

Online Appendix

“Cognitive Abilities and Household Financial Decision Making”

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Evidence from the NLSY: Cognitive Ability and Intertemporal Decision Making

In order to better understand the underlying mechanisms behind the link between cognitive ability and optimal financial decision making, we use the 1979 National Longitudinal Survey of Youth. The NLSY followed a nationally representative sample of individuals who were between the ages of 14 and 21 as of January 1979 into adulthood. We test whether cognitive skills are associated with lower discount rates that could reflect greater patience. In the 2006 survey, respondents were asked an experimental question designed to elicit their implicit personal discount rates. Specifically, the question read as follows: *Suppose you have won a prize of \$1000, which you can claim immediately. However, you can choose to wait one month to claim the prize. If you do wait, you will receive more than \$1000. What is the smallest amount of money in addition to the \$1000 you would have to receive one month from now to convince you to wait rather than claim the prize now?* A response of \$100, for example, would imply an annual discount rate of over 200 percent. We use a subset of responses that lie within the range of \$1 to \$500.¹

We link responses to this question to respondent test scores as well as a number of other controls. Individuals in the NLSY were given the ASVAB in 1980 and their scores were used to norm the test. The use of the same scores for a nationally representative sample also may help alleviate any lingering concerns that our results on suboptimal financial behavior are driven by unrepresentative samples. Previous work by Warner and Pleater (2001) showed that AFQT scores are associated with lower discount rates as implied by a real world experiment where military personnel were offered a choice of

¹ Many respondents provided answers that were clearly unreasonable, with absurdly high implied discount rates. We also have experimented with a parallel question that asks the same hypothetical over a one-year range and found similar results.

either a lump-sum payment or an annuity during separation. However, their analysis was limited to four broad intervals of the composite AFQT and could not distinguish between specific subtest scores.

In Table A5 we present the results of this analysis. In column (1) we show that a one standard deviation increase in AFQT is associated with \$44 decline in the amount an individual would require to be compensated. This implies a decline in the monthly subjective discount rate of 4.4 percent. This estimate controls for several demographic characteristics (i.e., gender, race, Hispanic status, and education), which are all at least marginally significant. As a point of comparison for our AFQT results, even four additional years of schooling would only lower the discount rate by 0.8 percentage points. In column (2) we include the scores from the other six ASVAB subtests not incorporated into the composite AFQT. In column (3) we also add one's own annual earnings in 2005. These have a limited effect on our main estimates. In column (4) we utilize the fact that the NLSY contains many multiple sibling families and apply family fixed effects. This specification raises the standard errors considerably, but we still estimate a significant negative effect of about \$52. In this case we have arguably greatly reduced the potential scope for omitted variables bias, since we only utilize differences in cognitive ability between siblings and sweep away all variation that is across families.

In columns (5) through (8) we run the same specifications but now show the effects of the four main math and verbal subtests of the ASVAB on our measure of patience. In all four specifications the effects are highly concentrated in the arithmetic reasoning subtest, with coefficients ranging from to -27 to -44. The other main subtests also generally have negative coefficients but are never statistically significant. One could argue that perhaps the causality runs in the reverse direction—that more impatient people tend to do worse at math—but it is unclear why impatience would not affect other cognitive abilities.

An alternative and perhaps simpler interpretation of this survey question is that it is simply picking up whether respondents are able to calculate an interest rate or fully understand the intertemporal decision problem. In this case we still think our finding for the arithmetic reasoning subtest is an important one, since the ability to calculate interest rates or understand intertemporal tradeoffs is arguably an important aspect of financial planning.

Evidence from the HRS: The Specificity of Skills

A concern in our analysis may be that math scores simply capture other unobserved characteristics of individuals who tend to avoid suboptimal behavior in *all* realms of their life, but it is not their math skills per se that matter. Suppose, for example, that certain personality traits that lead to good decision making in general are associated with strong math skills. In that case we might be falsely attributing improved financial behavior to mathematical cognitive ability when it is in fact correlates of math ability that matter. To gain further insight on this we use data from the Health and Retirement Survey (HRS) to estimate the effects of mathematical ability on sub-optimal non-financial behaviors, such as the failure to take medication or difficulty in preparing a meal. Our working assumption for this exercise is that mathematical ability does not have a direct bearing on these other behaviors. If we were to find an effect of math ability on these behaviors, comparable in magnitude to what we find with financial decision making, then such a finding might suggest that we are picking up the effects of correlates of math ability in both cases.²

McArdle, Smith, and Willis (2011) use the HRS to demonstrate that cognitive skills, such as numerical ability, have a significant effect on stock market participation and wealth accumulation. We begin by trying to replicate their basic findings concerning financial behavior and then extend the analysis to include non-financial behavior.

