

# **Intelligence and the Repayment of High- and Low- Consequences Debt**

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### **Abstract**

We study the relationship between intelligence and debt repayment of High Consequences Debt (HCD), such as mortgage debt, and Low Consequences Debt (LCD), such as credit card debt. We find that intelligence has a stronger negative effect on the repayment of HCD than on the repayment of LCD. Our results also indicate that personality has a stronger effect on HCD than LCD, and that the availability of financial resources has a stronger effect on LCD than on HCD. These results are explained by the effect of involvement on decision making processes in general, and financial decision processes in particular.

Borrowing implies taking risk. Failing to repay may have severe consequences on the borrower, starting with losing the ability to obtain affordable credit, paying high finance charges and ending in the confiscation of one's possessions. Yet borrowing has its benefits: It helps to balance current needs and future income. Thus, borrowing decisions involve striking a balance between risk and return.

In the current paper we examine the relationship between individual differences and debt repayment difficulty. In this examination we distinguish between High Consequences Debt (HCD) and Low Consequences Debt (LCD), debts that differ in the severity of the implications of failure to repay, and suggest that individual differences are more important when the consequences associated with failure to repay are high. Our focus is on intelligence, which is studied both in Study 1 and in Study 2. However, in the second study we extend our investigation to individual differences associated with personality, and show that both intelligence and personality have a stronger negative association with difficulty in repayment of HCD than with difficulty in the repayment of LCD.

The main reason for a stronger association between intelligence and HCD repayment difficulty than LCD repayment difficulty is that when the consequences are high, involvement with the decision is high and more deliberation regarding the debt is evoked. People rely on what has been labeled "system 2" processes (Epstein, 1994; Sloman, 1996; Chaiken & Trope, 1999; Kahneman & Frederick, 2002), mental operations requiring effort, motivation, concentration, and the execution of learned rules – processes that are heavily dependent on cognitive ability (Gottfredson, 1997; Jensen, 1998). Since deliberation leads to better decisions about the level of debt one can take, as well as better decisions about the handling of the debt, we expect that

intelligence is more strongly related to difficulties in debt repayment of HCD than LCD.

Quite often LCD and HCD differ with regard to the timeframe with which they are associated. The timeframe of HCD (e.g., mortgage debt) is usually longer than the timeframe for LCD (e.g., credit card debt). Thus HCD, more than LCD, requires taking into consideration future eventualities, evaluating their probabilities and assessing their consequences, as well as more complex calculations, data manipulation and information integration. These requirements are strongly related to cognitive ability. Furthermore, since intelligence is associated with a stronger tendency to delay gratification (Frederick, 2005; Funder & Block, 1989; Parker & Shoda, Mischel & Peake, 1990), the more intelligent are less likely to undertake overly large long-term obligations and therefore less likely to face difficulties in repayment of HCD. Finally, since intelligent people have wider temporal horizons (Dohmen, Falk, Huffman & Sunde, 2010), when facing financial distress they are less likely to emphasize the repayment of short-term debt at the expense of paying long-term debt.

There are only a handful of studies that examined the relationship between intelligence and financial decision making. Some studies attempted to examine whether intelligence is associated with better financial decisions. Kezdi & Willis (2003) and Christelis, Japelli & Padula (2008) showed that intelligence is associated with a higher tendency for stock market participation, which, given the superior yield of stocks over other investment options, may indicate better decision making; Korniotis & Kumar (2013) documented a positive relationship between intelligence and the quality portfolio selection, and Stango & Zinman (2008) documented a positive relationship between intelligence and the ability to analyze financial

information (exponential growth), and related this ability to successful financial performance. Another line of research examined the relationship between decision making and age. Most of this research found a negative relationship between decision quality and age, both with regard to decision making in general (Besedes, Deck, Sarangi & Shor, 2010; Bruine, Parker & Fischhoff 2007, Finucane, Mertz, Slovic & Schmidt, 2005) and financial decision making in particular (Daniel, Grinblatt, Titman Russell & Wermers 1997 and Korniotis and Kumar 2009), which could be interpreted as the results of declines in cognitive ability.

