Are people aware of their cognitive decline? Misperception and financial decision making

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Motivation

- A key aspect of the aging process is the decline of cognitive ability and its influence on decision making
- Trend to scale back publicly-provided safety nets and to rely more on private providers that require much higher decision-making skills

  $\rightarrow$ Older people are increasingly required to make complex decisions regarding finance, health, and long-term care
- If older people lack the required skills to manage their wealth:
  - more likely to make mistake and be victimized by investment fraud (Kim et al., 2018; Egan et al., 2019)
  - Broad consequences for the whole economy (Campbell 2016)
- The increasing longevity and the large fraction of assets held by the elderly make these problems even more relevant

This paper

- RQ: Are older people aware of their cognitive decline? When not, what are the consequences for their wealth?
- We use data from the Health and Retirement Study (HRS) to investigate whether people correctly perceive their own cognitive decline and the potential financial consequences of misperception
  - Many HRS respondents underestimate their own cognitive decline
    ▸ Profiles
  - Those who experience a severe cognitive decline but are unaware of it are more likely to suffer large wealth losses
  - Large financial wealth losses (especially stocks) are mainly reported by respondents in the top quartile of the wealth distribution
- Our investigation suggests that unawareness of own cognitive decline may cause wealth losses $\rightarrow$ bad financial investments, likely "overconfidence"

Related literature

- Cognitive decline and decision making:
  - Older adults are more likely to use heuristic methods and biased strategies (Abaluck and Gruber 2011)
- Aging, financial literacy and financial performance (Agarwal et al. 2009; Korniotis and Kumar 2011)
- Dementia and financial decisions: Hersch Nicholas et al. (2021), Li et al. (2022)
  - We look at very early sign of cognitive decline
- Wealth dispersion around retirement:
  - Heterogeneity in saving rates (Dynan et al. 2004), risk aversion (Calvet et al. 2009) and rates of returns (Fagereng et al. 2016), likely financial knowledge (Lusardi et al. 2017)
  - We provide evidence for a different channel that affects longitudinal variation in wealth

HRS and its wealth measures

- Our main working sample consists of 16,270 individuals ($\approx$ 88% of the initial HRS sample) observed on average for 3.5 waves:
  - HRS financial respondents (Smith et al. 2009) aged 50–80 between 1998-2014 (9 waves)
  - Observations for which imputations $\leq$ 20% of assets/debts
  - No proxy interviews
- HRS collects self-reported information on household wealth and its individual components, distinguishing between several asset categories
  - We focus on (changes in) total wealth, (non-housing) financial wealth, and their individual components (at \$2014 prices)
  - Asset verification: HRS respondents are asked to verify or correct asset values reported in the previous and current wave whenever there is a large discrepancy (more than \$50,000) between the two values

Memory

- Self-rated memory change:
  - *Compared to the last interview, would you say your memory is better now, about the same, or worse now than it was then?*
  - Since the fraction of respondents rating their memory as "better now" is only 2.6%, we create a binary indicator for worse self-rated memory
- Recall tests:
  - Consist of verbal registration and (immediate and delayed) recall of a list of 10 words
  - Our memory score is the sum of the score in the two tests (0–20)
  - We focus on memory losses that are sufficiently severe: Decline of 20% or more ($\approx$ 1st quintile of the change)
  - Our measure is highly correlated with the other cognitive tests (e.g., serial 7, backward 20, fluency, numeracy)

Self-rated vs. assessed memory

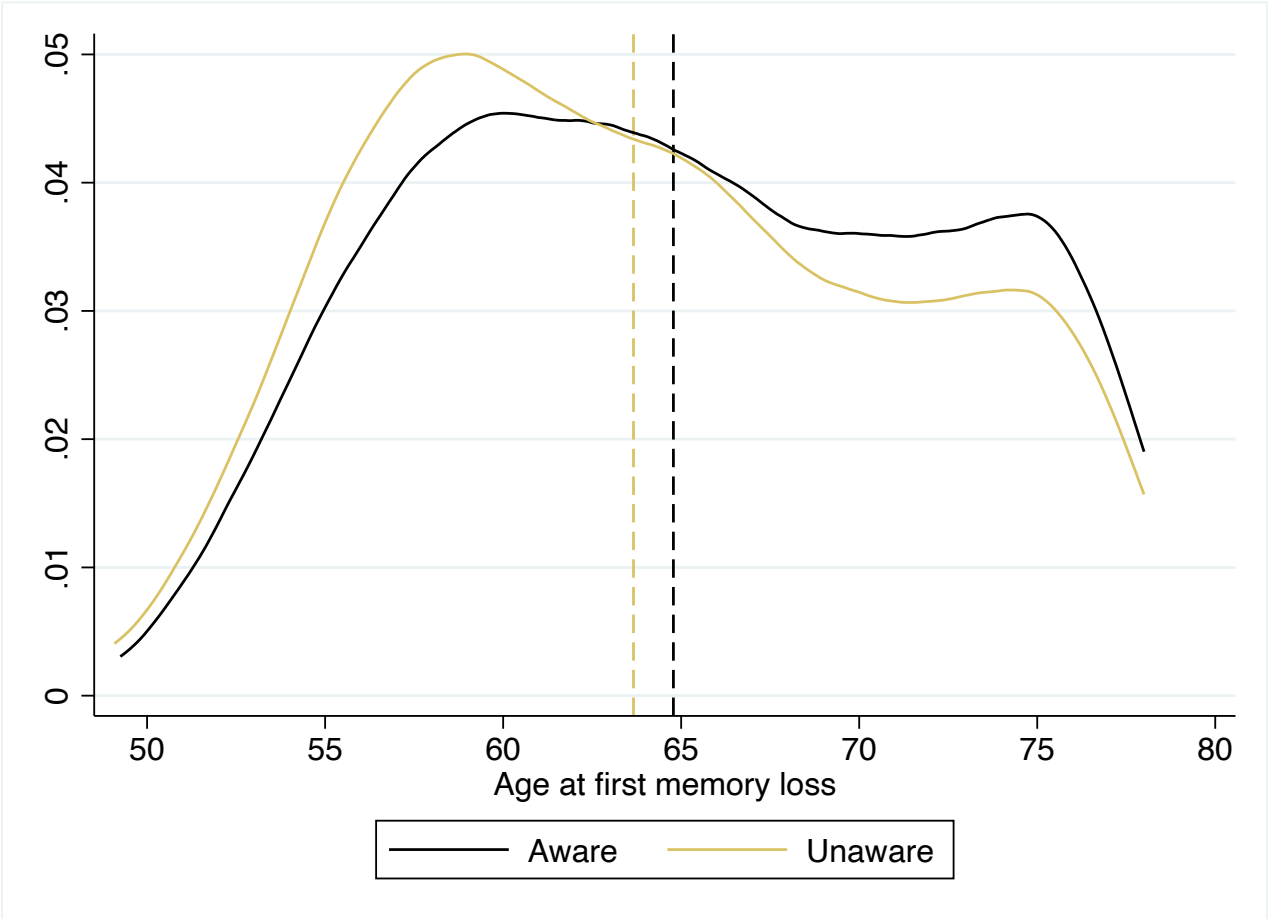
	Severe memory loss		
Self-rated memory change	No	Yes	Total
Better now or about the same	.610	.186	.796
Worse now	.148	.056	.204
Total	.758	.242	1.00

