

# Online Appendix:

“Genetic Endowments and Wealth Inequality”

By: Daniel Barth, Nicholas W. Papageorge and Kevin Thom

## A Data Issues

### A.1 Wealth, Pensions and Stock Market Participation

This appendix provides details concerning the construction of our wealth data and our measurement of stock market participation. Our data are largely constructed from the RAND wealth and income files. The RAND files are carefully cleaned and consistently coded by RAND Corporation and are available for public use. The RAND files have been used in both academic and industry publications, and ensure comparability and consistency across HRS waves and research projects. We refer the reader to the RAND codebook and documentation for further details.

One important shortcoming of the RAND wealth files is the exclusion of employer-sponsored retirement plan account balances. While the RAND wealth files do include the balances of IRAs and other non-employer-sponsored plans, wealth accumulated in employer-sponsored 401k, 403(b), and other such accounts are not included. For households at or near retirement, such accounts can be a significant source of wealth. Further, such accounts may be the only vehicles through which households invest in the stock market, and measures of stock market participation will understate true participation if these plans are not considered.

Unfortunately, data on employer-sponsored retirement plans are not asked in every wave, and are sometimes inconsistently coded across waves. The remainder of this section focuses on our methodology for coding retirement account balances and stock market participation inferred from those accounts. Broadly speaking, there are two types of retirement plans: defined-benefit plans, such as traditional pensions (which the HRS calls type A plans), and defined contribution plans, such as 401k and 403(b) plans (which the HRS calls type B plans). We discuss each type of plan in turn.

#### A.1.1 Defined Benefit Plans

To deal with issues arising from type A style retirement plans, our sample includes only households fully in retirement (households in which no member of the household is currently working). We exclude working households because expected benefits from defined-benefit pension plans are likely to be both an important source of wealth and noisily measured. For

retired households, our assumption is that those who report receiving pension income were included in defined-benefit pension plans at some point during their working lives, and those who do not receive pension income in retirement were not included in such plans. To the extent that households misreport pension income, for example if income from an annuity converted from a 401k plan is reported as pension income, or if households have delayed receiving pension benefits until some future date, our assignment of households participating in type A plans will be biased. Further, because the household earns a guaranteed stream of income regardless of the underlying investments that support that income (and because we do not observe these underlying investments), we do not consider a household’s participation in type A pension plans to be participation in the stock market.

We include retirement income in our household wealth measure by calculating the price of an actuarially fair annuity based on the entirety of household retirement income, which includes pension income, annuity income, and income from social security. We follow Yogo (2016) by calculating the present discounted value of this income based on a 1.5% annual risk-free rate of return, and discount income in each year by the probability of the recipient surviving until that year.<sup>1</sup> Specifically, we calculate the present value of retirement income,  $P_t$ , as:

$$P_t = Y_t \sum_{s=1}^{T-t-1} \frac{\prod_{u=1}^s p_{t+u}}{R^s}, \quad (1)$$

where  $Y_t$  is total retirement income,  $p_t$  is the recipient’s survival probability in period  $t$  and is a function of gender, birth cohort, and age, and  $R = 1.015$  is the annual risk-free rate of return.

### A.1.2 Defined Contribution Plans

Wealth in defined contribution style plans is a bit trickier. Households may have plans associated with multiple previous employers. To calculate comprehensive measures of wealth and stock market participation, we would like to know both the balances and asset allocations of all employer-sponsored type B plans from all previous jobs. Unfortunately, this is not always possible.

In years 1996, 1998, and 2002-2010 (comprising even-numbered years), we have the highest quality data on total balances in employer-sponsored type B retirement plans.<sup>2</sup> In these years, our wealth data include balances of employer-sponsored plans that are still maintained

---

<sup>1</sup>We differ from Yogo (2016) in that we use the probability of death of the individual receiving the income, rather than of the female partner.

<sup>2</sup>In 2012, the pension data were changed to an entirely new format.

through that employer, and have not been converted to annuities or rolled over into IRAs. The HRS refers to such plans as *dormant plans*. Unfortunately, the value of dormant plans at employers prior to retirement are not asked in 1992, 1994, and 2000.

Dormant plans also present problems for measurement of stock market participation. While in years 2002-2010 the stock allocation within a respondent's retirement plan at the current employer is observable for working households, the stock allocation in dormant plans for retired households is not. This means our stock market participation variable does not include stock ownership in dormant plans. The stock market participation variable is determined only by information in the assets and income section of the data, which comprises only stock and stock mutual funds as well as the stock allocation in IRA and Keogh accounts.

## A.2 Additional Summary Statistics

This appendix provides additional summary statistics. Table S1 summarizes the individual components of household wealth in our full sample across all household-years, and presents the mean, median, 75<sup>th</sup> percentile, and 90<sup>th</sup> percentile for each component. We also calculate the share of total real wealth in each component for each household-year, and present the median and mean values of these shares. Table S2 shows differences between genotyped and non-genotyped households. HRS respondents who agree to be genotyped are on average younger, more educated and more likely to be female, earn more income, and have higher wealth, which is reported only for the first wave the individual enters the sample. The table provides summary statistics for both men and women. Similar patterns emerge if men and women are examined separately. Table S3 is a continuation of Table 8 in the main text and contains additional summary statistics for beliefs and risk aversion variables, which are used in Section 5. Finally, Figure S1 shows how the EA score relates to log sum of SSA income using a non-parametric (Lowess) regression to plot the relationship.

**Appendix Table S1: WEALTH DISTRIBUTION**

	p50	p75	p90	Mean	Median Share	Mean Share
Ret Plans (Employer)	0.00	0.00	0.00	22.15	0.00	0.01
Ret Inc (PV)	40.57	98.51	211.28	86.42	0.16	0.31
Real Estate	0.00	0.00	57.72	46.07	0.00	0.03
Business	0.00	0.00	0.00	36.64	0.00	0.02
IRAs	0.00	60.00	205.82	74.39	0.00	0.09
Stocks	0.00	33.44	227.42	99.16	0.00	0.08
Cash Equiv.	9.23	30.38	84.85	35.06	0.03	0.09
CDs	0.00	6.69	60.77	24.34	0.00	0.04
Bonds	0.00	0.00	0.00	15.47	0.00	0.01
Other Assets	0.00	0.00	17.32	15.85	0.00	0.02
Other Debts	0.00	0.00	4.00	1.89	0.00	0.07
Trusts	0.00	0.00	0.00	2.92	0.00	0.00
Home Value	120.40	208.47	354.48	166.95	0.32	0.49
Mortgage	0.00	0.00	54.08	15.09	0.00	0.14
Home Loan	0.00	0.00	0.00	2.24	0.00	0.01
Second Home	0.00	0.00	26.76	22.53	0.00	0.03
Second Mortgage	0.00	0.00	0.00	1.26	0.00	0.01

*Notes:* Summary statistics for different sources of wealth (in \$1000s). For each household-year, we calculate the share of total wealth from each source, and Columns [5] - [6] report the median and mean shares. We note that although we report positive values for Mortgages, Home Loans, and Other Debts here, these are subtracted in the construction of total wealth. Note that Ret Plans (Employer) represent only retirement accounts that are still maintained by the employer despite the household being retired.