Relevant to our topic is also the vast literature that examined the relationship between intelligence and financial success. Numerous studies showed that intelligence is associated with higher income (Herrnstein & Murray, 1994; Ganzach, 2011). In addition, other studies showed a positive relationship between intelligence and wealth accumulation, even after income is controlled for (Benjamin, Brown & Shapiro, 2006 and McArdel, Smith, 2009, but see Zagorsky, 2007)

The current paper takes a hybrid approach to the study of the relationship between intelligence and financial decisions. We study the relationship between intelligence and economic failure, operationalized as difficulty in debt repayment, viewing difficulty in debt repayment as an indicator for the quality of financial decisions.

Finally, the overall effect of intelligence on debt repayment difficulty can be divided into an indirect effect, mediated by financial resources, and a direct effect, the effect of intelligence when financial resources are controlled for. The indirect effect is due to the fact that intelligent people are more financially successful, which can prevent debt difficulties. The direct effect is related to the decisions people make given their budget constraints. The overall effect is relevant to the understanding of

the processes underlying the understanding of the relationship between intelligence and debt repayment difficulty in the following way. Since the cause of debt repayment difficulty is the mismatch between financial resources and financial obligations rather than the lack of financial resources per se, the overall effect of intelligence reflects the degree by which people are capable of planning their financial obligations. Thus the more intelligent are more likely to evaluate the financial resources that will be available to them at the time of repayment and thus avoid debt repayment difficulty. Therefore, in our analyses below we present both the results of exogenous variables models that do not include the effects of financial resources and full models that include these effects.

### **Study 1**

Compared to most, if not all other consumer debts, mortgage debt is clearly HCD since failing to repay it threatens one's shelter. In the current study we compare the difficulty in repayment of mortgage debt to the difficulty in the repayment of 'regular' bills, which we consider LCD. The starting point of this study is a 2007 paper by Zagorsky that found no linear relationship between intelligence and difficulties in bills' repayment<sup>1</sup>. Zagorsky used the 2004 wave of the National Longitudinal Study of Youth (NLSY79), which we also use in the current study. We replicate Zagorsky's result and add an additional analysis – an analysis of the 2008 wave of the NLSY79 – that confirms this finding of a non-significant linear relationship between intelligence and LCD. However, in order to examine our hypothesis about the different effects of intelligence on repayment of HCD versus repayment of LCD, we add additional

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<sup>1</sup>Zagorsky (2007) found nonlinear non-monotonous relationships between intelligence and difficulty in bills' repayment. However, since there is no plausible theoretical explanation for such a relationship, we examine only linear relationships.

analyses that examine the relationship between intelligence and repayment of mortgage debt.

## **Method**

### **Data.**

The data were taken from the 1979 cohort of the National Longitudinal Study of Youth (or NLSY79), a survey conducted by the Center of Human Resource Research with a probability sample of 12,686 Americans (with an over-sampling of African Americans, Hispanics, and economically disadvantaged whites) born between 1957 and 1964. The participants were interviewed annually since 1979 and bi-annually since 1994. Since difficulty in debt repayment was measured in the NLSY in 2004 and 2008 (for LCD repayment) and 2010 and 2012 (for HCD repayment), we used the 2004, 2008, 2010 and 2012 surveys. While the level of debt repayment difficulty may change from one year to another as a result of changes in the economy, there is no reason to assume that the relationship between intelligence and debt repayment difficulty should change, so we do not consider the fact that we model responses that were elicited in different time periods to be a problem affecting the internal validity of the study.

In addition to measures of debt repayment difficulty we obtained from each of the 2004, 2008, 2010 and 2012 surveys information about participants' net worth and net income. Intelligence scores, demographic information and information about parents' income were obtained from the first (1979) survey.

## Measures

**HCD repayment difficulty** was measured based on two questions that were asked in the 2010 and 2012 interviews. The first question asked subjects if they failed to pay their mortgages for more than two months in the last three years. The second asked subjects if they are likely to fail to pay their mortgages in the next six months. If a subject answered in the affirmative to one of these two questions he or she was considered to have mortgage repayment difficulty (coded as 1). Otherwise he or she was considered to have no mortgage repayment difficulty (coded as 0)<sup>2</sup>. As this question was asked only to participants who had mortgages, the number of valid responses was 4,969 in 2010 and 4,688 in 2012.

**LCD repayment difficulty** was measured based on the question: "In the last 5 years, have you completely missed a payment or been at least 2 months late in paying any of your bills?" Answers were coded as 0 if subjects indicated that they did not miss a payment and 1 if they did miss a payment. The number of valid responses was 7,588 in 2004 and 7,704 in 2008.