Changes in memory states

- From the interaction between our memory loss dummy and the self-reported memory change:
  - No loss, no severe memory loss and stable or improved self-rated memory
  - Pessimist, no severe memory loss but worse self-rated memory
  - Aware, severe memory loss and worse self-rated memory
  - Unaware, severe memory loss but stable or improved self-rated memory

▸ transition matrix

Who is more likely to be aware?



- Previous memory score and good health are negatively correlated with awareness
- Males and wealthy people are also less likely to to be aware

▸ Probit ▸ density t-1

Empirical models

- Baseline "static" model to investigate the effect of cognitive decline and awareness on changes in wealth (first difference)
- Dynamic DiD model to investigate the differential profiles of wealth changes for aware and unaware respondents before and after the first severe memory loss event
  - Small sample size of aware respondents $\rightarrow$ we estimate the DID model only for changes in total and financial wealth

▸ figure

Baseline model

$$\Delta W_{it} = \beta_0 + \beta_1 Aware_{it} + \beta_2 Unaware_{it} + \beta_3 Pessimist_{it} + \boldsymbol{\beta}_4^\top \boldsymbol{X}_i + \boldsymbol{\beta}_5^\top \boldsymbol{Z}_{it} + \psi_t + U_{it},$$

where:

- ΔW_{it} is the wealth change of individual i between waves $t-1$ and t ($1,000 at 2014 prices);
- $\boldsymbol{X}_i$ is a vector of time-invariant regressors: sex, race, years of education, and HRS cohort
- $\boldsymbol{Z}_{it}$ is a vector of time-varying regressors: quadratic age term, lagged wealth and memory score, and a set of binary indicators for labor force status, marital status, and census division
- ψ_t is a survey-wave effect common across individuals
- A model in log is estimated only as robustness check and is reliable only for wealthy household

Estimated baseline model

	Financial respondents (FRs)		Resp. w/severe mem. loss	
			FRs	Non FRs
	(1)	(2)	(3)	(4)
Severe memory loss	-25.431 ***			
	(5.683)			
Aware		-5.378		
		(9.910)		
Unaware		-31.069 ***	-22.764 **	-7.900
		(6.290)	(9.900)	(14.037)
Pessimist		.417		
		(6.672)		
$\beta_2 - \beta_1$		-25.691 **		
		(10.666)		
Obs.	57148	57148	13882	6302
N	16270	16270	9694	4558
Mean W	378.85	378.85	343.58	478.57
Mean ΔW	-11.826	-11.826	-18.677	-15.442

Notes: Observations are weighted using the HRS respondent-level weights. We use robust standard errors clustered at the individual level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Extensions of the baseline model

- Changes in total wealth by quartile of initial total wealth
- Changes in the value of wealth components

Changes in total wealth by quartile of initial wealth

	1st quartile	2nd quartile	3rd quartile	4th quartile
	(1)	(2)	(3)	(4)
Aware	-3.390	-2.582	-9.482	40.942
	(3.640)	(5.496)	(8.413)	(32.111)
Unaware	-2.737	-4.308	-12.882 **	-52.041 ***
	(2.373)	(2.716)	(5.582)	(17.797)
$\beta_2 - \beta_1$	.653	-1.726	-3.400	-92.983 ***
	(3.993)	(5.843)	(9.288)	(34.359)
Obs.	14133	14292	14313	14410
N	5923	6229	6127	4911
Mean W	20.302	104.52	306.37	1074.6
Mean ΔW	22.214	17.506	30.243	-103.16

Changes in the value of wealth components

	Total	Financial	IRAs	Housing	Real estate	Business	Transport
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Aware	-5.378	-2.155	-2.330	-3.064	2.410	5.135	-.345
	(9.910)	(5.709)	(3.007)	(2.571)	(3.447)	(3.754)	(.439)
Unaware	-31.069***	-19.696***	-5.554***	-3.452*	-2.415	2.094	.154
	(6.290)	(3.363)	(1.730)	(1.934)	(1.550)	(2.123)	(.622)
$\beta_2 - \beta_1$	-25.691**	-17.541***	-3.225	-.387	-4.825	-3.041	.499
	(10.666)	(5.928)	(3.140)	(2.866)	(3.598)	(4.021)	(.637)
Obs.	57148	57148	57148	57148	57148	57148	57148
N	16270	16270	16270	16270	16270	16270	16270
Mean W	378.85	96.201	58.53	149.43	32.435	26.593	15.67
Mean ΔW	-11.826	-6.388	.684	3.752	-4.8078	-4.5244	-.5418

Changes in the value of financial wealth components (FR with positive initial financial wealth)

	Stocks	Checking/ savings	CDs/Gov't bonds	Private bonds	Other assets	Debt
	(1)	(2)	(3)	(4)	(5)	(6)
Aware	-1.661	1.208	-1.225	.003	3.232	-.110
	(5.901)	(1.465)	(2.344)	(1.269)	(2.503)	(.272)
Unaware	-13.364 ***	-1.635 **	-4.670 ***	.297	-5.006 ***	-.119
	(2.763)	(.728)	(1.234)	(.978)	(1.400)	(.239)
$\beta_2 - \beta_1$	-11.704 **	-3.445	-2.843 *	.295	-8.237 ***	-.009
	(5.856)	(2.457)	(1.553)	(1.475)	(2.613)	(.325)
Obs.	39763	39763	39763	39763	39763	39763
N	12989	12989	12989	12989	12989	12989
Mean	65.768	15.763	34.028	8.9568	15.655	2.9949
Mean Δ	-7.6151	-.60191	-.92878	-.68369	-3.2889	1.1739

Bad investment decisions?

