Online Appendices for:

Cognitive Constraints on Valuing Annuities

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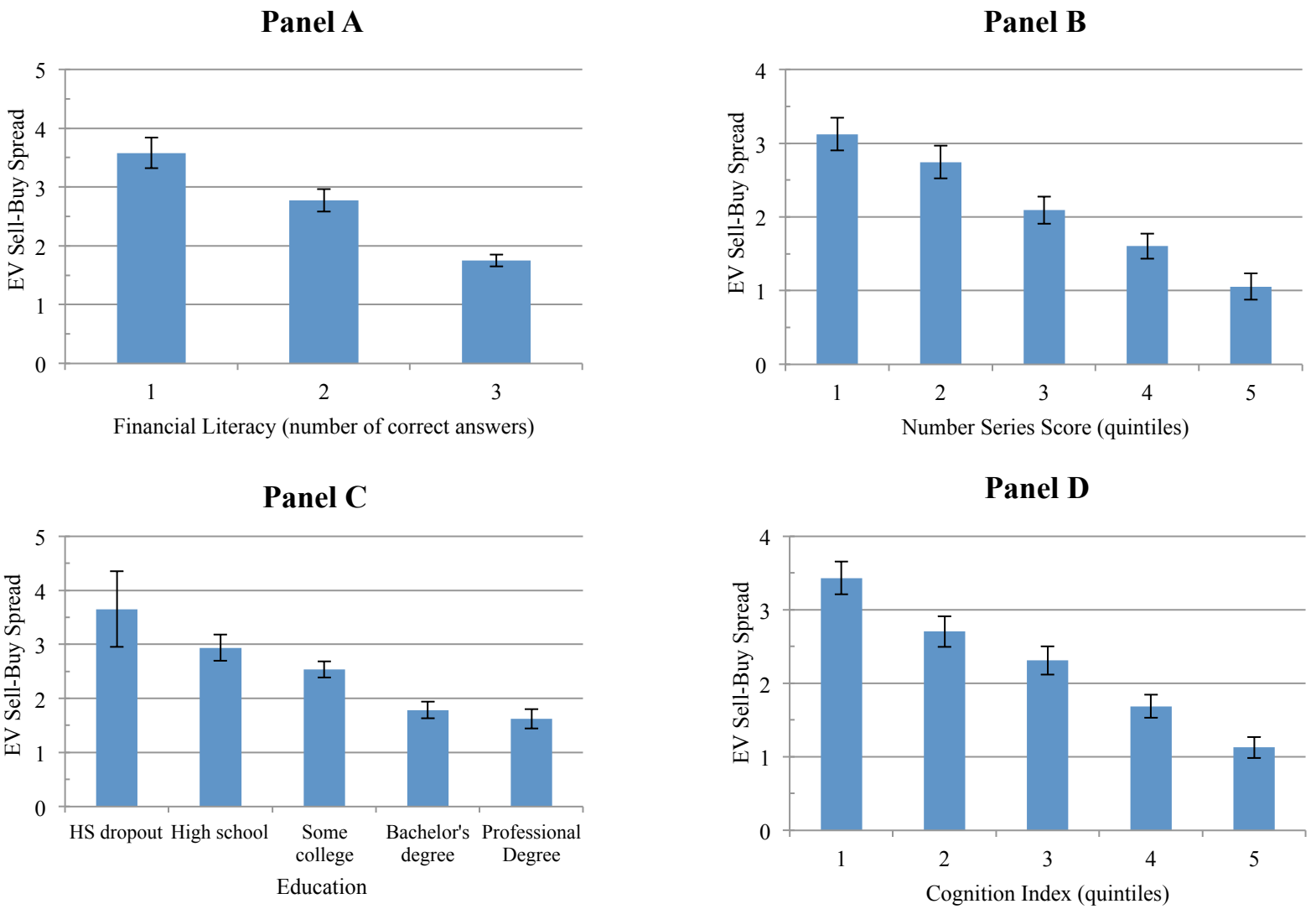
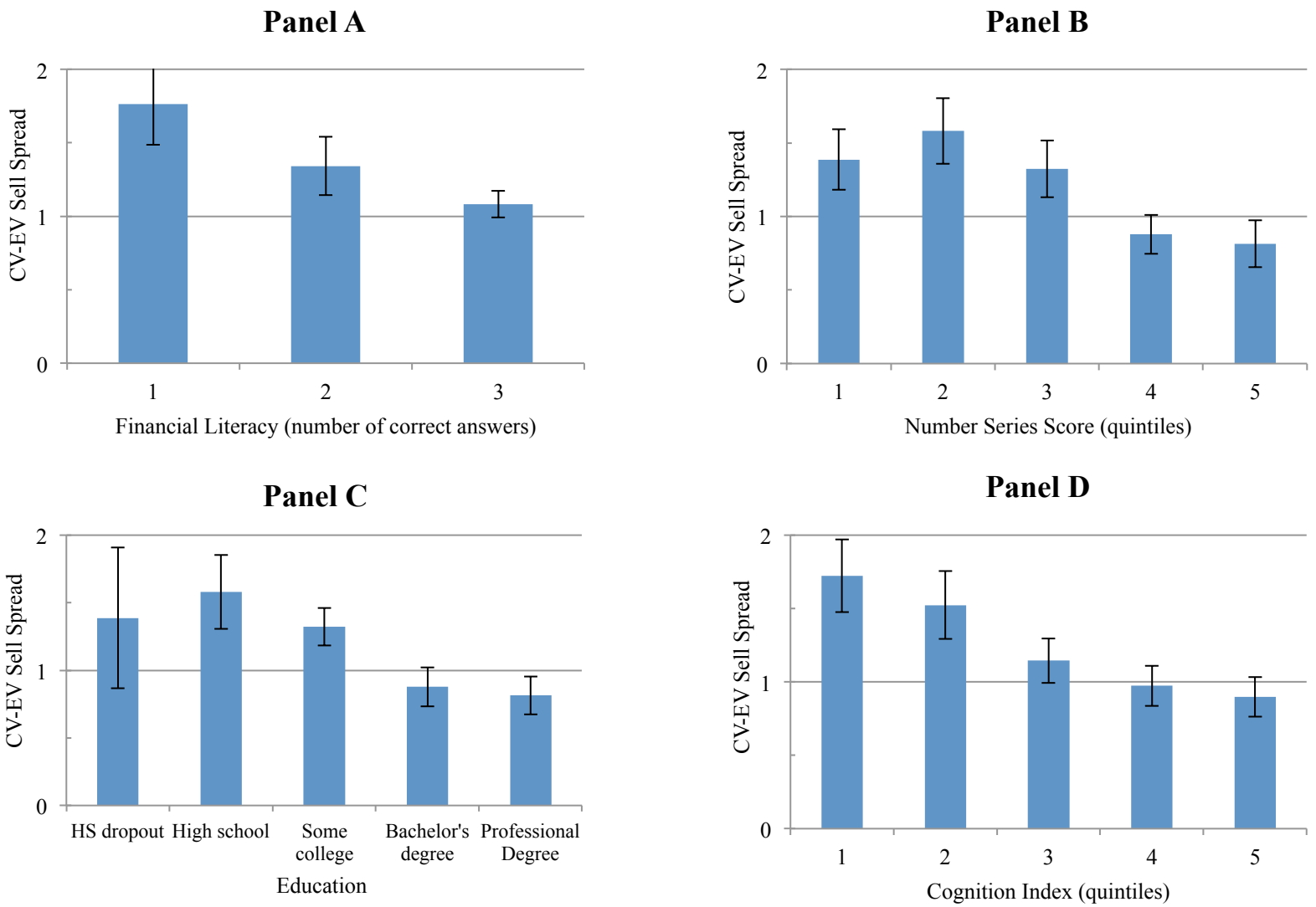
Figure A.1: EV Sell-Buy Spread by Measures of Decision-Making Ability



