (-0.0035)	-0.0171** (-0.0068)	0.0179** (-0.0074)	-0.000863 (-0.0034)	-0.0167** (-0.0067)	0.0165** (-0.0074)	0.00019 (-0.0036)
Female	-0.033 (0.028)	-0.00951 (0.033)	0.0425** (0.018)	-0.0419 (0.028)	0.012 (0.033)	0.0298 (0.019)	-0.0341 (0.028)	-0.000766 (0.033)	0.0349* (0.018)	-0.0395 (0.028)	0.00395 (0.033)	0.0355* (0.019)
Never married	-0.0324 (0.035)	0.00804 (0.045)	0.0243 (0.028)	-0.0194 (0.036)	0.0121 (0.044)	0.00732 (0.025)	-0.0257 (0.036)	0.00982 (0.045)	0.0159 (0.026)	-0.0221 (0.036)	0.00961 (0.045)	0.0125 (0.026)
Divorced/Sep.	0.0111 (0.038)	-0.0256 (0.044)	0.0145 (0.024)	0.0117 (0.037)	-0.0216 (0.044)	0.00989 (0.024)	0.0197 (0.038)	-0.0285 (0.044)	0.00876 (0.023)	0.0226 (0.039)	-0.0271 (0.044)	0.00443 (0.023)
Afr. American	-0.0432 (0.041)	-0.103 (0.073)	0.146** (0.062)	-0.04 (0.041)	-0.0798 (0.069)	0.120** (0.057)	-0.0398 (0.042)	-0.0897 (0.071)	0.129** (0.059)	-0.0485 (0.039)	-0.119 (0.074)	0.168*** (0.065)
Hispanic	-0.0516 (0.048)	0.0305 (0.070)	0.0211 (0.051)	-0.0553 (0.046)	0.04 (0.068)	0.0153 (0.051)	-0.0493 (0.049)	0.0308 (0.070)	0.0184 (0.051)	-0.0486 (0.049)	0.0464 (0.066)	0.00221 (0.045)
4 members HH	0.047 (0.042)	-0.0111 (0.046)	-0.0359* (0.021)	0.0569 (0.043)	-0.0131 (0.047)	-0.0438** (0.020)	0.0539 (0.043)	-0.0178 (0.047)	-0.0361* (0.021)	0.056 (0.043)	-0.0218 (0.047)	-0.0341 (0.022)
5 members HH	0.0291 (0.046)	0.0142 (0.051)	-0.0433** (0.021)	0.0524 (0.048)	-0.00948 (0.052)	-0.0429* (0.022)	0.045 (0.048)	0.000904 (0.052)	-0.0459** (0.020)	0.0479 (0.048)	-0.00217 (0.052)	-0.0457** (0.021)
Not employed	-0.0334 (0.033)	0.0709* (0.037)	-0.0375** (0.016)	-0.0298 (0.032)	0.0567 (0.038)	-0.0269 (0.018)	-0.0234 (0.034)	0.0505 (0.039)	-0.0272 (0.017)	-0.0246 (0.033)	0.0532 (0.038)	-0.0286 (0.018)
30K < Y <= 50K	-0.0396 (0.033)	0.0652* (0.037)	-0.0257 (0.017)	-0.0557* (0.031)	0.0726** (0.036)	-0.0169 (0.019)	-0.0495 (0.032)	0.0659* (0.037)	-0.0164 (0.018)	-0.0478 (0.032)	0.0668* (0.037)	-0.0191 (0.019)
50K < Y < 75K	-0.0635* (0.034)	0.129*** (0.037)	-0.0655*** (0.017)	-0.0744** (0.032)	0.143*** (0.036)	-0.0685*** (0.018)	-0.0699** (0.033)	0.139*** (0.037)	-0.0691*** (0.017)	-0.0680** (0.033)	0.142*** (0.036)	-0.0735*** (0.017)
Y > 75K	-0.0875*** (0.034)	0.160*** (0.038)	-0.0725*** (0.019)	-0.0891*** (0.033)	0.158*** (0.038)	-0.0693*** (0.021)	-0.0933*** (0.033)	0.166*** (0.038)	-0.0727*** (0.020)	-0.0892*** (0.033)	0.165*** (0.038)	-0.0755*** (0.020)
W < 50K	0.232*** (0.050)	-0.203*** (0.054)	-0.0293 (0.026)	0.244*** (0.049)	-0.222*** (0.052)	-0.0222 (0.026)	0.242*** (0.050)	-0.214*** (0.053)	-0.0281 (0.026)	0.244*** (0.050)	-0.218*** (0.053)	-0.0266 (0.026)
50K < W <= 100K	0.201** (0.098)	-0.189** (0.093)	-0.0123 (0.027)	0.225** (0.100)	-0.216** (0.093)	-0.00861 (0.029)	0.218** (0.100)	-0.205** (0.094)	-0.0134 (0.027)	0.211** (0.099)	-0.202** (0.093)	-0.00916 (0.029)
100K < W < 250K	0.0594 (0.089)	-0.0119 (0.088)	-0.0475* (0.025)	0.0644 (0.089)	-0.00935 (0.088)	-0.0551** (0.023)	0.0635 (0.090)	-0.0071 (0.089)	-0.0564*** (0.022)	0.0683 (0.090)	-0.00921 (0.089)	-0.0591*** (0.022)
Observations	980	980	980	980	980	980	980	980	980	980	980	980
Pseudo R-squared	0.2455	0.2455	0.2455	0.233	0.233	0.233	0.2267	0.2267	0.2267	0.2252	0.2252	0.2252

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Key for Lit1-Lit4 variables**

Self-assessed literacy: Lit1= 4, Lit2=5, Lit3=6, Lit4=7. Omitted class: low literacy 1-3.

First measure of literacy: Lit1 = underestimate, Lit2 = overestimate, Lit3= do not know, Lit4 = refuse to answer. Omitted class: Correct

Second measure of literacy: Lit1 = large underestimate, Lit2 = small underestimate, Lit3= do not know, Lit4 = refuse to answer. Omitted class: Correct

Third measure of literacy: Lit1= option a, Lit2 = same, Lit3=do not know, Lit4 = refuse to answer. Omitted class: Correct.