- (Financial) wealth losses are concentrated among wealthier financial respondents who are unaware of their cognitive decline
- Financial respondents who experience a severe memory loss show better cognitive performance at the baseline
- Maybe more likely to be overconfident about their ability and less likely to delegate financial decision to others
- This interpretation is also supported by our investigation of the HRS assets Change Module (respondents who report owning stocks or shares in mutual funds are asked about their stock market activity in the last two years)
- The relative large losses in CD's and other final assets might also be consistent with frauds

Changes in financial wealth by stock market activity

	Active	Inactive	No stocks
	(1)	(2)	(3)
Aware	22.694	6.103	-2.959
	(36.587)	(16.646)	(7.429)
Unaware	-57.559***	-10.171	-11.016**
	(20.726)	(12.586)	(4.875)
$\beta_2 - \beta_1$	-80.253**	-16.275	-8.057
	(38.538)	(19.110)	(8.536)
Obs.	5504	7433	44211
N	2918	4101	14465
Mean W	342.73	167.39	53.542
Mean ΔW	-11.297	-17.691	-3.5716

Alternative interpretations

What about rational disinvestment or differences in observable or unobservable characteristics?

- Health: ▸ Health
  - Subjective life expectancy
  - Out-of-pocket health expenditure or health shocks
- Missing values or misreporting of financial assets: ▸ Misreporting
  - Different patterns of missing values, imputations or misreporting (HRS asset verification procedure)
  - No proxies and results driven by people at early sign of cognitive decline
- Portfolio composition:
  - Differences in ownership or share of risky assets ▸ Riskyness
- Others:
  - Differences in consumption patterns ▸ HRS-CAMS
  - Differences in bequests or transfers to children
  - Reverse causality via stress (Schwandt 2018) ▸ reverse

Robustness checks and heterogeneity

- Log transformation ▸ Log
- Memory loss definition (absolute, or different thresholds, 15 or 25%)
- Flooring and ceiling effects
- Exclusion of respondents experiences a severe health shock or severely impaired ▸ shock
- Excluding the switchers
- Inclusion of individual fixed effects
- Heterogeneity by ▸ heterogeneity
  - age
  - employment status
  - gender
  - survey year

Dynamic Difference-in-differences

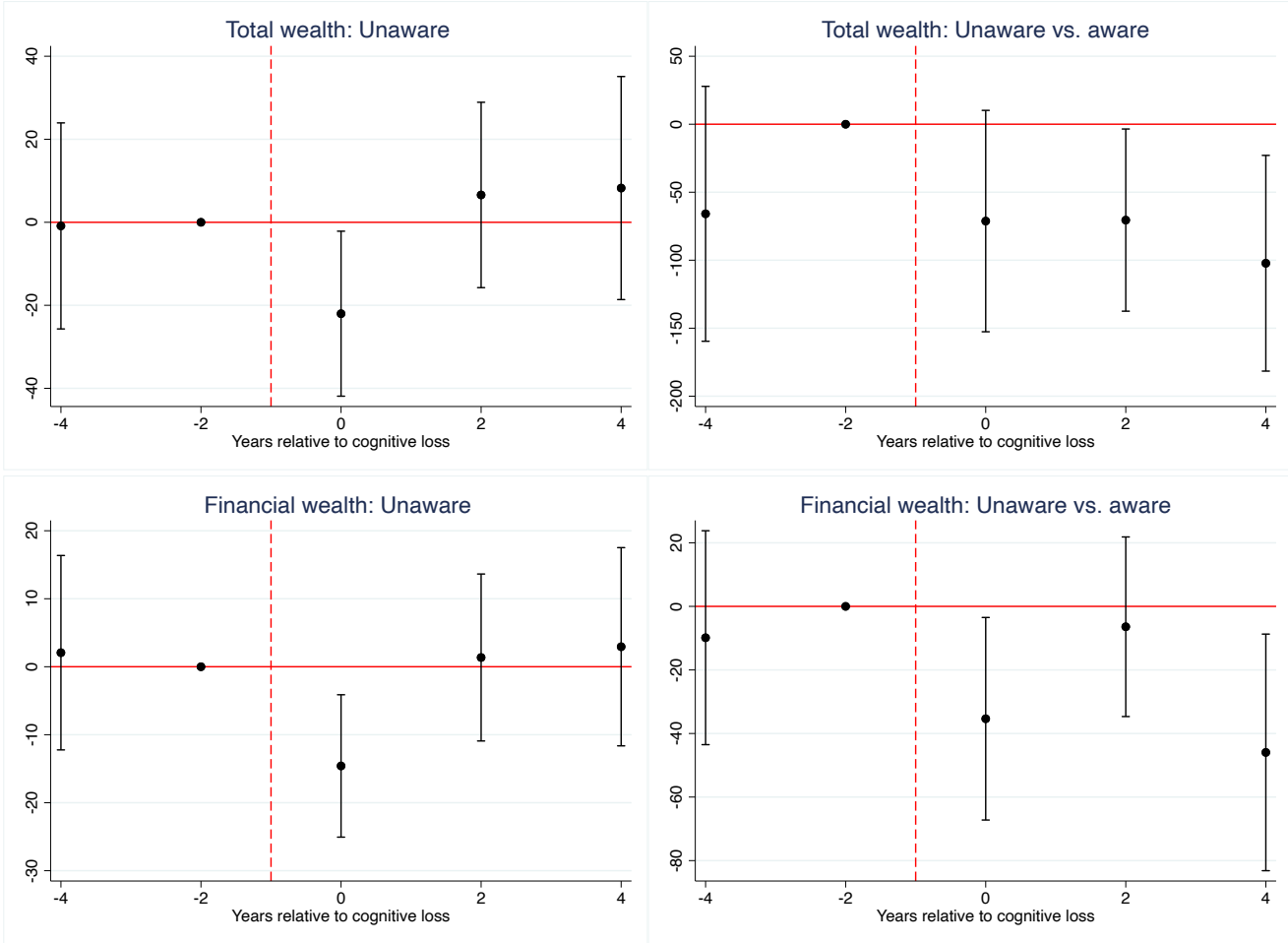
- We compare the expected wealth changes before and after the first severe memory loss event for three "treatment groups":
  - Aware at the first memory loss event
  - Unaware at the first memory loss event
  - Never treated, who never experience a severe memory loss in our sample

Changes in total and financial wealth: DiD model

	Total wealth		Financial wealth	
	(1)	(2)	(3)	(4)
Aware	-44.348		-19.158	
	(29.659)		(12.254)	
Unaware	-14.671	26.736	-7.492	5.887
	(11.698)	(23.784)	(6.612)	(9.091)
Post	20.265	17.446	6.058	-.125
	(31.123)	(27.806)	(13.009)	(10.890)
Unaware × Post	-54.874 *	-53.059 **	-29.121 **	-24.211 **
	(29.380)	(26.163)	(12.261)	(10.223)
Obs.	40284	29606	40284	29606
N	14872	10498	14872	10498
Mean W	391.212	386.775	101.163	100.656
Mean ΔW	-10.596	-14.421	-7.643	-10.701

Notes: Columns (1) and (3) show the results for the full sample (including those without any severe memory loss), while Columns (2) and (4) show the results for the restricted sample that only includes those who experienced a severe memory loss events. Observations are weighted using the HRS respondent-level weights. We use robust standard errors clustered at the household level. Significance levels: *** < 0.01, ** < 0.05, * < 0.1.