The HRS collects information about wealth, income, cognitive abilities, and many other variables of interest bi-annually from over 22,000 Americans older than 50 years old. The measures of cognitive ability are word recall, mental status, number series, retrieval fluency, and numeracy.³ Following

² The exercise may not be illuminating if our assumption is wrong and math ability somehow helps with all aspects of life. It is also possible that math ability matters directly for financial decision making but that the correlates of math ability happen to lead to good decision making in non-financial contexts. In either of these cases, however, we might still expect some difference in the *magnitude* of the effects between the financial and non-financial contexts.

³ For word recall, the interviewer reads a list of 10 basic nouns and requests the participant to immediately list as many of the 10 nouns as possible. After five minutes the surveyor asks the participant to list as many of the 10 nouns as possible again. Mental status is derived from five tests. The first asks the respondent to subtract 7 from 100 and then to subtract 7 from the previous result. This is done a total of 5 times and a point is given for each proper subtraction. The second is to count backwards from 20 as quickly as possible. The next three tests ask a series of question: what is today's date, who is the President and Vice-President of the United states, what do you usually cut paper with, and what do you call the kind of prickly plant that grows in the desert. The numeracy score

McArdle, Smith, and Willis (2011), our estimated outcomes include total wealth, total financial wealth, and percent of stock ownership. We supplement these with outcomes from questions pertaining to Instrumental Activities of Daily Living (IADLs). Specifically, we have information for each individual on whether the individual has difficulty reading a map, buying groceries, taking medication, making a phone call, preparing a meal, and managing money. We restrict the sample to those individuals that indicate that they don't have trouble, do have trouble, or cannot perform the task, and we create indicators for not having trouble performing said task. These indicator variables are then multiplied by 100 so that the coefficients can be interpreted as percentage point effects.

We present the results in Table A6. In column (1) we find that each additional math question (out of a total of 3 questions) answered correctly is associated with an increase in total wealth of \$100,000 and financial wealth of \$66,000.⁴ Similarly for the small subsample that answered the number series questions, there are significant effects on wealth—a one standard deviation increase is associated with about an \$85,000 increase in total wealth. Retrieval fluency is also statistically significant. A one standard deviation increase in retrieval fluency (25 points) is associated with about a \$179,000 increase in total wealth. However, no effects are found for mental status and word recall. Of course, these regressions do not necessarily reflect causal relationships, as McArdle, Smith, and Willis (2009) fully acknowledge. Nonetheless, they are strongly suggestive that improvements in cognitive skill could have substantial payoffs.

In columns (4) through (8) we present results on the new outcomes. We find that for the four outcomes that appear to require the least amount of mathematical aptitude (buy groceries, take medication, make a phone call, and prepare a meal), numeracy is *not* statistically significant—and in three

is based on the number of correct answers to three mathematical questions. Number series are designed to test abstract reasoning through a series of number series puzzles. For retrieval fluency the interviewer gives the respondent a category and asks the respondent to name as many items in that category as possible in 45 seconds. Retrieval fluency and number series were part of an experimental module that was run on a randomly chosen subsample of the survey sample.

⁴ These results are significantly larger than the coefficients reported by McArdle, Smith, and Willis (2011). They find an effect of \$20,000 for total wealth and \$7,000 for financial wealth. We attempted to construct the identical sample of 18,382 reported by McArdle, Smith, and Willis (2011) in their results in their Table 1 and came close with a sample of 18,338. The means and standard deviations of our cognitive and demographic variables are virtually identical to their sample though we have some modest differences with some of the financial variables.

of four cases the point estimates are close to zero or negative. In only one case (prepare a meal) is number series statistically significant. In contrast, for these same four outcomes, the coefficients on mental status and word recall are always large and positive and with one exception are significant at the one percent level. Recall, that these measures of cognitive skill were never significant for total wealth or financial wealth. As an additional check that there is no systematic bias in the IADL questions, we do find that numeracy has a huge effect on the outcome of managing money. We find that numeracy also has a significant effect on reading a map, which arguably does require some quantitative skills.