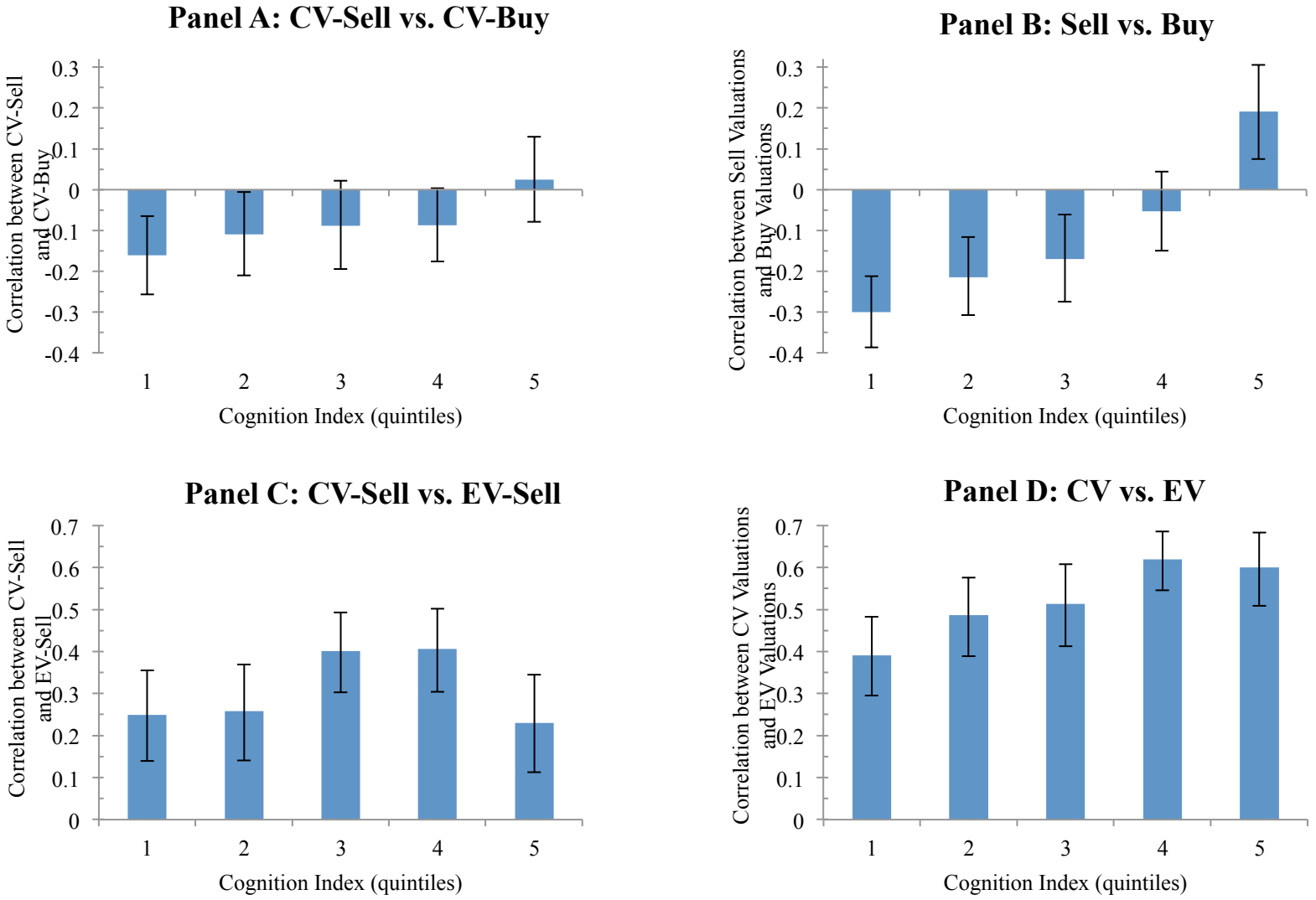
Note: The whiskers represent 95% confidence intervals. This figure is identical to Figure 3 except that the Sell-Buy Spread is based on EV valuations rather than CV valuations. The EV Sell-Buy Spread is measured as the absolute value of the difference between the log EV-Sell valuation and the log EV-Buy valuation of a $100 change in monthly Social Security benefits.