Event-study coefficients for unaware respondents



Notes: The figure shows the estimated wealth changes (in thousands U.S. dollars at 2014 prices), and the associated 95% confidence intervals, with respect to the period immediately before the first severe memory loss event for unaware respondents. Results for total wealth are shown in the top panels, those for financial wealth in the bottom panels. The panel on the left shows the estimated event-study coefficients using only the unaware respondents (and including the "never treated" at event time -1), while those on the right show the the DiD coefficients relative to to the aware respondents.

Conclusions

- A large fraction of people who experience severe memory losses appear to be unaware of it
- Unaware respondents experience worse financial performances across waves
- Financial losses are mainly driven by a decrease in the value of financial assets for HRS financial respondents
- Consistent with an overconfidence interpretation. Wealth losses are concentrated
  - In the highest wealth quartiles
  - Among male and "young" respondents who scored better in the memory tests of the previous waves
  - among respondents active in the financial stock markets
- The data reject a large number of alternative explanations for our results

Policy implications

- After the 2008 financial crisis, policymakers are strongly committed to increasing the quality of the financial decisions of households
- Our results suggest that, for older investors, it also matters whether they are aware of their cognitive decline and are able to modify their financial behavior accordingly
- Importance of interventions aimed at detecting deterioration of financial decision-making skills among wealth owners
- Encouraging pre-commitment to financial delegation
  - it requires an early commitment by the wealth owner
  - risk of suboptimal timing of delegation (Ameriks et al. 2022)
- Incentivizing the annuity market may also help, but it would require a stricter regulation and, given the currently high price of annuities, more competition

Appendix

Profiles of self-rated and assessed memory

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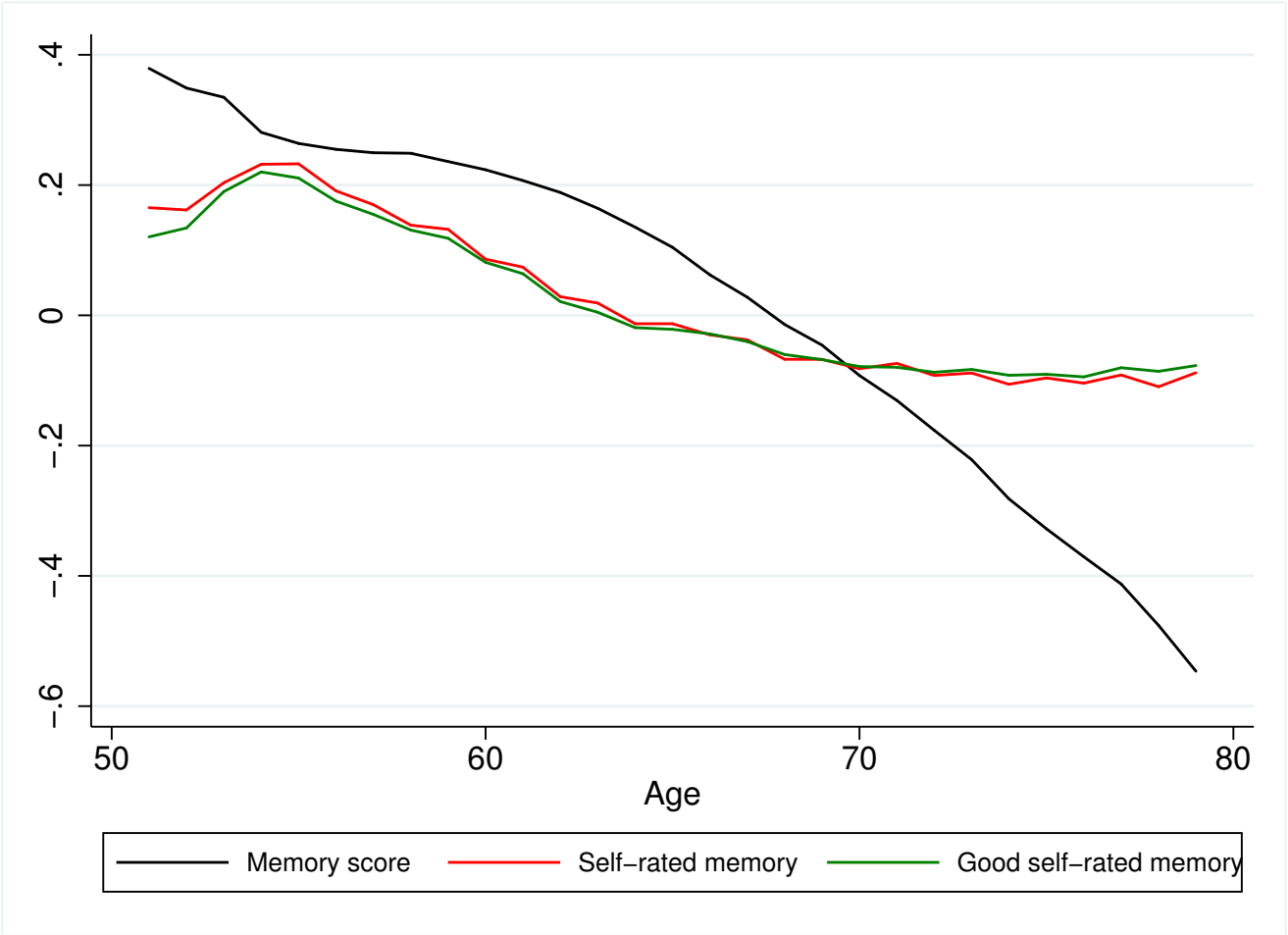