**Intelligence.** The measure of intelligence was derived from respondents' test scores on the Armed Forces Qualifying Test (AFQT). This test was administered to groups of five to ten respondents between June and October 1980; respondents were compensated, and the overall completion rate was 94 percent. The intelligence score was the sum of standardized scores, normalized within four-month age groups, of four tests: arithmetic reasoning, paragraph comprehension, word knowledge, and

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<sup>2</sup>The first question was: "Since January three years ago, have you ever fallen more than 2 months behind on mortgage payments on the house in which you were living?". There were two possible answers: Yes or No. The second question was: "How likely is it that you will fall behind in your mortgage payments during the next 6 months?". There were three possible answers: Very likely, Somewhat likely, and Not likely at all." The first two answers were considered a positive response and the third a negative response.

mathematics knowledge. We express these scores on an IQ scale (mean of 100 and standard deviation of 15). The validity of the AFQT was demonstrated in numerous studies including the prediction of training success (e.g., Ree & Earles 1991) job performance (e.g., Scribner, Smith, Baldwin & Phillips, 1986), as well as other measures of socio-economic success (for an extended discussion of the validity of the AFQT see Herrnstein & Murray, 1994).

**Financial resources.** We used three measures of financial resources. *Net worth* was obtained from participants' responses to the question: "What is the amount that would be left over after all debts are paid off after selling all assets?"<sup>3</sup>

*Income* was obtained from participants' reports about their family income.

A third variable, *Parents' Income*, was obtained from the reports of the parents of the participants in the first (1979) interview with regard to their 1978 income. Parents' Income is not only a financial resource (though a rather weak resource for our middle-age participants in Study 1), but also an exogenous control variable that serves as a proxy to SES (see for example Herrnstein & Murray, 1994 or Ganzach, 2011, for controlling for SES when estimating intelligence effects; see Fischer et. al. for the use of family income as an indicator for SES). All financial resource variables are expressed in thousands of dollars.

**Demographic information.** Age was defined as the 2008 age. At this time participants' age varied between 44 and 51 with about an equal number of participants at each age group. Race was coded with two dummies, Blacks, Hispanic and non-black, non-Hispanic. Sex was coded as 1 for females and 0 for males.

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<sup>3</sup>For the years 2004, 2008 and 2012 there was also available a net worth variable that was calculated based on participants' reports about the various assets and debts they have. However, this variable was not available for 2010. The correlation between the two net worth variables in the three years in which both were available was about 0.8.

## **Analyses**

We estimated logistic regression models with a listwise deletion. Since short-LCD and HCD repayment difficulties were measured in different years, our analyses involve estimating the effects of intelligence (and other independent variables) on LCD and HCD repayment difficulties that were assessed in different time periods. In the context of the current study, we do not see this as a serious threat to internal validity, since while the level of repayment difficulty may change from one year to another as a result of changes in the economy, there is no reason to assume that the relationship between intelligence and repayment difficulty would change. Finally, in order to assess strengths of relationships, we estimated the partial correlations between the independent variables of interest and both LCD and HCD repayment difficulty.

## **Results and Discussion**

Table 1 presents a correlation matrix among the study variables (correlations involving LCD and HCD repayment difficulties are point-biserial correlations). (To save space, net income, and net worth, which are relatively stable over the years, are shown only for 2008). The data indicate that in 2010 and 2012, respectively, 20.9% and 21.7% of the participants encountered difficulty in LCD. On the other hand, in 2004 and 2008, respectively, only 14.3% and 11.9% encountered difficulty in HCD. The data in Table 1 also indicate that the stability correlations of HCD and LCD (i.e. the correlations between their measures at the two time points) are moderate (.46 and .34 for HCD and LCD, respectively), consistent with the idea that situational variables (e.g. transient economic hardships) have strong influence on these variables. Note also

that the stability correlation of HCD repayment difficulty is stronger than the stability correlation of LCD repayment difficulty, suggesting that severe financial difficulties are more stable than mild difficulties. Finally, the correlations within the two HCD and LCD repayment difficulty measures are larger than the correlations between the two types of debts, indicating some discriminant validity between the two types of repayment difficulties

The basic thrust of our findings is already apparent from the data in this table: Intelligence is more strongly (negatively) related to HCD repayment difficulty than to LCD repayment difficulty. The correlations between intelligence and HCD were, respectively,  $-.15$  and  $-.16$ , for the 2010 and 2012, whereas the correlations for LCD were  $-.09$  and  $-.09$  for both years. The data in the table also suggests that financial resources tend to be more strongly correlated with repayment of LCD than repayment of HCD.