Table A1: Summary Statistics of Credit Card Samples

Panel A: Comparison of Matched Credit Card Sample to Full Military Sample

	Matched CC Sample			Military Sample			T-Stat	
	Mean	s.d	N	Mean	s.d.	N	Diff.	of diff
<i>Variables from Military Sample</i>								
Enlistment Age	19.7	2.31	541	19.8	2.54	828314	-0.06	-0.60
Education	12.1	0.62	541	12.0	1.26	829999	0.10	3.59
Black	25.3%	0.44	541	19.8%	0.40	829999	0.055	2.94
White	67.3%	0.47	541	69.8%	0.46	829999	-0.025	-1.24
Other	7.4%	0.26	541	10.4%	0.31	829999	-0.030	-2.66
Male	88.9%	0.31	541	87.6%	0.33	829999	0.013	0.95
Female	11.1%	0.31	541	12.4%	0.33	829999	-0.013	-0.94
Married	34.2%	0.47	541	33.9%	0.47	829999	0.00	0.14
AFQT Score	60.2	19.25	541	61.0	18.92	828819	-0.87	-1.05
Word Knowl.	28.4	4.42	541	28.4	4.46	829999	-0.07	-0.36
Arithmetic Reas.	20.9	5.23	541	21.1	5.19	829999	-0.12	-0.54
Math Knowledge	16.2	4.94	541	16.5	4.86	829999	-0.27	-1.27
Paragraph Comp.	12.5	2.00	541	12.6	2.00	829999	-0.11	-1.27
Numerical Oper.	41.0	7.30	541	41.4	7.28	829969	-0.41	-1.32
Electronic Info.	12.6	3.44	541	12.6	3.46	829797	-0.03	-0.19
Mechanical Comp.	16.7	4.28	541	16.9	4.10	829963	-0.19	-1.01
General Science	17.8	4.03	541	17.8	3.94	829994	0.01	0.06
Coding Speed	53.5	11.39	541	54.1	11.74	829983	-0.60	-1.23
Automotive/Shop	15.4	5.14	541	15.5	5.06	829935	-0.18	-0.80

Panel B: Comparison of Matched Credit Card Sample to Full Credit Card Sample

	Matched CC Sample			Full Credit Card Sample			T-Stat	
	Mean	s.d	N	Mean	s.d.	N	Diff.	of diff
<i>Variables from Credit Card Sample</i>								
Bal. Transfer APR	7.16	2.84	541	6.38	3.93	14798	0.77	6.14
Purchase APR	7.91	5.11	541	14.40	2.44	14798	-6.49	-29.41
Account Age	15.19	9.80	541	34.83	23.02	14798	-19.63	-42.51
Behavior Score	663	157.54	541	727	81	14798	-63.91	-9.39
Fico Score	707	64.09	508	731	76	14798	-23.84	-8.19
Income	71363	70797	511	57121	114375	10227	14242	4.28

Table A2: Summary Statistics of Home Equity Samples*Panel A: Comparison of Matched Home Equity Sample to Full Military Sample*

	Matched HE Sample			Military Sample			T-Stat	
	Mean	s.d	N	Mean	s.d.	N	Diff.	of diff
<i>Variables from Military Sample</i>								
Enlistment Age	19.6	2.4	1380	19.8	2.54	828314	-0.12	-1.86
Education	12.1	0.68	1383	12.0	1.26	829999	0.12	6.71
Black	22.4%	0.42	1393	19.8%	0.40	829999	0.03	2.30
White	71.4%	0.45	1393	69.8%	0.46	829999	0.02	1.29
Other	6.2%	0.24	1393	10.4%	0.31	829999	-0.04	-6.38
Male	86.6%	0.34	1393	87.6%	0.33	829999	-0.01	-1.08
Female	13.4%	0.34	1393	12.4%	0.33	829999	0.01	1.08
Married	35.2%	0.48	1393	33.9%	0.47	829999	0.01	1.05
AFQT Score	63.3	16.57	1391	61.0	18.92	828819	2.27	5.09
Word Knowl.	28.9	3.91	1393	28.4	4.46	829999	0.46	4.37
Arithmetic Reas.	21.5	4.71	1393	21.1	5.19	829999	0.45	3.58
Math Knowledge	17.0	4.52	1393	16.5	4.86	829999	0.48	3.95
Paragraph Comp.	12.8	1.82	1393	12.6	2.00	829999	0.20	4.07
Numerical Oper.	41.4	7.16	1393	41.4	7.28	829969	0.03	0.13
Electronic Info.	12.9	3.45	1393	12.6	3.46	829797	0.29	3.12
Mechanical Comp.	16.9	4.01	1393	16.9	4.10	829963	0.06	0.54
General Science	18.2	3.77	1393	17.8	3.94	829994	0.40	3.93
Coding Speed	54.4	11.56	1393	54.1	11.74	829983	0.33	1.05
Automotive/Shop	15.7	5.07	1393	15.5	5.06	829935	0.19	1.36