**Appendix Table S2: GENOTYPED**

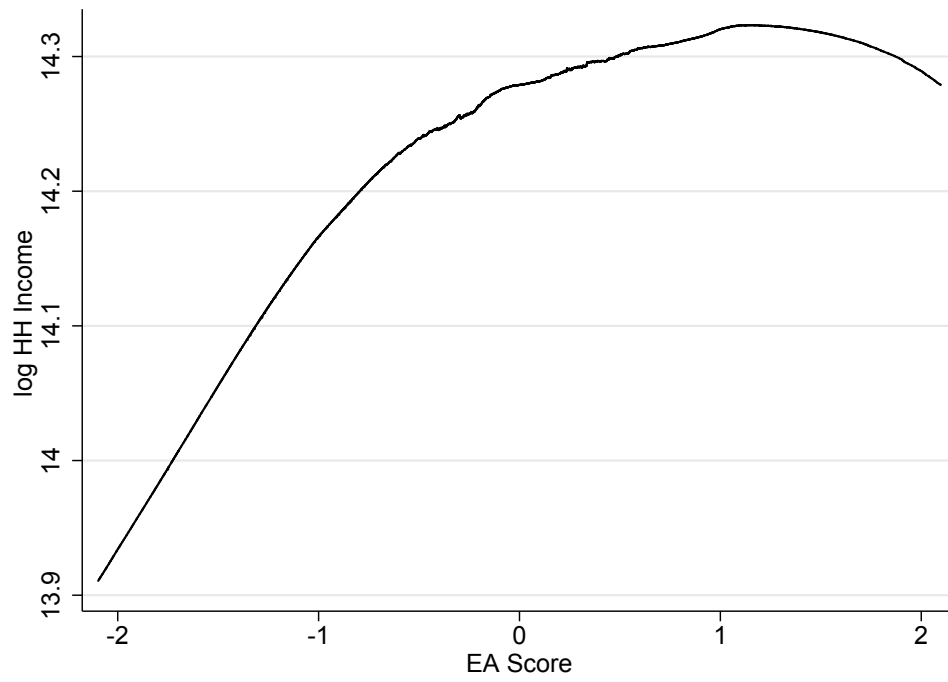
	Genotyped	Non-Genotyped	$\Delta$ <i>p</i> -value
Birth Year	1938.39	1937.06	0.00
Education	12.58	11.79	0.00
Male	0.41	0.45	0.00
Total Income (in \$1000)	1076.69	841.67	0.00
Wealth (in \$1000)	547.48	337.16	0.00
N	12,505	25,569	

*Notes:* This table provides summary statistics for the genotyped and the non-genotyped individuals in the HRS data. Wealth is measured once per individual when the individual's household is first observed.

**Appendix Table S3:** Additional Summary Statistics for Mechanisms

Panel A: Risk Aversion (Income)	All HH			Coupled HH			Female Only			Male Only		
	Mean [1]	SD [2]	N [3]	Mean [4]	SD [5]	N [6]	Mean [7]	SD [8]	N [9]	Mean [10]	SD [11]	N [12]
Not take 50-50 Gamble Doubling Business or 10% Cut Take 50-50 Gamble Doubling Business or 10% Cut (but not 20%) 20% Cut (but not 33%) 33% Cut (but not 50%) 50% Cut (but not 75%) 75% Cut	0.47	0.50	2937	0.45	0.50	2364	0.51	0.50	129	0.58	0.49	444
Not take 50-50 Gamble Doubling Inheritance or 10% Cut Take 50-50 Gamble Doubling Inheritance or 10% Cut (but not 20%) 20% Cut (but not 33%) 33% Cut (but not 50%) 50% Cut (but not 75%) 75% Cut	0.51	0.50	2972	0.49	0.50	2442	0.52	0.50	122	0.62	0.49	408
Not take 50-50 Gamble Doubling Business or 10% Cut Take 50-50 Gamble Doubling Business or 10% Cut (but not 20%) 20% Cut (but not 33%) 33% Cut (but not 50%) 50% Cut (but not 75%) 75% Cut	0.11	0.32	2937	0.11	0.32	2364	0.13	0.34	129	0.11	0.31	444
	0.11	0.32	2937	0.11	0.32	2364	0.09	0.29	129	0.11	0.31	444
	0.10	0.30	2937	0.11	0.31	2364	0.07	0.26	129	0.09	0.29	444
	0.11	0.31	2937	0.12	0.32	2364	0.07	0.26	129	0.06	0.24	444
	0.09	0.29	2937	0.10	0.30	2364	0.12	0.33	129	0.05	0.23	444
Not take 50-50 Gamble Doubling Inheritance or 10% Cut Take 50-50 Gamble Doubling Inheritance or 10% Cut (but not 20%) 20% Cut (but not 33%) 33% Cut (but not 50%) 50% Cut (but not 75%) 75% Cut	0.19	0.39	2972	0.19	0.39	2442	0.16	0.36	122	0.18	0.38	408
	0.13	0.34	2972	0.14	0.35	2442	0.14	0.35	122	0.09	0.28	408
	0.05	0.22	2972	0.05	0.22	2442	0.04	0.20	122	0.04	0.20	408
	0.05	0.22	2972	0.05	0.23	2442	0.07	0.26	122	0.03	0.16	408
	0.07	0.25	2972	0.07	0.26	2442	0.07	0.25	122	0.05	0.22	408
Panel B: Beliefs and Planning Horizons	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Prob: Major Depression Reported Probability Deviation from Objective Report 0% Report 50% Report 100%	44.56	28.73	36261	43.89	28.58	30941	47.42	30.99	1324	48.84	28.75	3996
	24.96	16.62	36261	24.68	16.42	30941	27.79	17.84	1324	26.15	17.53	3996
	0.07	0.26	36261	0.07	0.26	30941	0.09	0.28	1324	0.06	0.24	3996
	0.26	0.44	36261	0.25	0.44	30941	0.24	0.43	1324	0.29	0.45	3996
	0.06	0.25	36261	0.06	0.24	30941	0.10	0.31	1324	0.08	0.28	3996
Prob: Double Digit Inflation Reported Probability Deviation from Objective Report 0% Report 50% Report 100%	46.77	26.75	22786	46.84	26.75	19997	46.06	28.60	620	46.36	26.20	2169
	26.10	18.71	22786	26.10	18.77	19997	26.80	19.75	620	25.88	17.84	2169
	0.06	0.23	22786	0.05	0.23	19997	0.06	0.23	620	0.06	0.24	2169
	0.34	0.47	22786	0.34	0.47	19997	0.29	0.46	620	0.38	0.49	2169
	0.07	0.26	22786	0.07	0.26	19997	0.09	0.29	620	0.06	0.25	2169