Table 2 presents the results of regression analyses predicting LCD repayment difficulty. Both the 2004 model and the 2008 model suggest that there is no significant relationship between HCD repayment difficulty and intelligence. This is the case both for the exogenous variables model and the full model that includes the financial assets (in fact, in these models the sign of the effect of intelligence is positive) Although the specification of our models are somewhat different from those of Zagorsky, 2007, our results for 2004 replicate Zagorsky's (2007) results. Our results for 2008 provide further support for the non-significant linear relationship between intelligence and LCD repayment difficulty.

Table 3 presents the results of regressions predicting HCD repayment difficulty. Both the 2010 model and the 2012 model suggest that intelligence is significantly related to HCD repayment difficulty. This is the case both for the

exogenous variables model and the full model. Thus, our results suggest that while intelligence has a significant negative effect on HCD repayment difficulty, it does not have a significant effect on LCD repayment difficulty.

Finally, note that the coefficients of intelligence in the HCD exogenous variables models are considerably higher than the coefficients in the full model, which is consistent with the idea that in addition to its direct effect on HCD repayment difficulty, intelligence also has an indirect effect, mediated through the availability of financial resources. Note also that the non-significant effect of intelligence in the LCD exogenous variables model is inconsistent with the idea that financial resources mediate the effect of intelligence on LCD repayment difficulty. This raises possibilitye that LCD acquisition is primarily determined by processes that occur spontaneously and do not involve attention or deliberation, or that there are unaccounted for characteristics of the more intelligent which lead to increased LCD repayment difficulty when financial resources are controlled for (e.g., higher risk taking. See Dohmen 2010).

Since it is difficult to compare the effects of financial resources on debt repayment difficulties from the regression results, we computed the partial correlations between the financial resources variables and debt repayment difficulties controlling for the rest of the variables in our models. For HCD (LCD) these correlations were -.066, -.075, (-.067, -.099) for net worth; -.103, -.087 (-.118, -.154) for net income; and -.038, .005 (-.052, -.039) for parents' income (the first and second correlations *not* in parentheses refer to 2010 and 2012, respectively; the first and second correlations in parentheses refer to 2004 and 2008, respectively). Interestingly enough, these correlations exhibit a trend reflecting a stronger relationship between

financial resources and debt repayment difficulty with regard to LCD than with regard to HCD. We further explore this issue in Study 2.

## **Study 2**

Study 2 adds to Study 1 in a number of ways. First, in Study 1 the evaluations of LCD and HCD repayment difficulties were made at different points in time (2004 and 2008). In the current study the evaluations of these two types of repayment difficulties were elicited at the same point in time. Second, in addition to intelligence, we examined the effects of other individual difference variables – the big-five personality dimensions. This allows a better control for the effect of intelligence, as well as examining whether it is not only intelligence, but also other individual-differences variables affect HCD than LCD repayment difficulty. Finally, in the current study, LCD repayment difficulty – postponing some of the payment on credit card bills to the next month – involves even less consequential outcomes than the LCD difficulty in Study 1 (it involves only some extra finance charges, but no threat to one's credit rating or danger of dispossession of assets).

## **Method**

### **Data**

The data were taken from the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97), conducted by the Center of Human Resource Research with a probability sample of 8,804 Americans (with over-sampling of African Americans, Hispanics, and economically disadvantaged whites) born between 1980 and 1984. The participants were interviewed annually since 1979 and bi-annually since 2011. Data about debt repayment difficulty and about financial resources were taken from a special module of the study that was administered in the

first interview after the respondent's 30th birthday. Thus, all respondents in our sample are about 30 years old, although there is a three-year range with regard to the year in which they were interviewed.

In addition to measures of debt-repayment difficulty we obtained from the 1997 survey participants' scores in an intelligence test (the AFQT) as well as background and demographic information. From the 2008 survey we obtained measures of the big-five personality dimensions.

