Individual differences and the Repayment of High- and Low- Consequences Debt: Replication and extension

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Abstract

We replicate the results of our previous study about the effect of intelligence and financial resources on the repayment on High- and Low- Consequence Debts (abbreviated as HCD and LCD, respectively), and extend the scope of the individual differences that are examined to include personality characteristics, and particularly the big-five personality dimensions. Our results from the first study are replicated showing that 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. We also find that that personality has a stronger effect on HCD than LCD repayment difficulties. These results are explained by the positive relationship between involvement and quality of financial decision making in general, and debt-taking decisions in particular.

The relationships between the big five and HCD and LCD payment difficulties are also explained by the relationship between involvement and decision quality. Of special interest in this set of finding were the more positive [negative] effect of conscientiousness [neuroticism] on the repayment of HCD [LCD]. These results are consistent with the idea that the self-disciplined, and deliberate qualities associated with conscientiousness and impulsivity and emotionality associated with neuroticism affect people's debt-taking decision making.

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In a previous study we found that intelligence has a positive effect on the quality of financial decision, that this effect is reflected in debt repayment difficulty, but that it occurs for High Consequences Debt (HCD), such as mortgage debt, but not for and Low Consequences Debt (LCD), such as credit card debt. We explained 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. 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.

If involvement is indeed the mediator of the effect intelligence on the difference in repayment of HCD and LCD, then we should expect that non-cognitive individual differences, and particularly personality, will affect the repayment of HCD and LCD. Thus the main purpose of the current work is to examine the effect, operationalized in terms of the big five personality dimensions, on debt repayment, and in particular to compare the repayment of mortgage debt to the repayment of credit card debts.

In addition,we aim to replicate and extend the results of our previous study in a number of directions. 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. And second, 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 stuff 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 1 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 2 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 2); for HCD repayment difficulty the effects of net worth and net-income were significantly negative (see Table 2).

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, 997) and in social attitudes toward debt (e.g., Lea, Webley & Walker, 1995) may be large, it is an open questions 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 2 variables

	Mean	Stderr	1	2	3	4	5	6	7	8	9	10	11	12	13
1. HCD difficulty	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
2. HCD difficulty	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
3. Intelligence	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
4. Openness	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
5.Conscientiousness	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
6. Extraversion	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
7. Agreeableness	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
8. Neuroticism	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
9. Black	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
10. Hispanic	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
11. Sex	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
12, Parents income	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
13. Net worth	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
14. Net income	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 2: HCD and LCD repayment difficulty models –Study 2

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

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