Fluid and Crystallized intelligence

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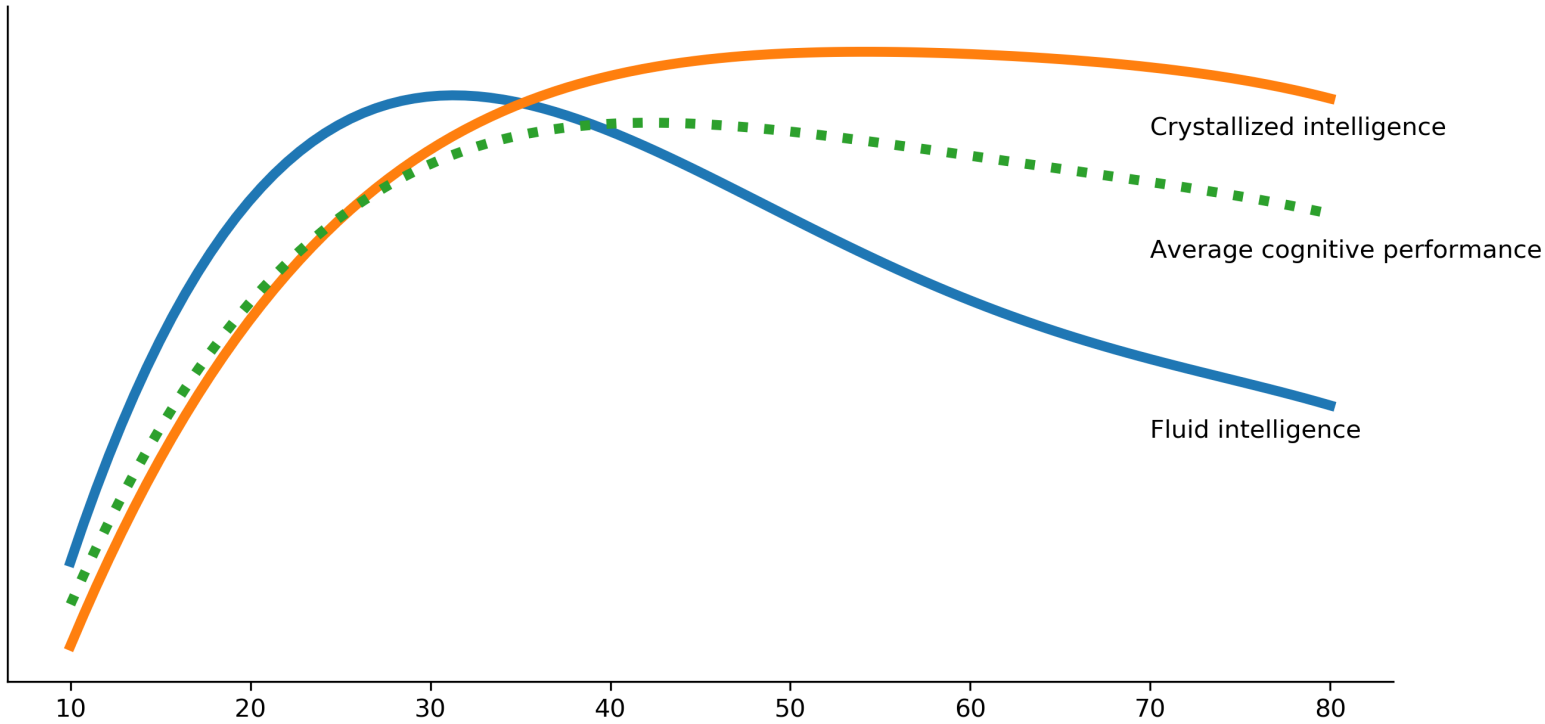
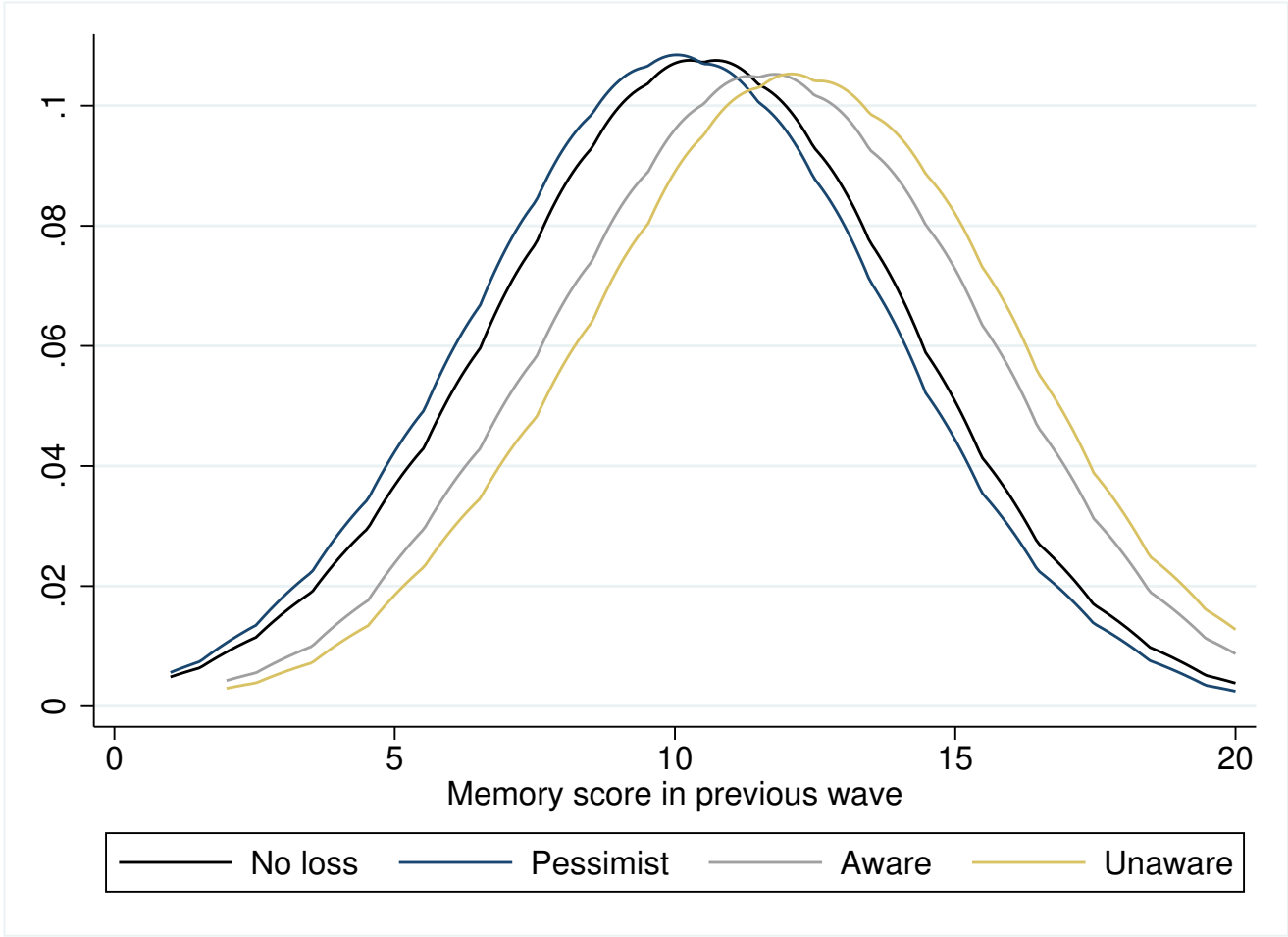