*Notes:* This table reports means and standard deviations for additional variables used to investigate mechanisms underlying the estimated gene-wealth gradient. Panel A includes additional summary statistics on measures of risk tolerance. Panel B includes additional summary statistics for reported beliefs.



**Appendix Figure S1:** This figure plots the relationship between the average household EA score and log total household income using data from the Social Security Administration.

## B Robustness Tests and Additional Results

This appendix contains robustness tests, most of which replicate Table 6 from the main paper. The aim is to assess whether main results shown in Table 6 change when we modify how we: aggregate household EA scores, adjust for income, construct our wealth measure, choose control sets, construct the EA score or select the analytical sample. The main results we focus on to assess robustness are (1) whether there is a strong unconditional gene-wealth gradient and (2) whether the estimated gene-wealth gradient is fully explained by measures of education and income. We find that these key findings are robust to a host of specifications. This section also includes additional results related to our findings on beliefs and financial literacy.

### B.1 Household Structure and EA Score

This section assesses the robustness of the main results presented in Table 6 to changes in the sample definition, as well as changes in how we aggregate the EA score within a two-person household. In Panel A of Table S4, we restrict attention to households where there is a male and a female present in at least one household-year observation. We refer to these as “coupled” households, which include households in which a spouse has died during the sample period. This specification excludes male-only or female-only households. Households in which the members divorce are also included during the household-year observations prior to the divorce (at which point the data set treats each individual respondent as a new household). Restricting attention to coupled households does not affect the main results.

In Panel B of Table S4, we include only households where both members are genotyped. Rather than the average household EA score, in this specification we include the individual EA scores for both the male and female separately. The motivation is to assess whether the main results change if we modify the assumption that the average EA score captures how both household EA scores relate to wealth. We find that both scores predict wealth, both unconditionally and once we have controlled for income and education. Moreover, coefficients on the female’s EA score tend to be similar or smaller than those on the male’s EA score. In general, disaggregating male and female EA scores does not change our main results.

Panel A of Table S5 restricts attention to the same sample as in Panel B of Table S4 and uses household minimum and maximum EA score. For the unconditional relationship along with the specification with basic controls, the maximum household score is strongly and positively related to log household wealth, but the minimum score is not. Once we include principal components, the coefficients are roughly equal and continue to be as we

add controls for education and income. In the final specification, we continue to find that both the maximum and minimum score matter, though the maximum score coefficient is somewhat smaller.

In Panel B of Table S5 we restrict the sample to only one observation per coupled household — the first wave the household enters the sample. This is done to alleviate concerns that survival bias could skew results if wealthier households live longer. Once again, results remain largely unchanged from those presented in Table 6.

## B.2 Alternate Definitions of Income

The next set of robustness tests focuses on alternative income specifications. In Panel A of Table S6, we restrict attention to coupled households (as in Panel A of Table S4) where HRS income data are available. Recall from our discussion in Section 3 that we construct two measures: total lifetime household income from the Social Security Administration (SSA) and average household income collected directly by the HRS. Both have benefits and drawbacks. While the SSA income data are collected over the life-cycle, they are substantially top-coded. The HRS data are less severely top-coded, but only capture income near retirement since they only measure contemporaneous income of respondents who, due to the HRS sampling frame, are age 50 or older.

Recall that in Panel C of Table 7 we include the log of both income measures. While both independently predict wealth, main results from Table 6 do not change. In Panel A of Table S6, we only include HRS income data and once again find that main results are left unchanged. In Panel B of Table S6, we repeat the specification in Table 6, but now add controls for the number of person-year observations for which the income data for each household has been top-coded (separate dummy variables for each possible number of person-years). Results are again similar to those in Table 6. Panel C of Table S6 repeats the analysis in Panel B, but also controls for further non-linearities in the relationship between income and wealth by including dummies indicating to which quintile of the distribution of household income each household belongs. Adding this extra control leaves the results on the EA score largely unchanged.

In Panel A of Table S7, we again focus on the sample used in our main results, but include a quintic in the log of total SSA income. This only affects coefficient estimates in Columns [6] and [7]. Main results are again largely unchanged. Moreover, while individual coefficients on income are insignificant, they are jointly significant. Because it is possible that some individuals are observed in more than one HRS household (e.g., due to divorce and remarriage), which would lead to a double-counting of SSA income, in Panel B of Table



S7 we restrict attention to households where each member is only observed in one household. Otherwise, the specification is the same as in Table 6 of the main text. This does not affect our main results. Finally, in Panel C of Table S7, rather than use the log of the sum of SSA income, we construct a new income measure which is the log of average income from the top 35 earning years for the household (which could include zeros). Again, results are similar to the main results presented in Table 6.

### B.3 Alternative Definitions of Wealth

In this section, we repeat the analysis in Table 6 using different measures of household wealth. In Panel A of Table S8, we use the measure of wealth provided by RAND, which does not include the present discounted value of retirement income or the retirement account balances still held with employers. In Panel B, we use the measure of wealth used in our main analysis but subtract the net value of housing. In Panel C, we again use our main wealth measure, but subtract the present discounted value of defined-benefit pension income.