### **Measures**

**HCD repayment difficulty** was measured based on the question: "Thinking of all the various loans or mortgage payments made during the last year, were all payments made the way they were scheduled, or were payments on any of the loans sometimes made later or missed?" Answers were coded as 0 if subjects indicated that all payments were made on schedule and as 1 if they indicated that payments were sometimes made late or missed. After omitting the 18% of the participants who indicated that no payments were due, the number of valid responses was 5,018. Of these, about 2,000 had educational loans, about 2,000 had car loans, about 1,500 had mortgages, about 300 owed money to non-active credit cards, and about 1,800 owed money to other establishments such as bank, stores and doctors' offices.

**LCD repayment difficulty** was operationalized in terms of paying credit card bills, based on the question: "Thinking of your most recent credit card statements, did you or will you pay off all of your balances in full?" Answers were coded as 0 if subjects indicated that they paid their debt in full and 1 if they did not. After omitting subjects who did not report that they, their spouses or their partners had a credit card, the number of valid responses was 2,743 valid responses.

**Intelligence.** As in Study 1, the measure of intelligence was derived from respondents' test scores on the Armed Forces Qualifying Test (AFQT) that was given to participants in the first survey of the study. The test was administered as a Computer Adaptive Test, and its results were normed by age by the NLS staff to obtain an age-independent score. As in Study 1, we use a standard IQ scale with a mean of 100 and standard deviation of 15.

**The big five personality dimensions** were measured in 2008 using the Ten-Item Personality Inventory (TIPI), two items for each of the big-five dimensions (conscientiousness, openness to experience, extraversion, agreeableness and neuroticism). The TIPI consists of 10 pairs of personality traits that the respondents are asked to rate regarding the extent to which they how well describe themselves on a scale from 1 (Disagree strongly) to 7 (Agree strongly).

**Financial resources.** *Net worth* was calculated by the NLS staff based on participants' reports about the various assets and debts of the participants. *Income* was obtained from participants' reports about their family income. *Parents' income*, was obtained from the reports of the parents of the participants in the first (1997) interview about their 1996 income.

**Demographic information.** Was measured and coded as in Study 1.

### **Analyses**

As in Study 1, we used logistic regressions with listwise deletion. We also used partial correlation to assess the strength of association between debt repayment difficulty and our independent variables. However, because in the current study partial correlations could be derived from the same group of participants measured at

the same time, we conducted significance tests to compare relationships involving LCD repayment difficulty to relationships involving HCD repayment difficulty.

## **Results and Discussion**

Table 4 presents a correlation matrix among the study variables (correlations involving HCD and LCD repayment difficulties are point-biserial correlations). The data indicate that 48.9% of the participants had LCD repayment difficulty whereas only 24% encountered HCD repayment difficulty. Similar to Study 1, the basic thrust of our findings is already apparent in this table: Intelligence is more strongly (negatively) related to HCD repayment difficulty than to LCD repayment difficulty, whereas financial resources tend to be more strongly (negatively) related to LCD repayment difficulty than to HCD repayment difficulty. The data in the table also suggest that big-five dimensions tend to be more strongly related to HCD than LCD repayment difficulty

Table 5 presents the results of regression analyses predicting LCD and HCD repayment difficulties. It is clear from this table that, even after adding other individual differences variables, intelligence had a significant negative effect on HCD repayment difficulty, but did not have a significant effect on LCD repayment difficulty. This was the case both for the exogenous variables model and the full model that includes the financial assets.

The results in this table also indicate that conscientiousness and neuroticism had, respectively, significant negative and positive effects on HCD repayment difficulties, but did not have significant effects on LCD repayment difficulty. Thus it appears that individual differences in general, and not only intelligence, are important in predicting of HCD but not LCD repayment difficulty. Note also that the direction

of the effects of conscientiousness and neuroticism in the HCD model makes theoretical sense. Debt repayment difficulty is positively related to conscientiousness since conscientious people are careful, self-disciplined, organized and deliberate (Roberts, Jackson, Fayard, Edmonds & Meints, 2009). On the other hand, debt repayment difficulty is negatively related to neuroticism since neurotic people are irrational, impulsive, emotionally unstable and lack self-control (Andrews, Stewart, Morris-Yates, Holt & Henderson, 1990).