Panel B: Comparison of Matched Home Equity Sample to Full Home Equity Sample

	Matched HE Sample			Full HE Sample			T-Stat	
	Mean	s.d	N	Mean	s.d	N	Diff.	of diff
<i>Variables from Home Equity Sample</i>								
Years on the Job	9.1	7.2	1393	6.66	8.38	75927	2.42	12.40
Appraised Value	249350	134852	1393	228310	148717	75927	21040	5.76
Self Employed	7.2%	25.8%	1393	7.9%	27.0%	75927	-0.01	-0.99
Improvement	22.0%	41.5%	1393	20.0%	40.4%	75927	0.02	1.85
Refinancing	40.4%	49.1%	1393	58.4%	47.6%	75927	-0.18	-13.59
Equity Loan	18.2%	38.6%	1393	24.8%	42.8%	75927	-0.07	-6.30
Income	108768	114758	1393	82012	132044	75927	26756	8.60
First Mortgage Bal.	116489	83738	1393	100481	91801	75927	16008	7.06
FICO Score	728	48.80	1393	719	53.32	75927	9.42	7.12
APR	5.1	1.53	1393	7.0	1.0816	75927	-1.96	-47.63
DTI ratio	33.69	17.26	1393	40.28	18.28	75927	-6.59	-14.10

Table A3: Summary Statistics by "Eureka" Moments among credit card borrowers*Panel A: Comparison of Demographic Characteristics and Test Scores*

	Eureka Sample			Non-Eureka Sample			T-Stat	
	Mean	s.d.	N	Mean	s.d.	N	Diff.	of diff
Enlistment Age	19.67	2.33	399	19.80	2.25	142	-0.12	-0.559
Education	12.14	0.71	399	12.01	0.17	142	0.12	3.225
Black	21.8%	0.41	399	35.2%	0.48	142	-0.13	-2.964
White	71.4%	0.45	399	55.6%	0.50	142	0.16	3.320
Other	6.8%	0.25	399	9.2%	0.29	142	-0.02	-0.873
Male	89.5%	0.31	399	87.3%	0.33	142	0.02	0.673
Female	10.5%	0.31	399	12.7%	0.33	142	-0.02	-0.673
Married	33.3%	0.47	399	36.6%	0.48	142	-0.03	-0.700
AFQT Score	66.15	18.23	399	43.33	9.74	142	22.81	18.624
Word Knowl.	29.11	4.29	399	26.24	4.10	142	2.87	7.060
Arithmetic Reas.	22.50	4.96	399	16.57	3.04	142	5.93	16.658
Math Knowledge	17.66	4.56	399	12.23	3.59	142	5.43	14.371
Paragraph Comp.	12.77	1.95	399	11.68	1.92	142	1.08	5.757
Numerical Oper.	41.74	7.10	399	38.83	7.46	142	2.91	4.047
Electronic Info.	13.04	3.39	399	11.27	3.25	142	1.76	5.484
Mechanical Comp.	17.45	4.06	399	14.46	4.11	142	2.99	7.475
General Science	18.60	3.96	399	15.69	3.40	142	2.91	8.362
Coding Speed	54.98	10.95	399	49.20	11.55	142	5.78	5.192
Automotive/Shop	15.78	5.09	399	14.22	5.15	142	1.559	3.108

Panel B: Comparison of Financial Variables

	Eureka Sample			Non-Eureka Sample			T-Stat	
	Mean	s.d.	N	Mean	s.d.	N	Diff.	of diff
Bal. Transfer APR	7.22	2.80	399	6.97	2.92	142	0.25	0.883
Purchase APR	7.43	5.12	399	9.26	4.86	142	-1.83	-3.805
Account Age	14.65	9.73	399	16.71	9.88	142	-2.06	-2.142
Behavior Score	685.39	123.35	399	600.45	216.20	142	84.94	4.432
Fico Score	708.39	68.91	375	703.71	48.03	133	4.68	0.855
Income	72613	72836	376	67883	64911	135	4730	0.703