In Panel A of Table S9, we subtract both housing and pension wealth. Finally, in Panel B of Table S9 we subtract the value of privately held businesses. In all specifications shown in Tables S8 and S9, the key patterns from our main results remain largely unchanged. There is a strong unconditional relationship between average household EA score and wealth that is not fully explained by adjusting for education or income. One noticeable difference is that removing pension wealth increases the size of coefficients on the EA score. This is due to the specification of log wealth as the dependent variable and the independence of pension wealth and the EA score conditional on receiving a pension. By subtracting a large portion of wealth that is uncorrelated with the EA score from one subsample of the population (the pension participants), the *dollar* increase in wealth associated with an increase in the EA score is unchanged for that subsample, but the *percentage* change in wealth now increases. Because the gradient for those without a pension is unchanged, the gradient for the entire sample must increase.

### B.4 Sample Selection

This section explores sample selection in two ways. Results are reported in Table S10. In Panel A, we repeat the analysis in Table 6 of the main text, but use the HRS sampling weights. This helps to alleviate the concern that results are driven by (observable) differences between genotyped and non-genotyped households. Of course, this does not allow us to draw conclusions about selection on unobservables into being genotyped. Second, one might worry that the relationship between the EA score and wealth is driven not by wealth accu-

mulation, but by differences in how households draw down their wealth later in retirement. To assess whether this is the case, we restrict attention to relatively younger households, i.e., to household-year observations where the oldest member of the (coupled) household is between 65 and 75 (inclusive). In both cases, we find that results are largely unchanged.

## B.5 Alternative Scores

In this section, examine how are basic results are affected by using alternate polygenic scores for educational attainment. We replicate Column [7] of Table 6 from the main text using different scores, with results reported in Table S11. The score used in Column [1] an LDpred score constructed based on (Okbay et al., 2016) and a GWAS of with sample size  $N = 395,110$ . Column [2] uses a score based on the same GWAS results as the score used in Column [1], but now constructed simply as sum of all SNPs weighted by association sizes. In both columns, we find a significant and economically substantial association between the score and wealth, though the association for the LDpred score is larger. Columns [3]-[4] use an LD pred score based on a smaller discovery sample in (Okbay et al., 2016) ( $N = 293,723$ ), which is publicly available on the HRS website. Comparing Columns [1] and [3], we see that the score based on a smaller sample size exhibits a weaker association with wealth, though it is still statistically significant and economically large. One of the advantages of this score, however, is that it has been constructed for individuals that were genotyped in 2010. Thus, Column [4] repeats the analysis in Column [3] but with a larger sample reflecting the addition of more households. Adding the individuals genotyped in 2010 does little to change the estimated association. Finally, Columns [5]-[6] present results when the score based on the GWAS results from Rietveld et al. (2013), which featured a sample size of  $N = 126,559$ . Column [5] presents results for an LDpred score, while Column [6] presents results from a score that sums all SNPs weighted by their GWAS association sizes. Both scores exhibit a weak, statistically insignificant association with log households wealth. The results in Table S11 demonstrate how the strength of GWAS results (and the polygenic scores derived from them) has grown as discovery sample sizes have increased.

## B.6 Alternative Control Sets

In this section, we examine the robustness of the main results to the inclusion of additional controls. In Panel A of Table S12, we add the average household cognitive test score to all specifications. If the gene-wealth gradient in part arises from facility with complex decisions, a cognitive test score may explain much of the association captured by the EA score. However, the cognitive test score in the HRS is designed to capture cognitive decline and

is only moderately correlated with the EA score. The average household test score is 22.76 (out of a total of 35) with averages for females and males of 23.19 and 22.30, respectively. Inclusion of the average household cognitive test score does not affect main results. In Panel B of Table S12, we include the maximum number of children associated with a household member. Higher EA score individuals may have more wealth at retirement due to having fewer children. While the average number of children in the full analytical sample is 3.59, households with higher average EA scores have fewer children. For individuals with EA scores in the first quartile, the average number of children in their household is 3.74 (again using the maximum observed for the household). For individuals with EA scores in the fourth quartile, the average is 3.26 (and the  $p$ -value testing significance of mean differences is less than 0.00001). However, inclusion of number of children leaves results unchanged.

In Panel A of Table S13, we include separate sets of dummy variables for the number of years that the male and female household members have been retired, respectively. If higher EA score individuals retire later than respondents with lower scores, this could explain greater wealth accumulation. Average retirement age in the sample is 61.32 for men and 59.36 for women. However, inclusion of retirement age likewise fails to explain the remainder of the gene-wealth gradient after we have adjusted for education and labor income. Panel D includes all three additional control sets, in addition to The inclusion of these additional controls does not affect main results.

## B.7 Additional Financial Literacy Results

This section provides additional results on financial decision-making and financial literacy. Lusardi, Michaud, and Mitchell (2017) report that over 50% of the heterogeneity in wealth can be attributed to financial knowledge that facilitates access to higher returns. The HRS data contain questions that directly assess an individual’s financial literacy. Unfortunately, these questions are asked only in a small module in the 2010 wave, which leaves us with observations on just over 700 respondents from genotyped households. The 2010 module asks three basic financial literacy questions:

- **Compounding Interest:** “First, suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow — more than \$102, exactly \$102, or less than \$102?”
- **Real Interest Rate:** “Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy

more than today, exactly the same as today, or less than today with the money in this account?”

- **Diversify Stocks:** “Do you think that the following statement is true or false: buying a single company stock usually provides a safer return than a stock mutual fund?”

Correct responses are given to the above three questions with probabilities 0.74, 0.85 and 0.66, respectively. 49% of respondents answer all three correctly. Columns [1]-[3] of Table S14 present results from linear probability models of correct responses as a function of the EA score, education, and our standard set of controls.<sup>3</sup> In Column [4], the dependent variable is an indicator for whether the individual correctly answered all three questions. The score is positively related to correctly answering these questions correctly, but coefficients are statistically indistinguishable from zero, perhaps owing to small sample sizes.