Financial resources had significant effects on both HCD and LCD repayment difficulties. For LCD repayment difficulty the effects of parents' income, net income and net worth were significantly negative (see Table 5); for HCD repayment difficulty the effects of net worth and net-income were significantly negative (see Table 5). However, similar to Study 1, a pattern of a stronger negative effect of financial resources on HCD repayment difficulty emerges. Controlling for the rest of the variables in our full model, the partial correlations between LCD [HCD] repayment difficulty, net worth, net income and family income were, respectively,  $-.161 [-.085]$ ,  $-.096 [-.054]$  and  $-.112 [-.032]$ . Because there was a large group of participants ( $n=1339$ ) who reported both LCD and HCD repayment difficulty, we could conduct significance tests to examine the difference between these two sets of correlation. Similar to the trend we found in Study 1, these tests indicated that with regard to net worth and family income these correlations were significantly more negative for LCD than for HCD repayment difficulty ( $p < .05$ ). For net income the difference was not significant.

## General Discussion

Consistent with previous studies in the literature, the current results suggest that intelligence has a positive effect on the quality of financial decision, and that this effect is reflected in debt repayment difficulty. However, the results also suggest that this effect of intelligence occurs for high- but not for low-consequences debts. We explain this difference as resulting from the effect of involvement on the level of deliberation in making high- versus low-consequences decisions, and by the idea that the higher the deliberation, the more significant the effect of intelligence.

In addition to this differential effect of intelligence on debt repayment difficulty, we found two additional differences between HCD and LCD. First, we found that personality predicts HCD, but not LCD, repayment difficulty, suggesting that individual differences in general, and not only intelligence, are more strongly associated with HCD than LCD financial decisions. Second, we found that the effect of financial resources is stronger for LCD than for HCD.

These effects, like the effects of intelligence on debt repayment, are also explained by the difference in involvement with the decisions. First, the effect of individual differences on debt repayment difficulty is best understood by analyzing repayment decision at the time the debt is due. Since the higher the involvement with the decision, the stronger the relationship between individual characteristics and decision outcome (Cooper & Withey, 2009; Beaty, Cleveland & Murphy, 2001), HCD repayment difficulty is more strongly related to individual differences than LCD repayment difficulty. Take for example the effect of conscientiousness on debt decision at the time the debt was taken. When taking a HCD, people high on conscientiousness are relatively more careful in assuming debt, while people low on conscientiousness are relatively more careless. As a result in repaying HCD, but not

in repaying LCD, the low conscientiousness people are more likely to face debt difficulties.

Second, the effect of financial resources is best understood by analyzing repayment decision at the time the debt is due. At this time financial resources will have a strong effect on LCD repayment: LCD will be paid when financial resources are available (why not repay a debt when money is available) but not when finances are limited (why repay an unimportant debt when resources are limited). On the other hand, at the time of repayment financial resources will have a relatively weak effect on HCD repayment difficulty— because the repaying of such debt is important people will try to repay it no matter the what are the available financial resources. Note that this explanation also suggests that as LCD repayment depends primarily on financial resources, it will have a weak dependence on individual differences.

Third, quite often the difference between HCD and LCD is perceptual rather than real. In particular, debts that appear as having low consequences may in reality be of substantial importance to consumers. In particular, credit card debt may appear as non-significant debt, leading to low consumer involvement and insufficient deliberation, resulting in debt burden that is incongruent with consumers' preferences and with their ability to service the debt (Prelec & Loewenstein, 1998). This is further exacerbated by credit card suppliers who complicate the debt terms, making deliberation more effortful, thus rendering consumers even more susceptible to the consequences of low-involvement. Raising consumers' involvement and regulatory actions to simplify the terms of seemingly low consequences debt could help alleviate these problems.

Finally, the analyses in the paper were based solely on American samples. As international differences in intelligence (e.g., Lynn & Vanhanen, 2002), in debt

markets (e.g., Bacchetta, & Gerlach, 1997) and in social attitudes toward debt (e.g., Lea, Webley & Walker, 1995) may be large, it is an open question whether the effects observed in the current US data generalize to other countries.