Table A4: Summary Statistics by "Rate Changing Mistakes" among home equity borrowers

Panel A: Comparison of Demographic Characteristics and Test Scores

	No RCM			Rate Changing Mistake			T-Stat	
	Mean	s.d	N	Mean	s.d.	N	Diff.	of diff
Enlistment Age	19.65	2.44	1211	19.57	2.31	169	0.08	0.410
Education	12.13	0.66	1214	12.15	0.79	169	-0.02	-0.391
Black	22.1%	0.41	1214	25.4%	0.44	169	-0.03	-0.945
White	71.1%	0.45	1214	72.8%	0.45	169	-0.02	-0.461
Other	6.8%	0.25	1214	1.8%	0.13	169	0.05	4.049
Male	87.3%	0.33	1214	81.1%	0.39	169	0.06	1.971
Female	12.7%	0.33	1214	18.9%	0.39	169	-0.06	-1.971
Married	34.9%	0.48	1214	37.9%	0.49	169	-0.03	-0.739
AFQT Score	64.80	16.71	1214	52.16	10.31	167	12.64	13.585
Word Knowl.	29.09	3.85	1214	27.32	4.01	169	1.77	5.416
Arithmetic Reas.	21.90	4.73	1214	18.74	3.55	169	3.16	10.365
Math Knowledge	17.39	4.52	1214	14.05	3.28	169	3.34	11.792
Paragraph Comp.	12.84	1.80	1214	12.40	1.92	167	0.44	2.798
Numerical Oper.	41.65	7.13	1214	39.84	7.26	169	1.81	3.051
Electronic Info.	13.03	3.44	1213	11.81	3.32	169	1.22	4.468
Mechanical Comp.	17.11	3.98	1213	15.40	3.87	169	1.71	5.363
General Science	18.39	3.78	1214	16.96	3.48	169	1.43	4.942
Coding Speed	54.55	11.53	1214	53.48	11.94	167	1.07	1.094
Automotive/Shop	15.88	5.07	1214	14.62	5.01	167	1.267	3.060

Panel B: Comparison of Financial Variables

	No RCM			Rate Changing Mistake			T-Stat	
	Mean	s.d	N	Mean	s.d.	N	Diff.	of diff
Years on the Job	9.3	7.3	1214	7.22	6.27	169	2.12	4.03
Appraised Value	257974	137881	1214	183962	86684	169	74013	9.55
Self Employed	7.4%	26.2%	1214	4.7%	21.3%	169	0.03	1.49
Improvement	21.6%	41.2%	1214	24.9%	43.3%	169	-0.03	-0.92
Refinancing	38.3%	48.6%	1214	56.8%	49.7%	169	-0.19	-4.55
Equity Loan	11.0%	31.2%	1214	70.4%	45.8%	169	-0.59	-16.36
Income	111105	115325	1214	90748	107109	169	20357	2.29
First Mortgage Bal.	118351	86024	1214	102545	63556	169	15807	2.89
FICO Score	731.01	48.23	1214	706.35	47.14	169	24.66	6.35
APR	4.73	1.28	1214	7.42	1.00	169	-2.69	-31.60
DTI ratio	33.02	17.21	1214	38.69	16.99	169	-5.67	-4.06

Table A5: Effects of AFQT on implied discount rates using NLSY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AFQT Score	-44.066***	-38.781***	-40.574***	-51.871**				
	[3.703]	[6.146]	[7.810]	[20.878]				
Arithmetic Reas.					-28.026***	-26.297***	-32.258***	-44.483**
					[5.428]	[5.694]	[7.360]	[20.923]
Math Knowledge					-7.664	-6.201	-1.134	4.86
					[5.178]	[5.318]	[6.843]	[17.580]
Paragraph Comp.					-6.351	-1.596	1.953	-28.619
					[5.290]	[6.155]	[7.971]	[21.684]
Word Knowl.					-5.102	-4.437	-7.248	-0.104
					[5.038]	[5.142]	[6.523]	[15.242]
Female	18.551***	16.411**	9.556	60.619**	15.739***	12.498*	4.378	61.006**
	[5.315]	[6.917]	[8.995]	[24.199]	[5.504]	[7.123]	[9.246]	[24.784]
Black	65.282***	62.458***	55.858***		65.506***	62.755***	54.898***	
	[7.329]	[7.683]	[10.352]		[7.429]	[7.696]	[10.374]	
Hispanic	18.056**	16.877**	11.153		18.543**	16.976**	10.234	
	[7.677]	[7.807]	[9.990]		[7.677]	[7.794]	[9.990]	
Education	-2.046*	-1.997*	-1.435	-2.425	-2.354**	-2.296*	-1.858	-2.465
	[1.142]	[1.164]	[1.386]	[2.569]	[1.159]	[1.176]	[1.391]	[2.562]
Log Earnings			-9.033**	10.063			-9.083**	9.077
			[3.933]	[9.487]			[3.934]	[9.491]
Other ASVAB	N	Y	Y	Y	N	Y	Y	Y
Family Inc.	N	N	Y	N	N	N	Y	N
Family F.E.	N	N	N	Y	N	N	N	Y
Observations	4158	4158	2476	2476	4167	4167	2480	2480