Figure A.2: EV-CV Sell Spread by Measures of Decision-Making Ability



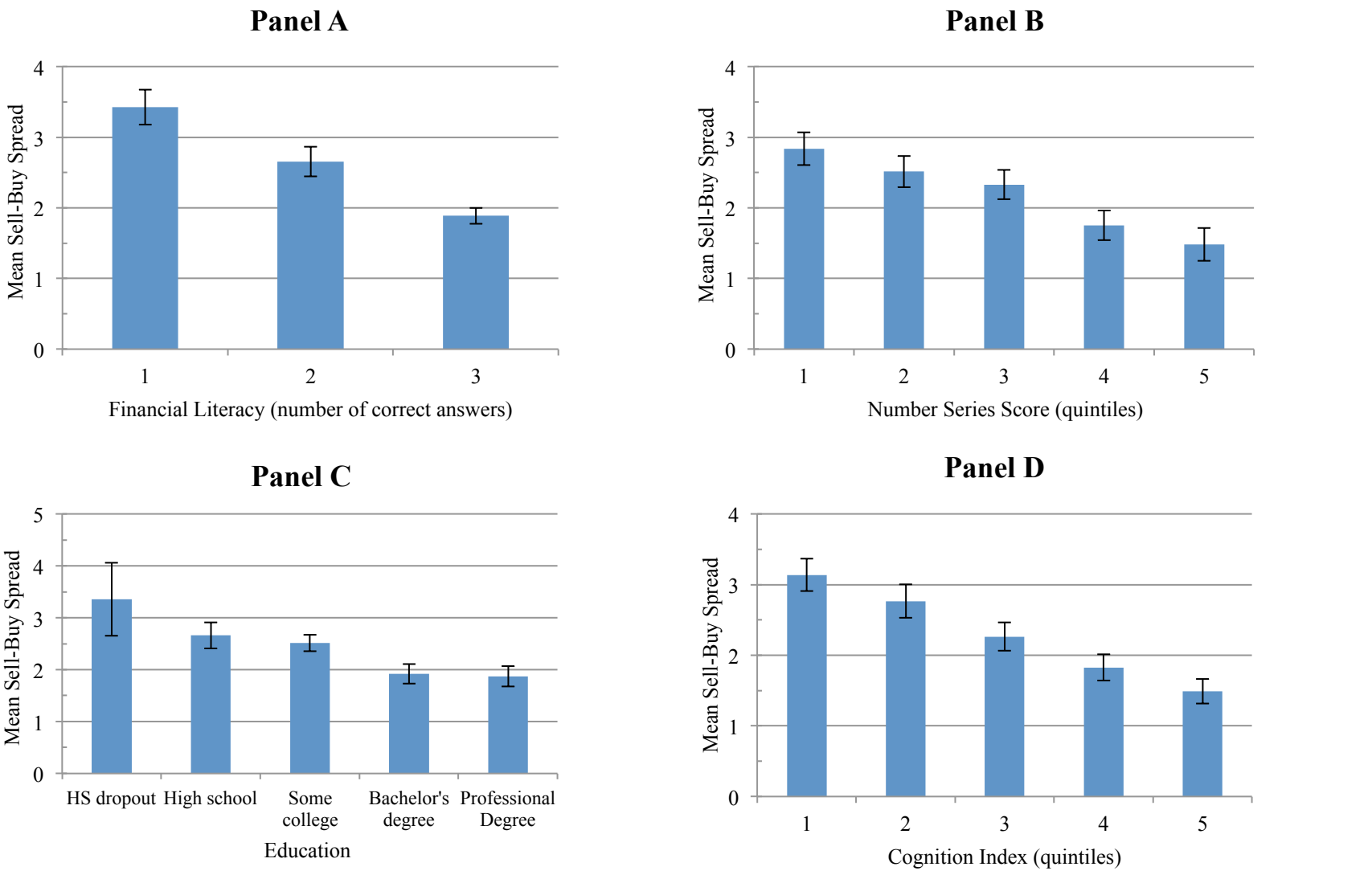
Note: The whiskers represent 95% confidence intervals. This figure is identical to Figure 3 except that the graphs plot the EV-CV Sell Spread rather than the CV Sell-Buy Spread. The EV-CV Sell Spread is measured as the absolute value of the difference between the log EV-Sell valuation and the log CV-Sell valuation of a $100 change in monthly Social Security benefits.

