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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.

1. Introduction

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; 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. Kézdi & Willis (2003) and Christellis, Tulio, and 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 and Kumar (2013) documented a positive relationship between intelligence and the quality portfolio selection, and Stango & Zinman (2007) documented a positive relationship between intelligence and the ability to analyze financial information (exponential

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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 de Bruin, Parker, & Fischhoff, 2007, Finucane, Mertz, Slovic, & Schmidt, 2005) and financial decision making in particular (Daniel, Grinblatt, Titman, & 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, Sebastian, & Shapiro, 2006a; Benjamin, Brown, & Shapiro, 2006b and McArdel, Smith, & Willis, 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.

1.1. 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.[1] 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 analyses that examine the relationship between intelligence and repayment of mortgge debt.

[1] 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.

2. Method

2.1. Data

The data were taken from the 1979 cohort of the National Longitudinatl 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.

2.2. 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 having no mortgage repayment difficulty (coded as 0).[2] As this question was asked only to participants who had mortgages, the number of valid responses was 4969 in 2010 and 4688 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 7588 in 2004 and 7704 in 2008.

2.2.1. 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%. 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 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

[2] The first question was: "Since January three years age, have you ever fallen >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.