Density of memory score at $t-1$, by memory state at t



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Probit estimates 1/2

	Having a severe memory loss			Unaware conditional on having a severe memory loss		
	(1)	(2)	(3)	(4)	(5)	(6)
Age	.005 ***	.005 ***	.005 ***	-.002 ***	-.001 **	-.002 ***
	(.000)	(.000)	(.000)	(.001)	(.001)	(.001)
Single_{t-1}	-.004	-.003	-.005	-.013	-.016 *	-.021 *
	(.004)	(.004)	(.005)	(.010)	(.010)	(.011)
Female	-.077 ***	-.076 ***	-.090 ***	-.045 ***	-.048 ***	-.062 ***
	(.004)	(.004)	(.005)	(.008)	(.008)	(.010)
Children	-.001	-.001	-.002	-.004 **	-.004 **	-.004 *
	(.001)	(.001)	(.001)	(.002)	(.002)	(.002)
Partner death	-.008	-.008	-.003	-.033	-.035 *	-.033
	(.010)	(.010)	(.013)	(.021)	(.021)	(.025)
Years of education	-.017 ***	-.016 ***	-.012 ***	-.004 **	-.006 ***	-.006 ***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.002)
Working_{t-1}	-.036 ***	-.028 ***	-.022 ***	.047 ***	.014	.023 **
	(.004)	(.004)	(.005)	(.009)	(.009)	(.011)

Continue...

Probit estimates 2/2

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	Having a severe memory loss			Unaware conditional on having a severe memory loss		
	(1)	(2)	(3)	(4)	(5)	(6)
Q2 wealth$_{t-1}$	-.033 ***	-.028 ***	-.026 ***	.016	.000	.001
	(.006)	(.006)	(.006)	(.011)	(.011)	(.013)
Q3 wealth$_{t-1}$	-.051 ***	-.043 ***	-.036 ***	.008	-.020 *	-.018
	(.006)	(.006)	(.007)	(.012)	(.012)	(.014)
Q4 wealth$_{t-1}$	-.066 ***	-.055 ***	-.044 ***	.001	-.041 ***	-.038 **
	(.006)	(.006)	(.007)	(.014)	(.014)	(.016)
Recall$_{t-1}$	.095 ***	.097 ***	.103 ***	.023 ***	.018 ***	.021 ***
	(.002)	(.002)	(.002)	(.003)	(.003)	(.004)
Very good health$_{t-1}$		-.021 ***	-.022 ***		.084 ***	.083 ***
		(.004)	(.005)		(.008)	(.010)
ADL limitations$_{t-1}$		.020 ***	.017 ***		-.074 ***	-.085 ***
		(.006)	(.007)		(.011)	(.013)
# serious health conditions		.011 ***	.012 ***		-.037 ***	-.038 ***
		(.002)	(.003)		(.005)	(.005)
Numeracy score			-.045 ***			-.010
			(.003)			(.006)
Obs	81818	81818	57922	19737	19737	13976
N	22573	22573	19132	13699	13699	10808
Mean	.241	.241	.241	.773	.773	.763

Transition rates between memory loss states

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Wave t	Wave $t+1$				
	No loss	Pessimist	Aware	Unaware	
No loss	63.9	9.3	4.2	22.6	100.0
Pessimist	35.4	36.1	15.9	12.6	100.0
Aware	46.2	44.2	6.0	3.5	100.0
Unaware	79.5	12.7	1.2	6.6	100.0
Total	61.7	15.4	5.4	17.5	100.0

Notes: The table shows the transition rates between our 4 memory loss states across adjacent waves (t and $t+1$).

Number of observations by event time and awareness of severe memory loss

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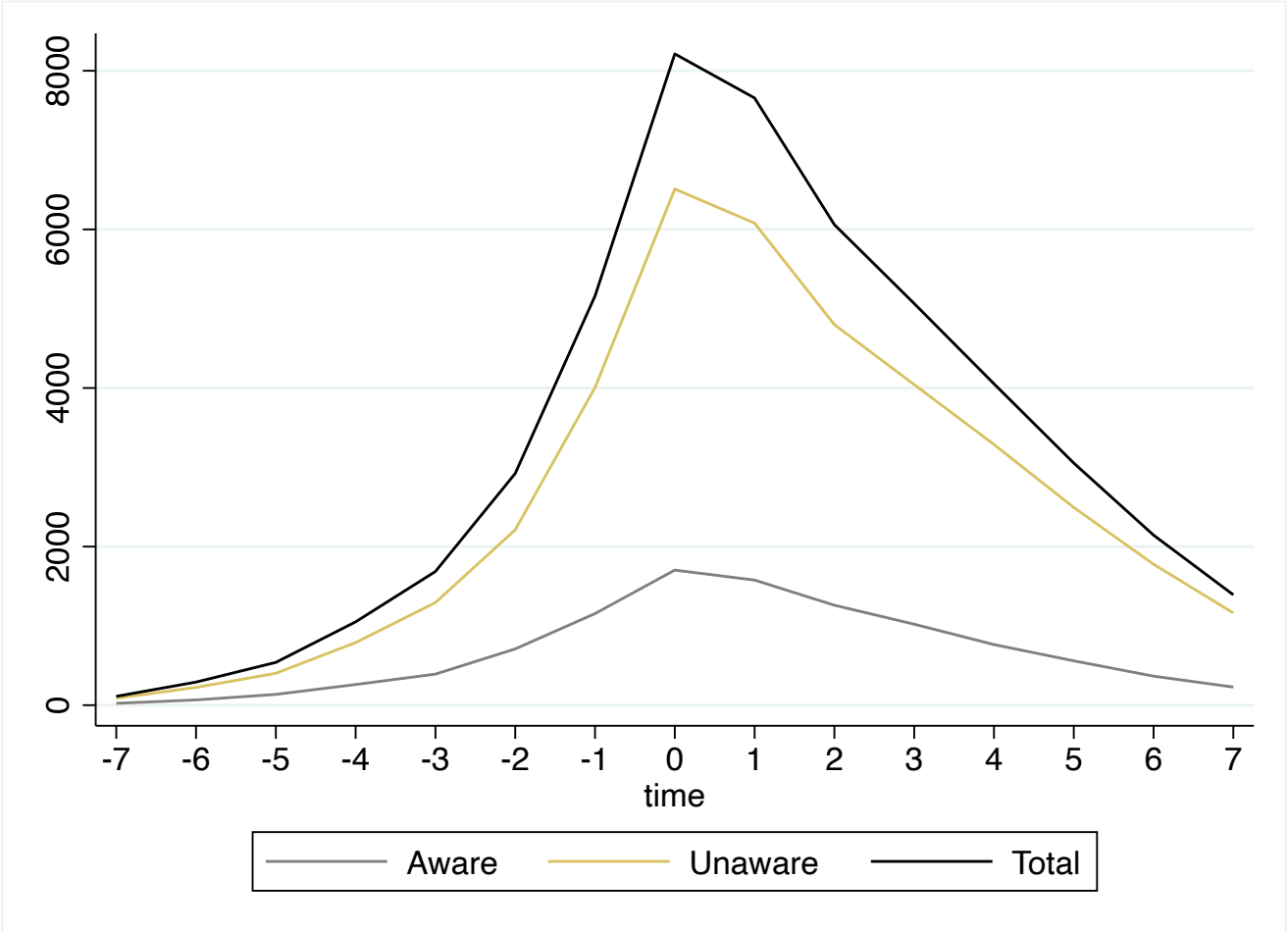

Notes: The figure shows the number of observations by event time for respondents who were aware and unaware at the first severe memory loss event.