In the main text, we show that individuals with higher EA scores are less likely to report “extreme” beliefs and also report longer planning horizons. We interpret these results as evidence that individuals with higher EA scores may have a facility with probabilistic thinking and dynamic decision-making, which could help to explain more lucrative financial decisions and thus the positive relationship between the EA score and wealth. One concern is that answers to beliefs questions may not relate to portfolio choices or wealth. For example, extreme beliefs could simply reflect respondent confusion, in which case it would be difficult to argue that lower-score individuals have less wealth due to difficulties making dynamic decisions. In Columns [1] and [2] of Table S15, we regress log wealth onto the three beliefs questions discussed in the main text along with dummy variables for each length of the planning horizon. Column [2] also controls for the individual’s EA score. We find that answers to beliefs questions are significantly related to log wealth. Generally, longer planning horizons are associated with greater wealth. Extreme beliefs about inflation are associated with less wealth. Interestingly, while an extreme belief concerning negative stock market returns is associated with lower wealth, an extreme belief that the stock market will go up is associated with higher wealth. This suggests that extreme beliefs may generate higher wealth if the belief is objectively true *ex post*. Results in Columns [3] and [4] are consistent with this story. The outcome variable is an indicator for stock ownership and we estimate a linear probability model. Longer planning horizons (except for the very longest) are associated with stock market participation. Strikingly, extreme optimism about stock market performance predicts stock ownership, while extreme pessimism predicts avoiding the stock market. In summary, this table provides evidence that beliefs and planning horizons questions provide information about how respondents make decisions and are predictive of lifetime wealth.

---

<sup>3</sup>Those responding that they “Don’t Know” were coded as not responding correctly.

## References

- Lusardi, Annamaria, Pierre-Carl Michaud, and Olivia S Mitchell. 2017. “Optimal Financial Knowledge and Wealth Inequality.” *Journal of Political Economy*, forthcoming.
- Okbay, Aysu, Jonathan P Beauchamp, Mark Alan Fontana, James J Lee, Tune H Pers, Cornelius A Rietveld, Patrick Turley, Guo-Bo Chen, Valur Emilsson, S Fleur W Meddens et al. 2016. “Genome-Wide Association Study Identifies 74 Loci Associated with Educational Attainment.” *Nature* 533 (7604):539–542.
- Rietveld, Cornelius A, Sarah E Medland, Jaime Derringer, Jian Yang, Tõnu Esko, Nicolas W Martin, Harm-Jan Westra, Konstantin Shakhbazov, Abdel Abdellaoui, Arpana Agrawal et al. 2013. “GWAS of 126,559 Individuals Identifies Genetic Variants Associated with Educational Attainment.” *Science* 340 (6139):1467–1471.
- Yogo, Motohiro. 2016. “Portfolio Choice in Retirement: Health Risk and the Demand for Annuities, Housing, and Risky Assets.” *Journal of Monetary Economics* 80:17–34.

**Appendix Table S4: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE DEFINITIONS OF HOUSEHOLDS AND EA SCORE AGGREGATION (I)**

<b>Panel A</b> <b>Male and Female</b> <b>(Coupled HH)</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.333*** (0.025)	0.332*** (0.025)	0.317*** (0.024)	0.144*** (0.024)	0.127*** (0.024)	0.306*** (0.025)	0.123*** (0.025)
Male Educ.				0.102*** (0.010)			
Female Educ.				0.109*** (0.011)			
Log Income						0.226*** (0.038)	0.170*** (0.031)
Obs.	11097	11097	11097	11087	11087	10193	10186
$R^2$	0.062	0.174	0.200	0.309	0.370	0.225	0.394
<b>Panel B</b> <b>Male and Female</b> <b>(Coupled HH)</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Male EA Score	0.271*** (0.030)	0.278*** (0.030)	0.274*** (0.030)	0.135*** (0.027)	0.106*** (0.029)	0.261*** (0.030)	0.106*** (0.029)
Female EA Score	0.138*** (0.029)	0.152*** (0.029)	0.152*** (0.029)	0.056** (0.028)	0.068** (0.028)	0.141*** (0.029)	0.057** (0.028)
Male Educ.				0.088*** (0.014)			
Female Educ.				0.111*** (0.015)			
Log Income						0.229*** (0.054)	0.188*** (0.048)
Obs.	5350	5350	5350	5340	5340	5065	5058
$R^2$	0.074	0.217	0.226	0.330	0.447	0.246	0.462
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth. Columns correspond to those in Table 6 from the main text. Panel A limits the sample to “coupled” households. Panel B further restricts the sample to coupled households where both members’ individual EA scores are observed and then regresses log household wealth on separate scores for the male and female members. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S5: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE DEFINITIONS OF HOUSEHOLDS AND EA SCORE AGGREGATION (II)**

<b>Panel A</b>							
<b>Max and Min Score</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Max HH EA Score	0.406*** (0.030)	0.354*** (0.030)	0.168*** (0.038)	0.082** (0.035)	0.074** (0.034)	0.145*** (0.038)	0.060* (0.035)
Min HH EA Score	-0.052 (0.032)	0.002 (0.031)	0.179*** (0.038)	0.075** (0.036)	0.065* (0.035)	0.189*** (0.038)	0.075** (0.035)
Male Educ.				0.102*** (0.010)			
Female Educ.				0.109*** (0.011)			
Log Income						0.226*** (0.038)	0.170*** (0.031)
Obs.	11097	11097	11097	11087	11087	10193	10186
$R^2$	0.080	0.183	0.200	0.309	0.370	0.225	0.394
<b>Panel B</b>							
<b>One Obs. per Household</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.328*** (0.024)	0.311*** (0.024)	0.296*** (0.024)	0.118*** (0.023)	0.097*** (0.023)	0.291*** (0.025)	0.096*** (0.025)
Male Educ.				0.105*** (0.011)			
Female Educ.				0.115*** (0.011)			
Log Income						0.234*** (0.037)	0.163*** (0.031)
Obs.	3026	3026	3026	3022	3022	2717	2714
$R^2$	0.063	0.216	0.237	0.355	0.441	0.267	0.461
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth. Columns correspond to those in Table 6 from the main text. In Panel A, we restrict the sample to coupled households where both members' individual EA scores are observed and regress log wealth on the minimum and maximum EA score in the household. In Panel B, we restrict the sample to one observation per household (the first year the household is observed). Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S6: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE INCOME CONTROLS (I)**