Figure A.3: Correlations of Log Annuity Valuations by the Cognition Index



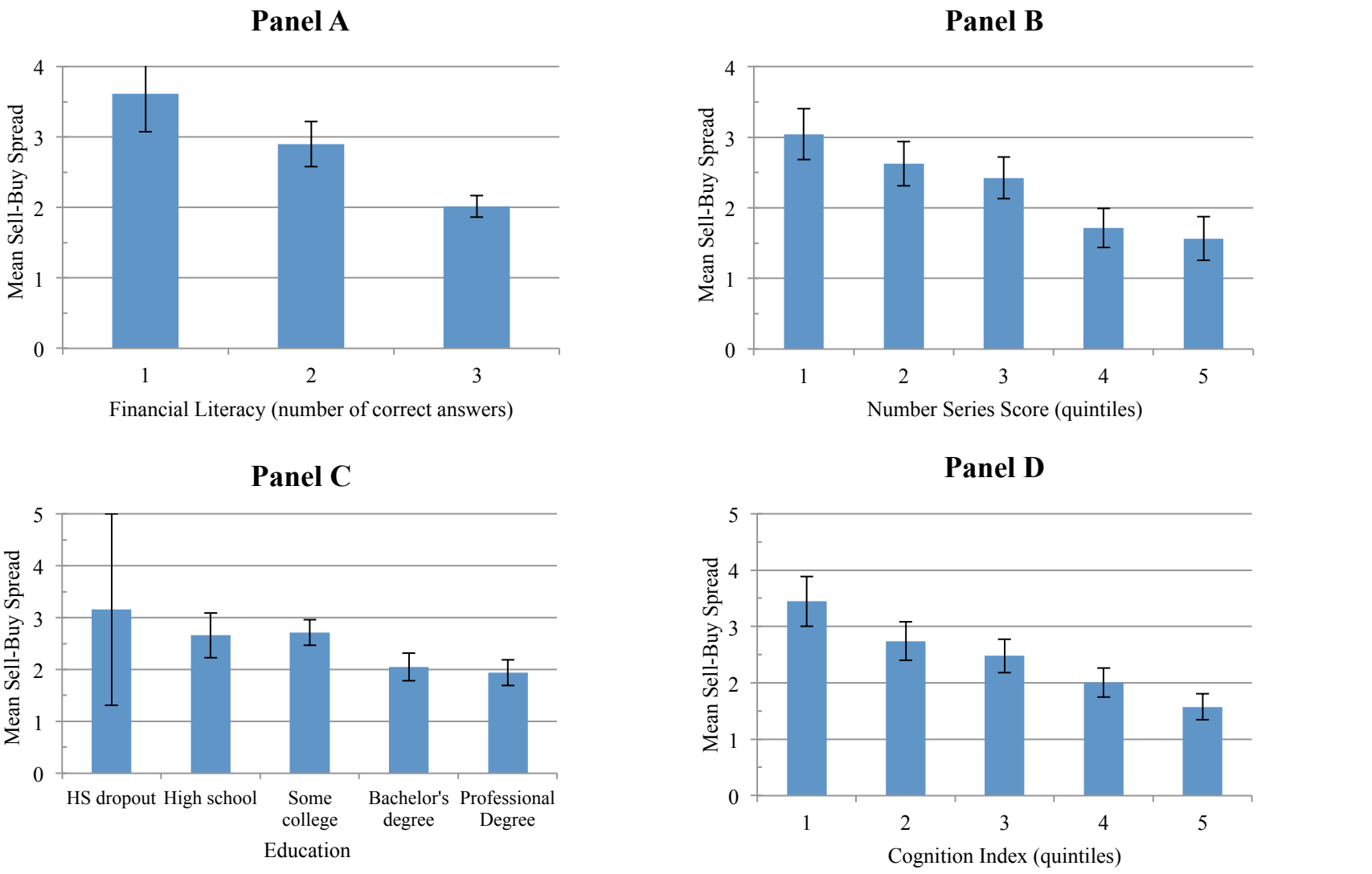
Note: The whiskers represent 95% confidence intervals. Confidence intervals are based on exact percentiles in 10,000 bootstrap replications. All annuity valuations are expressed in logs. The Sell Valuation is the average of log CV-Sell and log EV-Sell. The Buy Valuation is the average of log CV-Buy and log EV-Buy. The CV Valuation is the average of log CV-Sell and log CV-Buy. The EV Valuation is the average of log EV-Sell and log EV-Buy. To correct for correlations induced by common experimental manipulations (such as the starting value) across the four valuation measures, we regress each valuation measure on the relevant experimental manipulations and take the residual. These regressions are run separately for each quintile of the cognition index. The correlations between the resulting residuals are shown in the figure.

Figure A.4: Winsorized Sell-Buy Spread by Measures of Decision-Making Ability



Note:
The whiskers represent 95% confidence intervals. This figure is identical to Figure 3 except that the Sell-Buy Spread was calculated based on annuity valuation measures that were winsorized at the 10th and 90th percentiles. The Sell-Buy Spread is measured as the absolute value of the difference between the winsorized log CV-Sell valuation and the winsorized log CV-Buy valuation of a $100 change in monthly Social Security benefits.

Figure A.5: Sell-Buy Spread by Measures of Decision-Making Ability for the Age 50+ Sample



Note: The whiskers represent 95% confidence intervals. This figure is identical to Figure 3 except that the sample is restricted to respondents age 50 and above. The Sell-Buy Spread is measured as the absolute value of the difference between the log EV-Sell valuation and the log EV-Buy valuation of a $100 change in monthly Social Security benefits.