Subjective life expectancy and health expenditure

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	Subj. life expectancy		Out-of-pocket exp.	
	(1)	(2)	(3)	(4)
Memory loss	-.250		.029	
	(.402)		(.149)	
Aware		-1.321 *		.062
		(.728)		(.472)
Unaware		.235		.039
		(.438)		(.134)
$\beta_2 - \beta_1$		1.556 **		-.024
		(.789)		(.493)
Obs.	44979	44979	49919	49919
N	13992	13992	15593	15593
Mean	48.533	48.533	3.1952	3.195
Mean	-.944	-.943	-.254	-.254

Imputation of asset values and assessed misreporting of assets

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	Fraction of financial wealth imputed (1)	Incomplete/missing value of stocks (2)	Any asset misreported (3)	Any fin. asset misreported (4)
Aware	-.001	.003	-.006	-.004
	(.002)	(.008)	(.009)	(.006)
Unaware	.000	.006	-.008	-.008 *
	(.001)	(.005)	(.006)	(.004)
$\beta_2 - \beta_1$	.001	.005	-.002	-.003
	(.002)	(.009)	(.010)	(.007)
Obs.	57148	13319	57148	57148
N	16270	5056	16270	16270
Mean	.026	.109	.089	.051
Mean Δ	.024	.035	.106	.061

Reverse causality?

- Wealth shocks may negatively affect health via increasing stress (Schwandt 2018)
- Unlikely to explain differences between aware and unaware respondents
- Predicted wealth changes are uncorrelated with our measure of cognitive decline and awareness

Predicted financial wealth

- We use the information on the composition of financial wealth of an individual in a given wave and information on market returns by asset category to predict her total financial wealth in the next wave.
- Suppose individual i is interviewed in month t and re-interviewed at $t + m$.
- Given her initial wealth in asset category j, W_{ijt}, we predict the value of her wealth in that category at $t + m$ by

$$W^*_{ij,t+m} = W_{ijt} \prod_{s=t+1}^{m} (1 + r_{js}),$$

  where r_{js} is the return on asset category j between months $s - 1$ and s.
- The predicted value of total financial wealth is then computed by adding up the predicted values of all asset categories. Back Back 2

Actual and predicted wealth changes

	Memory loss	Actual Δ Wealth		
	(1)	(2)	(3)	(4)
Predicted Δ Wealth	-.000	.653***		.653***
	(.000)	(.029)		(.029)
Aware			-5.378	-6.119
			(9.910)	(8.774)
Unaware			-31.069***	-26.016***
			(6.290)	(5.260)
$\beta_2 - \beta_1$			-25.691**	-19.897**
			(10.666)	(9.401)
Obs.	57148	57148	57148	57148
N	16270	16270	16270	16270
Mean	.243	378.85	378.85	378.85
Mean Δ		-11.826	-11.826	-11.826

Actual vs. predicted financial wealth in the next wave (FR with positive initial financial wealth)

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	Absolute difference		Relative difference	
	(1)	(2)	(3)	(4)
Aware	-6.344	-7.776	-.095	-.071
	(7.404)	(10.939)	(.081)	(.058)
Unaware	-16.631***	-22.892***	-.058	-.140***
	(4.282)	(5.872)	(.050)	(.037)
$\beta_1 - \beta_2$	-10.287	-15.116	.036	-.068
	(8.080)	(11.714)	(.088)	(.062)
Obs.	40696	27086	38925	27019
N	13336	9309	12891	9296
3rd-4th wealth quartiles	No	Yes	No	Yes
Age & year	Yes	Yes	Yes	Yes
Socio-dem.	Yes	Yes	Yes	Yes
Initial wealth & memory	Yes	Yes	Yes	Yes

Differences in ownership or share of risky assets

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	Ownership of risky assets		Share of risky assets	
	(1)	(2)	(3)	(4)
Aware	-.009	-.016	.002	-.005
	(.008)	(.014)	(.018)	(.019)
Unaware	-.005	-.011	.015	.006
	(.005)	(.009)	(.011)	(.011)
$\beta_1 - \beta_2$	.004	.005	.013	.011
	(.009)	(.015)	(.020)	(.021)
Obs.	57011	25897	14176	11696
N	16243	8132	5365	4347
Mean	.261	.452	.440	.563
3rd-4th wealth quartile	No	Yes	No	Yes