<b>Panel A</b>							
<b>SSA and HRS Income</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.344*** (0.029)	0.329*** (0.027)	0.329*** (0.027)	0.152*** (0.028)	0.122*** (0.028)	0.272*** (0.026)	0.113*** (0.027)
Male Educ.				0.088*** (0.012)			
Female Educ.				0.134*** (0.013)			
Log Income						0.409*** (0.038)	0.282*** (0.033)
Obs.	7998	7998	7998	7994	7994	7998	7994
R <sup>2</sup>	0.059	0.265	0.300	0.384	0.452	0.360	0.475
<b>Panel B</b>							
<b>Top Code Indicators</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.331*** (0.023)	0.319*** (0.021)	0.305*** (0.021)	0.141*** (0.022)	0.124*** (0.021)	0.270*** (0.022)	0.110*** (0.022)
Male Educ.				0.091*** (0.009)			
Female Educ.				0.148*** (0.010)			
Log Income						0.099** (0.042)	0.094** (0.036)
Obs.	15670	15670	15670	15660	15660	14273	14266
R <sup>2</sup>	0.048	0.250	0.270	0.352	0.406	0.338	0.451
<b>Panel C</b>							
<b>Top Code and Income Quintile Indicators</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.331*** (0.023)	0.319*** (0.021)	0.305*** (0.021)	0.141*** (0.022)	0.124*** (0.021)	0.267*** (0.022)	0.111*** (0.022)
Male Educ.				0.091*** (0.009)			
Female Educ.				0.148*** (0.010)			
Log Income						-0.008 (0.064)	0.007 (0.057)
Obs.	15670	15670	15670	15660	15660	14154	14147
R <sup>2</sup>	0.048	0.250	0.270	0.352	0.406	0.345	0.455
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Alt. Income Controls						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth, which is regressed on average household EA score. Columns correspond to those in Table 6 from the main text. In Panel A, we replace our main income measure with the log of average household income for non-retired years observed in the HRS. We restrict all specifications in Panel A to households with non-missing values for this HRS income measure. In Panel B, we control for the number of top-coded years observed in the household’s income history (separate dummy variables for each possible number of top-coded years). In Panel C, we include top-code dummies along with dummies for income quintiles. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.



**Appendix Table S7: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE INCOME CONTROLS (II)**

<b>Panel A</b>							
<b>Quintic in Income</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.331*** (0.023)	0.319*** (0.021)	0.305*** (0.021)	0.141*** (0.022)	0.124*** (0.021)	0.264*** (0.021)	0.110*** (0.022)
Male Educ.				0.091*** (0.009)			
Female Educ.				0.148*** (0.010)			
Income						78.483 (49.193)	67.782* (38.957)
(Income) <sup>2</sup>						-13.556 (8.852)	-11.454 (7.069)
(Income) <sup>3</sup>						1.148 (0.779)	0.945 (0.627)
(Income) <sup>4</sup>						-0.048 (0.034)	-0.038 (0.027)
(Income) <sup>5</sup>						0.001 (0.001)	0.001 (0.000)
Obs.	15670	15670	15670	15660	15660	14273	14266
R <sup>2</sup>	0.048	0.250	0.270	0.352	0.406	0.346	0.456
<b>Panel B</b>							
<b>All Individuals in 1 HH Only</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.315*** (0.024)	0.308*** (0.022)	0.296*** (0.022)	0.134*** (0.022)	0.116*** (0.022)	0.282*** (0.023)	0.111*** (0.023)
Male Educ.				0.093*** (0.009)			
Female Educ.				0.144*** (0.010)			
Log Income						0.266*** (0.033)	0.220*** (0.029)
Obs.	14740	14740	14740	14733	14733	13410	13403
R <sup>2</sup>	0.044	0.258	0.278	0.362	0.417	0.315	0.444
<b>Panel C</b>							
<b>Income: Log Top 35 Years</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.331*** (0.023)	0.319*** (0.021)	0.305*** (0.021)	0.141*** (0.022)	0.124*** (0.021)	0.290*** (0.022)	0.115*** (0.022)
Male Educ.				0.091*** (0.009)			
Female Educ.				0.148*** (0.010)			
Log Avg. Inc. (Top 35)						0.260*** (0.030)	0.209*** (0.025)
Obs.	15670	15670	15670	15660	15660	14577	14567
R <sup>2</sup>	0.048	0.250	0.270	0.352	0.406	0.304	0.431
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Alt. Income Controls						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth, regressed onto average household EA score. Columns correspond to those in Table 6 from the main text. In Panel A, we include a quintic in income. In Panel B, we restrict the sample to households where both members are only observed in a single household. In Panel C, we use an income measure constructed by averaging SSA income data over the highest-earning 35 years for the household. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S8: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE WEALTH MEASURES (I)**

<b>Panel A</b>							
<b>RAND Wealth</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.412*** (0.039)	0.389*** (0.037)	0.378*** (0.036)	0.170*** (0.039)	0.155*** (0.039)	0.351*** (0.038)	0.140*** (0.041)
Male Educ.				0.103*** (0.015)			
Female Educ.				0.175*** (0.017)			
Log Income						0.316*** (0.059)	0.246*** (0.053)
Obs.	9427	9427	9427	9427	9427	8872	8872
$R^2$	0.049	0.227	0.252	0.328	0.413	0.280	0.431
<b>Panel B</b>							
<b>Subtract Housing Wealth</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.353*** (0.025)	0.351*** (0.023)	0.338*** (0.023)	0.150*** (0.023)	0.129*** (0.023)	0.322*** (0.023)	0.118*** (0.023)
Male Educ.				0.107*** (0.010)			
Female Educ.				0.165*** (0.011)			
Log Income						0.290*** (0.034)	0.238*** (0.028)
Obs.	15510	15510	15510	15500	15500	14131	14124
$R^2$	0.044	0.249	0.269	0.354	0.407	0.302	0.436
<b>Panel C</b>							
<b>Subtract Pension Wealth</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.423*** (0.030)	0.389*** (0.030)	0.372*** (0.030)	0.183*** (0.031)	0.170*** (0.031)	0.353*** (0.031)	0.153*** (0.032)
Male Educ.				0.094*** (0.012)			
Female Educ.				0.184*** (0.014)			
Log Income						0.302*** (0.040)	0.247*** (0.035)
Obs.	14973	14973	14973	14966	14966	13624	13619
$R^2$	0.043	0.195	0.212	0.273	0.336	0.240	0.360
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variables are different measures of log household wealth regressed onto average household EA score and various controls. Columns correspond to those in Table 6 from the main text. In Panel A, we use the total wealth measure from the RAND release of the HRS data. In Panel B, we use the wealth measure from our main analysis minus housing wealth. In Panel C, we use the wealth measure from our main analysis minus pension wealth. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S9: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE WEALTH MEASURES (II)**