Table A.1: Further Summary Statistics

	(1) Mean	(2) Std. Dev.	(3) N	(4) Source
Annuity Valuation Measures				
CV-Sell (log of category midpoint)	10.02	1.56	2090	Q.2.3
CV-Sell if $100 increment is shown first	9.67	1.51	1046	Q.2.3
EV-Sell (log of category midpoint)	9.48	1.71	2089	Q.6.3
CV-Buy (log of category midpoint)	8.34	2.06	2086	Q.6.3
EV-Buy (log of category midpoint)	8.51	2.17	2082	Q.6.3
Average of CV-Sell and CV-Buy (in logs)	9.18	1.22	2065	
CV Sell-Buy Spread (in logs)	2.58	1.85	2065	
Log actuarial value	9.68	0.20	2112	See note
Log theoretical utility-based annuity value	9.38	0.79	2112	See note
Randomization Variables				
Log of starting value	9.80	0.45	2112	
Asked after larger version	0.50	0.50	2112	
Asked in wave 1	0.47	0.50	2112	
Lump-sum option shown last	0.52	0.50	2112	
Control Variables Not Already Listed in Table 1				
Financial literacy index	2.42	0.85	2112	Q.3.2.1 - Q.3.2.3
Financial literacy index = 0	0.04	0.19	2112	
Financial literacy index = 1	0.12	0.32	2112	
Financial literacy index = 2	0.23	0.42	2112	
Financial literacy index = 3	0.61	0.49	2112	
Education index, 1-5 scale	3.42	1.05	2112	Preloaded from ALP
Number series score (standardized)	0.00	1.00	2112	Preloaded from ALP
Log family income (annual)	10.89	0.93	2104	Preloaded from ALP
Owns an annuity	0.50	0.50	2110	Q.3.5.1, Q.3.5.3
Owns home	0.75	0.43	1885	Preloaded from ALP
Log financial wealth (if financial wealth ≥ $1000)	11.71	1.51	1468	Preloaded from ALP
Self-reported health index, 1-5 scale	3.56	0.89	2109	Q.3.1
Ever had kids	0.73	0.45	2090	Preloaded from ALP
Risk aversion (standardized)	0.00	1.00	2098	Q.3.3.1 - Q3.3.6
Precaution (standardized)	0.00	1.00	2104	Q.3.3.7 - Q3.3.8
Expects returns greater than 3% p.a.	0.41	0.49	2103	Q.3.8.3
Confident SS will pay promised benefits, 1-4 scale	2.34	0.84	2109	Q.3.7

Notes: The upperbound of the top category is assumed to be $1 million. Log actuarial value is calculated by us based on cohort mortality tables, age at annuitization, and sex, assuming a real interest rate of three percent per year. To calculate the theoretical utility-based annuity value, we solve the lifecycle dynamic programming problem for a household that matches the respondent on age, gender, marital status, spousal age (if married), start date of the annuity, financial wealth, existing annuity wealth, and coefficient of risk aversion assuming a real discount rate of three percent per year. We solve this lifecycle dynamic programming problem twice: once for the CV-Sell equivalent wealth and once for the CV-Buy equivalent wealth. We take the log of both amounts and average them. The education index corresponds to the education categories in Table 1, with higher values corresponding to higher levels of eduction. The number series score is based on six questions where a respondent was shown an incomplete sequence of numbers and asked to complete the sequence. Missing values (14% of observations) are set equal to the mean and variable is standized. "Owns an annuity" equals one for anyone who currently receives or in the future expects to receive annuity income other than from Social Security. Higher values of the self-reported health index correspond to better health. Risk aversion is the standardized sum of Q.3.3.1 to Q.3.3.6 (with Q.3.3.3, Q.3.3.5, and Q3.3.6 reverse coded). Precaution is the standardized sum of Q.3.3.7. and Q.3.3.8. Higher values of the variable "confidence that Social Security will pay promised benefits" correspond to greater levels of confidence.

Table A.2: Characteristics of Individuals with Valuation Responses in the Tails of the Distribution