Changes in the log of total wealth by quartile of initial wealth

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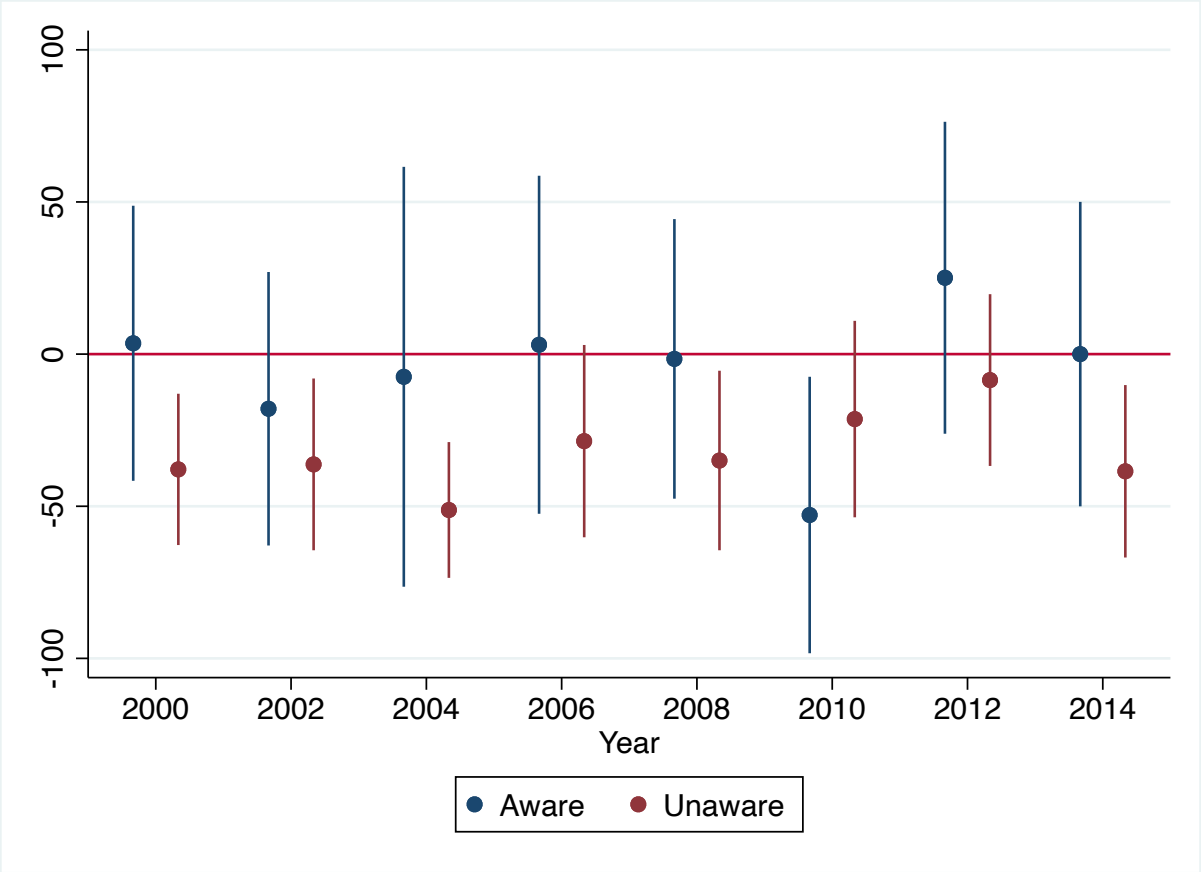
	All respondents (1)	1st quartile (2)	2nd quartile (3)	3rd quartile (4)	4th quartile (5)
Aware	-.045 **	-.215 **	-.021	-.024	.007
	(.023)	(.104)	(.046)	(.026)	(.024)
Unaware	-.070 ***	-.182 ***	-.038	-.049 ***	-.050 ***
	(.014)	(.063)	(.026)	(.018)	(.016)
$\beta_2 - \beta_1$	-.025	.033	-.016	-.024	-.058 **
	(.025)	(.109)	(.049)	(.029)	(.027)
Obs.	49214	6807	13793	14225	14389
N	14363	3598	5985	6089	4930
Mean W	438.580	31.564	108.64	308.33	1076.2
Mean ΔW	-.021	.405	-.0601	-.053	-.126

Changes in total wealth by employment status and age

	Employed (1)	Not employed (2)	Aged<70 (3)	Aged≥70 (4)
Aware	4.394	-11.613	-3.911	-9.620
	(21.901)	(8.926)	(13.632)	(13.341)
Unaware	-38.014***	-21.819***	-37.616***	-13.608**
	(10.419)	(6.172)	(8.185)	(6.776)
$\beta_2 - \beta_1$	-38.014***	-21.819***	-33.705**	-3.988
	(10.419)	(6.172)	(14.368)	(13.973)
Obs.	20697	36451	37125	20023
N	8074	12171	12674	7916
Mean W	383.340	376.310	356.700	419.920
Mean ΔW	1.128	-22.129	-6.105	-27.772

Estimated wealth changes by survey year



Notes: The figures report the estimated heterogeneity across adjacent survey waves in the effect of being aware and unaware on wealth changes

Changes in total wealth by gender

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	All		1st wealth quartile		4th wealth quartile	
	Male FRs (1)	Female FRs (2)	Male FRs (3)	Female FRs (4)	Male FRs (5)	Female FRs (6)
Aware	1.002	-14.949	7.148	-8.727***	19.094	82.119
	(15.126)	(13.779)	(10.069)	(2.250)	(36.514)	(58.671)
Unaware	-36.955***	-23.213***	-.786	-3.739*	-62.527***	-29.133
	(8.860)	(7.459)	(4.670)	(2.241)	(23.603)	(26.708)
$\beta_2 - \beta_1$	-37.957**	-8.263	-7.934	4.988**	-81.621**	-111.251*
	(16.381)	(13.287)	(10.771)	(2.324)	(40.307)	(60.530)
Obs.	25533	31615	4686	9601	8387	5900
N	25533.000	31615	4635	9498	8457	5953
Mean W	487.580	291.050	26.947	17.060	1127.900	998.880
Mean ΔW	-16.680	-7.174	28.477	18.451	-107.67	-96.212

Notes: All models include as regressors: a quadratic age term, binary indicators for the survey year, socio-demographic controls (years of education and binary indicators for labor force status, marital status, race, and census division), a binary indicator for worse self-rated memory but no severe memory loss, and the initial levels of wealth and memory. Observations are weighted using the HRS respondent-level weights. We use robust standard errors clustered at the household level. Significance levels: *** < 0.01, ** < 0.05, * < 0.1.

Changes in consumption expenditures

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	Total spending (1)	Durables (2)	Nondurables (3)	Household spending (4)	Transport spending (5)
Aware	-2.051	-.016	-.724	-.025	-1.286
	(1.699)	(.052)	(1.127)	(.535)	(.941)
Unaware	.500	-.067	.008	.171	.387
	(1.111)	(.041)	(.609)	(.424)	(.571)
$\beta_2 - \beta_1$	2.550	-.052	.733	.196	1.673
	(1.891)	(.060)	(1.209)	(.619)	(1.021)
Obs.	10906	10906	10906	10906	10906
N	3487	3487	3487	3487	3487
Mean	43.925	43.925	43.925	43.925	43.925
Mean Δ	.843	-.016	1.027	-.061	-.108

Results excluding respondents with new major health issues or with a higher risk of cognitive impairment

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	All respondents	Excluding severe health shocks	Excluding health shock & hospitalization	Excluding 1st quintile memory score	Excluding mental status $<$ 8
	(1)	(2)	(3)	(4)	(5)
Aware	-5.378	-2.146	-4.946	-4.254	-4.946
	(9.910)	(10.761)	(12.604)	(10.236)	(10.873)
Unaware	-31.069***	-30.450***	-31.352***	-31.222***	-32.666***
	(6.290)	(6.497)	(7.591)	(6.358)	(6.924)
$\beta_2 - \beta_1$	-25.691**	-28.305**	-26.406**	-26.968**	-27.720**
	(10.666)	(11.570)	(13.113)	(11.035)	(11.663)
Obs.	57148	53317	41797	55472	46902
N	16270	15940	14374	16061	14671
Mean W	378.85	380.060	397.350	387.300	412.660
Mean ΔW	-11.826	-11.706	-9.947	-11.883	-12.425