<b>Panel A</b> <b>Subtract Housing and Pension Wealth</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.579*** (0.040)	0.546*** (0.040)	0.528*** (0.039)	0.248*** (0.040)	0.222*** (0.039)	0.503*** (0.041)	0.198*** (0.041)
Male Educ.				0.154*** (0.017)			
Female Educ.				0.265*** (0.019)			
Log Income						0.420*** (0.051)	0.335*** (0.043)
Obs.	14051	14051	14051	14047	14047	12779	12775
$R^2$	0.044	0.160	0.177	0.252	0.317	0.208	0.346
<b>Panel B</b> <b>Subtract Business Wealth</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.326*** (0.023)	0.315*** (0.021)	0.301*** (0.021)	0.137*** (0.021)	0.121*** (0.021)	0.285*** (0.022)	0.110*** (0.022)
Male Educ.				0.093*** (0.009)			
Female Educ.				0.147*** (0.010)			
Log Income						0.266*** (0.032)	0.217*** (0.027)
Obs.	15668	15668	15668	15658	15658	14271	14264
$R^2$	0.048	0.253	0.272	0.356	0.409	0.309	0.438
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variables are different measures of log household wealth regressed on average household EA score and various controls. Columns correspond to those in Table 6 from the main text. In Panel A, we use the wealth measure from our main analysis minus housing and pension wealth. In Panel B, we use the wealth measure from our main analysis minus business wealth. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S10: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO SAMPLE SELECTION**

<b>Panel A</b>							
<b>Sampling Weights</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.332*** (0.028)	0.317*** (0.014)	0.306*** (0.024)	0.145*** (0.024)	0.121*** (0.023)	0.293*** (0.024)	0.115*** (0.024)
Male Educ.				0.088*** (0.010)			
Female Educ.				0.150*** (0.011)			
Log Income						0.303*** (0.035)	0.243*** (0.030)
Obs.	15564	15564	15564	15554	15554	14182	14175
$R^2$	0.043	0.265	0.285	0.355	0.422	0.330	0.454
<b>Panel B</b>							
<b>65-75 Years Old</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.326*** (0.025)	0.303*** (0.024)	0.295*** (0.024)	0.122*** (0.025)	0.108*** (0.026)	0.256*** (0.024)	0.084*** (0.026)
Male Educ.				0.092*** (0.011)			
Female Educ.				0.142*** (0.011)			
Log Income						0.334*** (0.041)	0.272*** (0.038)
Obs.	6900	6900	6900	6897	6897	6499	6499
$R^2$	0.062	0.237	0.265	0.365	0.435	0.315	0.468
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth. Columns correspond to those in Table 6 from the main text. In Panel A, we apply the household sampling weights from the HRS. In Panel B, we restrict attention to coupled households where the maximum age in the household is between 65-75 (inclusive). Standard errors are clustered at the family level.

**Appendix Table S11: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE VERSIONS OF THE EA SCORE**

<b>Dep. Var: Log Wealth</b>	[1]	[2]	[3]	[4]	[5]	[6]
EA2 LDpred	0.095*** (0.023)					
EA2 no LDpred		0.058*** (0.022)				
EA2 (HRS)			0.079*** (0.023)	0.081*** (0.021)		
EA1 LDpred					0.032 (0.021)	
EA1 no LDpred						0.031 (0.021)
Obs.	14266	14266	14232	16159	14266	14266
$R^2$	0.433	0.431	0.433	0.421	0.430	0.430
Standard Controls	X	X	X	X	X	X
Principal Comp.	X	X	X	X	X	X
Full Educ. Controls	X	X	X	X	X	X
Log Income	X	X	X	X	X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth. In each column, we replicate Column [7] of Table 6 from the main text, but use a different version of the EA score. In Column [1], the polygenic score is constructed using the LDpred method from a GWAS of  $N = 395,110$  based on the results in Okbay et al. (2016). In Column [2], the polygenic score is based on the same results as the score used in Column [1], but it is constructed using all SNPs without the LDpred method. In Columns [3]-[4], we use the LDpred score based on results from a GWAS of  $N = 293,723$  individuals reported in Okbay et al. (2016), which is publicly available from the Health and Retirement Study. Column [3] restricts the sample to individuals with non-missing values of the main score used in this paper. Column [4] adds more observations because this score has also been constructed for individuals genotyped in 2010, and therefore allows us to calculate an average EA score for more households. Columns [5]-[6] report results for scores based on the GWAS of  $N = 126,559$  individuals from Rietveld et al. (2013). The score in Column [5] is based on the LD pred method, while the score in Column [6] is not.

**Appendix Table S12: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE CONTROL SETS (I)**

<b>Panel A</b> <b>Add Cognitive Test Score</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.234*** (0.022)	0.230*** (0.021)	0.218*** (0.021)	0.113*** (0.022)	0.102*** (0.022)	0.210*** (0.022)	0.092*** (0.022)
Avg. HH Cog. Test Score	0.099*** (0.005)	0.079*** (0.004)	0.079*** (0.004)	0.051*** (0.004)	0.044*** (0.004)	0.074*** (0.005)	0.041*** (0.004)
Male Educ.				0.072*** (0.009)			
Female Educ.				0.122*** (0.010)			
Log Income						0.191*** (0.030)	0.176*** (0.027)
Obs.	12979	12979	12979	12975	12975	11855	11852
$R^2$	0.124	0.295	0.316	0.371	0.422	0.338	0.446
<b>Panel B</b> <b>Add Children in HH</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.324*** (0.023)	0.308*** (0.021)	0.294*** (0.021)	0.138*** (0.021)	0.123*** (0.021)	0.280*** (0.022)	0.115*** (0.022)
Max No. of Children in HH	-0.039*** (0.009)	-0.070*** (0.009)	-0.069*** (0.009)	-0.051*** (0.008)	-0.049*** (0.008)	-0.072*** (0.009)	-0.051*** (0.009)
Male Educ.				0.088*** (0.009)			
Female Educ.				0.145*** (0.010)			
Log Income						0.265*** (0.032)	0.217*** (0.027)
Obs.	15670	15670	15670	15660	15660	14273	14266
$R^2$	0.052	0.262	0.281	0.358	0.411	0.318	0.439
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth. Columns correspond to those in Table 6 from the main text. In Panel A, we include the average household cognitive test score. In Panel B, we include the maximum number of children associated with a household member. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S13: EA SCORE AND HOUSEHOLD WEALTH: ROBUSTNESS TO ALTERNATIVE CONTROL SETS (II)**