	Means by Group					
	(1)	(2)	(3)	(4)	(5)	(6)
	Entire Sample	Any Tail of CV-Sell or CV-Buy	Bottom Tail of CV-Sell Valuation	Top Tail of CV-Sell Valuation	Bottom Tail of CV-Buy Valuation	Top Tail of CV-Buy Valuation
Basic Demographics						
Age	51.4	51.9	50.6	53.3*	52.6***	48.9***
Female	0.58	0.65***	0.63	0.70***	0.65***	0.66***
Married	0.60	0.55***	0.57	0.57	0.55***	0.53**
Black	0.08	0.11***	0.14***	0.14***	0.11***	0.14***
Hispanic	0.09	0.13***	0.09	0.15***	0.11*	0.18***
Other	0.03	0.04	0.05	0.03	0.04	0.03
Ever had kids	0.73	0.75***	0.77	0.71	0.75*	0.75
Household Financial Characteristics						
Ln Family Income	10.89	10.68***	10.75**	10.60***	10.65***	10.62***
Owns an annuity	0.50	0.45***	0.43**	0.44*	0.46**	0.37***
Owns home	0.75	0.71***	0.72	0.70	0.72**	0.62***
Ln financial wealth	11.71	11.56***	11.68	11.62	11.46***	11.56
Financial wealth equals zero	0.07	0.10***	0.07	0.12***	0.10***	0.12***
Financial wealth negative	0.20	0.22***	0.24	0.19	0.21	0.29***
Fraction of retirement income from Social Security	0.76	0.78***	0.80**	0.79	0.78**	0.80**
Indicators of Cognition						
Cognition Index, standardized	0.00	-0.36***	-0.23***	-0.59***	-0.35***	-0.62***
Financial literacy index, 0-3 scale	2.42	2.16***	2.22***	1.99***	2.18***	1.95***
Education index, 1-5 scale	3.42	3.18***	3.32	2.97***	3.17***	3.04***
Number series score, standardized	0.00	-0.32***	-0.21***	-0.46***	-0.30***	-0.53***
Gives 0% chance of dying between 75-85 years of age	0.32	0.43***	0.40**	0.49***	0.43***	0.44***
Preferences and Other Characteristics						
Risk aversion (standardized)	0.00	-0.18***	0.02	-0.28***	-0.25***	-0.13**
Precaution (standardized)	0.00	0.09***	0.13*	0.11	0.10***	0.00
Expects returns greater than 3% p.a.	0.41	0.39*	0.46	0.33**	0.35***	0.44
Confident SS will pay promised benefits, 1-4 scale	2.34	2.39***	2.30	2.59***	2.39**	2.41
Self-reported health index, 1-5 scale	3.56	3.45***	3.48	3.28***	3.45***	3.46*
Observations	2112	1062	192	181	695	214

Notes: Significance stars indicate significance level of difference from first column. * significantly different from first column at 10%, ** significantly different from first column at 5%, *** significantly different from first column at 1%. An individual is included in a tail if he/she is in the highest or lowest 10% of CV-Sell or CV-Buy valuations, or he/she gave the highest or lowest possible valuation based on his/her randomly assigned starting value. Specifically, individuals in the Bottom Tail of the CV-Sell were willing to sell a $100 monthly Social Security Annuity for $4000 or less, individuals in the Top Tail of CV-Sell were unwilling to sell a $100 monthly Social Security Annuity for $200,000, individuals in the Bottom Tail of CV-Buy were unwilling to pay $2000 or more for a $100 monthly Social Security Annuity, and individuals in the Top Tail of CV-Buy were willing to pay $100,000 or more for a $100 monthly Social Security Annuity.

Table A.3: Uncorrected Correlations between Annuity Valuation Measures (All in Natural Logs)

Pairwise correlations	CV-Sell	EV-Sell	CV-Buy	EV-Buy
CV-Sell	1			
EV-Sell	0.32***	1		
CV-Buy	-0.10***	-0.16***	1	
EV-Buy	-0.10***	-0.14***	0.72***	1

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%. Each entry gives the pairwise correlation between the variable listed in the column and in the row. This table shows that the results in Table 2 are not sensitive to the corrections for common experimental manipulations that were applied to the correlations in Table 2.

Table A.4: Full Regressions Explaining the Sell-Buy Spread

Explanatory Variables	Dependent Variable: Absolute Value of Difference between Log CV-Sell and Log CV-Buy (1)	Dependent Variable: Absolute Value of Difference between Log EV-Sell and Log EV-Buy (2)	Dependent Variable: Winsorized CV Sell-Buy Spread (3)
Age 35 to 49	0.24*	0.32**	0.24**
	(0.13)	(0.15)	(0.11)
Age 50 to 64	0.43***	0.50***	0.42***
	(0.13)	(0.15)	(0.12)
Age 65 and older	0.69***	0.61***	0.68***
	(0.16)	(0.19)	(0.14)
Cognition index, standardized	-0.48***	-0.73***	-0.44***
	(0.05)	(0.06)	(0.04)
Female	0.24***	0.27***	0.20***
	(0.08)	(0.09)	(0.07)
Married	0.07	-0.04	0.00
	(0.09)	(0.10)	(0.08)
Black	0.43**	0.27	0.29**
	(0.17)	(0.18)	(0.15)
Hispanic	0.21	0.46***	0.16
	(0.15)	(0.18)	(0.13)
Other	0.65***	0.24	0.42**
	(0.23)	(0.28)	(0.19)
Log family income	-0.02	0.02	-0.02
	(0.05)	(0.06)	(0.05)
Owns an annuity	-0.02	-0.05	-0.01
	(0.08)	(0.10)	(0.07)
Owns home	-0.05	-0.27**	-0.07
	(0.11)	(0.12)	(0.09)
Self-reported health index, 1-5 scale	-0.09**	0.08	-0.07*
	(0.05)	(0.05)	(0.04)
Ever had kids	-0.17*	-0.14	-0.10
	(0.09)	(0.10)	(0.08)
Risk aversion (standardized)	-0.19***	-0.11**	-0.19***
	(0.04)	(0.05)	(0.04)
Precaution (standardized)	0.00	-0.01	0.01
	(0.04)	(0.05)	(0.04)
Expects returns greater than 3% p.a.	-0.14*	-0.17*	-0.15**
	(0.08)	(0.09)	(0.07)
Confident SS will pay promised benefits, 1-4 scale	0.16***	0.17***	0.13***
	(0.05)	(0.05)	(0.04)
Controls for experimental variation	Yes	Yes	Yes
Adjusted R^2	0.1779	0.1761	0.1818
Number of observations	2065	2067	2065
Mean of dependent variable	2.58	2.27	2.49
Standard deviation of dependent variable	1.85	2.10	1.63