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

Table A6: Effects of cognitive skills on financial and non-financial outcomes using HRS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Instrumental Activities of Daily Living (IADLs)								
	Financial			Non-Financial					Financial
	Total Wealth	Tot. Fin. Wealth	Pct. Stock	Read Map	Buy Groceries	Take Medic.	Make Ph. Call	Prepare a Meal	Manage Money
Female	27.653 (34.770)	21.353 (21.531)	0.458 (0.455)	-9.891*** (0.555)	-4.423*** (0.443)	-1.303*** (0.324)	0.211 (0.312)	-2.815*** (0.377)	-1.544*** (0.356)
Hispanic	-22.843 (58.721)	-24.958 (36.363)	-3.471*** (0.839)	-2.856*** (0.987)	1.494** (0.749)	-0.218 (0.546)	1.089** (0.528)	0.717 (0.633)	0.248 (0.600)
Nonwhite	-184.179*** (44.948)	-87.346*** (27.834)	-4.812*** (0.623)	-4.671*** (0.744)	-0.869 (0.574)	0.325 (0.419)	0.085 (0.405)	-0.575 (0.486)	0.052 (0.459)
Couple	201.588*** (41.676)	70.020*** (25.808)	1.219** (0.548)	3.051*** (0.667)	1.978*** (0.525)	1.010*** (0.388)	0.518 (0.374)	0.791* (0.448)	2.535*** (0.421)
Education	48.638*** (5.779)	20.620*** (3.579)	1.359*** (0.080)	1.698*** (0.097)	0.552*** (0.075)	0.092* (0.054)	0.373*** (0.052)	0.288*** (0.063)	0.273*** (0.060)
Total Income	3.347*** (0.143)	1.934*** (0.089)	0.020*** (0.002)	0.003 (0.002)	0.006*** (0.002)	0.002* (0.001)	0.002* (0.001)	0.004** (0.002)	0.003** (0.001)
<u>Cognitive Measures</u>									
Number Series	1.927* (1.102)	1.494** (0.682)	0.020 (0.016)	0.048*** (0.018)	-0.002 (0.014)	0.010 (0.010)	0.002 (0.010)	0.032*** (0.012)	-0.019* (0.011)
Mental Status	-7.668 (10.301)	-3.716 (6.379)	0.057 (0.143)	1.894*** (0.173)	1.625*** (0.134)	1.551*** (0.096)	1.425*** (0.093)	1.319*** (0.113)	2.041*** (0.108)
Word Recall	6.813 (11.027)	-4.959 (6.828)	0.330** (0.144)	1.180*** (0.177)	0.852*** (0.140)	0.443*** (0.103)	0.154 (0.099)	0.669*** (0.119)	0.640*** (0.113)
Numeracy	107.672*** (21.651)	65.666*** (13.408)	2.083*** (0.280)	2.414*** (0.344)	0.177 (0.273)	0.148 (0.201)	-0.136 (0.194)	-0.022 (0.232)	0.482** (0.220)
Retrieval Fluency	6.744*** (2.399)	4.038*** (1.486)	0.010 (0.031)	0.012 (0.038)	0.013 (0.030)	0.006 (0.022)	-0.009 (0.021)	-0.002 (0.026)	0.013 (0.024)
Observations	18338	18338	16086	16152	17119	18030	18059	17111	17203
R-squared	0.158	0.046	0.075	0.157	0.119	0.149	0.179	0.136	0.167

Notes: The following variables have been omitted from the results for convenience: age age squared, whether the respondent was the financial respondent, total income squared and indicators for missing values on each of the five cognitive measures. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1