<b>Panel C</b>							
<b>Add Retirement Age</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.303*** (0.022)	0.301*** (0.022)	0.288*** (0.022)	0.131*** (0.022)	0.114*** (0.022)	0.276*** (0.022)	0.104*** (0.023)
Male Educ.				0.084*** (0.009)			
Female Educ.				0.147*** (0.010)			
Log Income						0.244*** (0.034)	0.212*** (0.029)
Obs.	15010	15010	15010	15000	15000	13689	13682
$R^2$	0.196	0.269	0.288	0.367	0.420	0.318	0.447
<b>Panel D</b>							
<b>Add All Three Plus Other Controls</b>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
EA Score	0.210*** (0.021)	0.212*** (0.021)	0.204*** (0.021)	0.101*** (0.022)	0.095*** (0.022)	0.199*** (0.022)	0.090*** (0.022)
Avg. HH Cog. Test Score	0.084*** (0.004)	0.078*** (0.004)	0.077*** (0.004)	0.050*** (0.004)	0.044*** (0.004)	0.072*** (0.005)	0.042*** (0.004)
Max No. of Children in HH	-0.057*** (0.008)	-0.059*** (0.009)	-0.060*** (0.009)	-0.048*** (0.008)	-0.047*** (0.008)	-0.060*** (0.009)	-0.045*** (0.009)
Male Educ.				0.073*** (0.009)			
Female Educ.				0.118*** (0.010)			
Log Income						0.190*** (0.030)	0.178*** (0.028)
Obs.	13301	13301	13301	13295	13295	12140	12136
$R^2$	0.282	0.338	0.351	0.404	0.454	0.374	0.478
Standard Controls		X	X	X	X	X	X
Principal Comp.			X	X	X	X	X
Years of Educ.				X			
Full Educ. Controls					X		X
Log Income						X	X

*Notes:* This table shows regression coefficients where the outcome variable is log household wealth. Columns correspond to those in Table 6 from the main text. In Panel C, we include dummies for retirement ages. Specifically, we include separate dummy variables for each possible number of years since the male household member retired, along with interactions with a dummy for male only households. We also include separate dummy variables for each possible number of years since the female household member retired, along with interactions with a dummy variable for female only households. Women with experience as homemakers are considered to be never retired. Panel D includes all additional variables used in Panels A-C of Tables S12-S13 along with additional covariates: dummy variables for each year since the death of a male household member, dummy variables for each year since the death of a female household member, and a control for the presence of two respondents. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.

**Appendix Table S14: FINANCIAL LITERACY**

<b>Dep Var:</b>	<b>Compound Interest</b>	<b>Real Interest</b>	<b>Diversify</b>	<b>All Correct (1)-(3)</b>
	[1]	[2]	[3]	[4]
EA Score	0.011 (0.028)	0.022 (0.025)	0.038 (0.031)	0.039 (0.030)
Obs.	715	716	715	711
$R^2$	0.500	0.432	0.494	0.544

*Notes:* The dependent variables in Columns [1]-[3] are dummy variables indicating correct responses for the three questions that were included together in a financial literacy module in the 2010 wave of the HRS. The dependent variable in Column [4] aggregates these items by constructing a binary indicator for whether the individual got all three questions correct. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.



**Appendix Table S15: BELIEFS, STOCK MARKET PARTICIPATION AND WEALTH**

Dep. Var:	Log Wealth [1]	Log Wealth [2]	Own Stocks [3]	Own Stocks [4]
EA Score		0.088*** (0.022)		0.043*** (0.008)
Ever Prob. Stock Mkt. Up: 0%	-0.122** (0.053)	-0.124** (0.053)	-0.062*** (0.020)	-0.062*** (0.020)
Ever Prob. Stock Mkt. Up: 100%	0.222*** (0.049)	0.227*** (0.049)	0.077*** (0.019)	0.079*** (0.019)
Ever Prob. Recession: 0%	0.044 (0.044)	0.044 (0.044)	0.001 (0.016)	0.001 (0.016)
Ever Prob. Recession: 100%	0.042 (0.068)	0.051 (0.067)	0.036 (0.025)	0.040 (0.025)
Ever Prob. DD Inflation: 0%	-0.103** (0.051)	-0.096* (0.051)	-0.017 (0.019)	-0.014 (0.019)
Ever Prob. DD Inflation: 100%	-0.116 (0.073)	-0.105 (0.073)	-0.063** (0.027)	-0.057** (0.027)
Min PH More than 1 Year	0.289*** (0.047)	0.288*** (0.047)	0.081*** (0.018)	0.081*** (0.018)
Min PH More than a Few Yrs.	0.444*** (0.047)	0.434*** (0.047)	0.123*** (0.018)	0.117*** (0.018)
Min PH 5-10 Years	0.730*** (0.092)	0.721*** (0.092)	0.178*** (0.035)	0.172*** (0.035)
Min PH More than 10 Years	0.952*** (0.258)	0.946*** (0.272)	0.052 (0.116)	0.044 (0.116)
Obs.	13478	13478	13700	13700
$R^2$	0.456	0.458	0.306	0.311
Standard Controls	X	X	X	X
Principal Comp.	X	X	X	X
Full Educ. Controls	X	X	X	X
Log Income	X	X	X	X

*Notes:* This table presents estimates from regressions of log household wealth on measures of household subjective beliefs, planning horizons, the average household EA score, and various controls. The belief and planning horizon measures are time-invariant variables constructed from the panel of household responses. Specifically, for each of the three macroeconomic events examined in Section 5.5, we construct separate dummy variables indicating whether any household member ever reports of a subjective probability of 0 percent or 100 percent, respectively. For each event, we also include the maximum deviation ever observed between a household member's subjective belief and our benchmark objective probability. We also include a series of dummy variables indicating the minimum financial planning horizon held by any household member. Significance stars \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. Standard errors are clustered at the family level.