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Table 1: Descriptive statistics and inter-correlation of Study 1 variables

	<b>Mean</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
<b>1. HCD difficulty 2010</b>	0.143	0.350	1.00										
<b>2. LCD difficulty 2012</b>	0.119	0.324	0.46	1.00									
<b>3. LCD difficulty 2004</b>	0.209	0.407	0.20	0.16	1.00								
<b>4. LCD difficulty 2008</b>	0.217	0.412	0.30	0.22	0.32	1.00							
<b>5. Intelligence</b>	95.41	14.94	-0.15	-0.16	-0.09	-0.09	1.00						
<b>6. Black</b>	0.250	0.433	0.13	0.13	0.11	0.10	-0.36	1.00					
<b>7. Hispanic</b>	0.158	0.365	0.05	0.03	0.01	0.02	-0.16	-0.25	1.00				
<b>8. Age</b>	47.63	2.252	-0.01	-0.05	0.00	-0.01	0.20	-0.04	-0.05	1.00			
<b>9. Sex</b>	1.495	0.500	0.04	0.03	0.06	0.06	-0.01	0.00	0.00	0.01	1.00		
<b>10. Parents income</b>	17.24	13.161	-0.10	-0.09	-0.10	-0.10	0.44	-0.24	-0.11	0.12	-0.01	1.00	
<b>11. Net worth 2008</b>	274.64	644.24	-0.12	-0.10	-0.12	-0.13	0.28	-0.15	-0.07	0.04	-0.03	0.27	1.00
<b>12. Net income 2008</b>	73.38	75.507	-0.13	-0.10	-0.16	-0.17	0.42	-0.19	-0.06	0.02	-0.06	0.33	0.52

Table 2: LCD repayment difficulty models – Study 1

	2004				2008			
	<b>b</b>	<b>SE</b>	<b>b</b>	<b>stderr</b>	<b>b</b>	<b>SE</b>	<b>b</b>	<b>SE</b>
<b>Intercept</b>	0.856	0.871	1.246	1.161	-0.357	0.836	-0.118	1.135
<b>Intelligence</b>	-0.003	0.003	0.004	0.004	-0.004	0.003	0.006	0.004
<b>Black</b>	0.520***	0.095	0.595***	0.125	0.529***	0.092	0.501***	0.123
<b>Hispanic</b>	0.247*	0.106	0.370**	0.135	0.346***	0.101	0.351**	0.134
<b>Age</b>	-0.049**	0.018	-0.066**	0.025	-0.023	0.018	-0.034	0.024
<b>Sex</b>	0.202**	0.072	0.237*	0.095	0.291***	0.070	0.186*	0.094
<b>Parents income</b>	-0.011**	0.003	-0.008	0.004	-0.010**	0.003	-0.001	0.004
<b>Net worth</b>			-0.0003	0.0002			-0.0010***	0.0003
<b>Net income</b>			-0.009***	0.001			-0.009***	0.001
<b>N</b>	4946		3156		5038		3109	

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001

Table 3: HCD repayment difficulty models –Study 1

	2010				2012			
	b	SE	B	SE	b	SE	b	SE
<b>Intercept</b>	0.344	1.265	-0.132	1.677	4.197	1.388	5.640	1.833
<b>Intelligence</b>	-0.020***	0.005	-0.012*	0.006	-0.025***	0.005	-0.014*	0.007
<b>Black</b>	0.678***	0.135	0.625***	0.182	0.611***	0.145	0.668**	0.185
<b>Hispanic</b>	0.286	0.151	0.241	0.198	0.123	0.167	0.113	0.211
<b>Age</b>	-0.014	0.026	-0.003	0.035	-0.090**	0.029	-0.132***	0.039
<b>Sex</b>	0.136	0.106	-0.002	0.140	0.142	0.115	0.067	0.148
<b>Parents income</b>	-0.008	0.005	-0.004	0.007	-0.002	0.005	0.011	0.006
<b>Net worth</b>			-0.0010*	0.0004			-0.002	0.0006
<b>Net income</b>			-0.007***	0.002			-0.0025***	0.002
<b>N</b>	3237		2228		3061		2036	

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001

Table 4: Descriptive statistics and inter-correlation of Study 2 variables

	Mean	Stderr	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>1. HCD difficulty</b>	0.240	0.427	1.00	0.16	-0.11	-0.02	-0.05	0.00	-0.11	0.13	0.12	-0.01	0.09	-0.09	-0.16
<b>2. HCD difficulty</b>	0.489	0.500	0.16	1.00	-0.04	0.00	-0.01	-0.02	-0.03	0.09	0.00	0.01	0.12	-0.10	-0.17
<b>3. Intelligence</b>	97.59	15.01	-0.11	-0.04	1.00	0.06	0.10	0.02	-0.04	-0.16	-0.33	-0.15	0.03	0.36	0.16
<b>4. Openness</b>	4.981	1.133	-0.02	0.00	0.06	1.00	0.05	0.12	0.12	-0.26	-0.01	-0.04	0.21	0.03	0.00
<b>5. Conscientiousness</b>	4.654	1.363	-0.05	-0.01	0.10	0.05	1.00	0.16	0.10	-0.13	-0.10	0.00	0.10	0.10	0.06
<b>6. Extraversion</b>	5.738	1.261	0.00	-0.02	0.02	0.12	0.16	1.00	0.12	-0.17	0.03	0.04	-0.01	0.03	-0.01
<b>7. Agreeableness</b>	5.688	1.131	-0.11	-0.03	-0.04	0.12	0.10	0.12	1.00	-0.26	0.07	-0.01	0.06	-0.01	0.05
<b>8. Neuroticism</b>	3.043	1.340	0.13	0.09	-0.16	-0.26	-0.13	-0.17	-0.26	1.00	-0.01	0.01	0.12	-0.06	-0.08
<b>9. Black</b>	0.260	0.439	0.12	0.00	-0.33	-0.01	-0.10	0.03	0.07	-0.01	1.00	-0.31	0.01	-0.23	-0.12
<b>10. Hispanic</b>	0.212	0.408	-0.01	0.01	-0.15	-0.04	0.00	0.04	-0.01	0.01	-0.31	1.00	0.00	-0.18	-0.03
<b>11. Sex</b>	1.488	0.500	0.09	0.12	0.03	0.21	0.10	-0.01	0.06	0.12	0.01	0.00	1.00	-0.01	-0.02
<b>12. Parents income</b>	46.36	42.14	-0.09	-0.10	0.36	0.03	0.10	0.03	-0.01	-0.06	-0.23	-0.18	-0.01	1.00	0.18
<b>13. Net worth</b>	45.62	125.26	-0.16	-0.17	0.16	0.00	0.06	-0.01	0.05	-0.08	-0.12	-0.03	-0.02	0.18	1.00
<b>14. Net income</b>	65.14	57.31	-0.14	-0.07	0.31	0.00	0.14	0.03	0.05	-0.07	-0.22	-0.01	-0.01	0.29	0.31

Table 5: HCD and LCD repayment difficulty models –Study 2

	LCD				HCD			
	<b>b</b>	<b>SE</b>	<b>b</b>	<b>SE</b>	<b>b</b>	<b>SE</b>	<b>b</b>	<b>SE</b>
<b>Intercept</b>	0.448	0.682	-0.008	0.756	-0.005	0.567	-0.138	0.632
<b>Intelligence</b>	-0.004	0.004	-0.001	0.005	-0.011**	0.004	-0.008*	0.004
<b>Openness</b>	-0.052	0.045	-0.043	0.050	0.085	0.039	0.092*	0.043
<b>Conscientiousness</b>	-0.060	0.050	0.003	0.056	-0.209***	0.041	-0.208***	0.046
<b>Extraversion</b>	0.005	0.038	0.046	0.043	-0.046	0.034	-0.004	0.038
<b>Agreeableness</b>	-0.006	0.050	-0.017	0.055	-0.047	0.043	-0.064	0.048
<b>Neuroticism</b>	0.079	0.045	0.044	0.050	0.149***	0.037	0.137***	0.042
<b>Black</b>	-0.100	0.165	-0.025	0.190	0.466***	0.117	0.378*	0.134
<b>Hispanic</b>	-0.184	0.140	-0.086	0.155	-0.126	0.130	-0.122	0.143
<b>Sex</b>	0.459***	0.109	0.440***	0.120	0.400***	0.097	0.414***	0.107
<b>Parents income</b>	-0.005***	0.001	-0.004**	0.001	-0.003-*	0.001	-0.001	0.001
<b>Net worth</b>			-0.004***	0.001			-0.003***	0.001
<b>Net income</b>			-0.0002***	0.0011			-0.003***	0.001
<b>N</b>	1649		1382		2927		2423	

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001