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. Each column contains an OLS regression of the Sell-Buy Spread listed in the column heading on the explanatory variables listed in the rows. Column 1 shows all the coefficients of the regression in Table 3 column 4. Column 2 shows all the coefficients of the regression in Online Appendix Table A.5 column 4. Column 3 shows all the coefficients of the regression in Online Appendix Table A.12 column 4.

Table A.5: Explaining the Sell-Buy Spread within EV Valuations

	Dependent Variable: Absolute Value of Difference between Log EV-Sell and Log EV-Buy			
Explanatory Variables	(1)	(2)	(3)	(4)
Age 35 to 49	-0.20	0.15	0.11	0.32**
	(0.15)	(0.14)	(0.14)	(0.15)
Age 50 to 64	-0.14	0.36**	0.31**	0.50***
	(0.14)	(0.13)	(0.13)	(0.15)
Age 65 and older	0.03	0.49***	0.42***	0.61***
	(0.16)	(0.15)	(0.15)	(0.19)
Cognition index, standardized			-0.83***	-0.73***
			(0.05)	(0.06)
Financial literacy index, 0-3 scale		-0.62***		
		(0.06)		
Education index, 1-5 scale		-0.23***		
		(0.05)		
Number series score, standardized		-0.35***		
		(0.06)		
Controls for demographics and preferences	No	No	No	Yes
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0039	0.1605	0.1565	0.1761
Number of observations	2067	2067	2067	2067
Mean of dependent variable	2.27	2.27	2.27	2.27
Standard deviation of dependent variable	2.10	2.10	2.10	2.10

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 3, except that this table is based on EV valuations whereas Table 3 was based on CV valuations. Each column contains an OLS regression of the Sell-Buy Spread (absolute value of the difference between log EV-Sell and log EV-Buy) on the explanatory variables listed in the rows. EV-Sell is the lump-sum amount equivalent to a $100 increase in monthly Social Security benefits. EV-Buy is the lump-sum amount the individual is just willing to pay in lieu of a $100 decrease in monthly Social Security benefits. For further details, see the note to Table 3. The coefficients on the demographic and preference variables of the regression in column 4 are shown in Online Appendix Table A.4 column 2.

Table A.6: Explaining the Spread Between CV-Sell and EV-Sell

	Dependent Variable: Absolute Value of Difference between Log CV-Sell and Log EV-Sell			
Explanatory Variables	(1)	(2)	(3)	(4)
Age 35 to 49	-0.02	0.09	0.08	0.14
	(0.10)	(0.09)	(0.10)	(0.10)
Age 50 to 64	0.06	0.22**	0.21**	0.29***
	(0.09)	(0.09)	(0.09)	(0.11)
Age 65 and older	0.14	0.28***	0.27***	0.34**
	(0.11)	(0.10)	(0.10)	(0.13)
Cognition index, standardized			-0.29***	-0.24***
			(0.03)	(0.04)
Financial literacy index, 0-3 scale		-0.19***		
		(0.05)		
Education index, 1-5 scale		-0.11***		
		(0.03)		
Number series score, standardized		-0.11***		
		(0.03)		
Controls for demographics and preferences	No	No	No	Yes
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0189	0.0576	0.0582	0.0611
Number of observations	2068	2068	2068	2068
Mean of dependent variable	1.42	1.42	1.42	1.42
Standard deviation of dependent variable	1.39	1.39	1.39	1.39

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 3, except that this table examines the spread between CV and EV sell valuations whereas Table 3 examined the CV Sell-Buy Spread. Each column contains an OLS regression of the absolute value of the difference between log CV-Sell and log EV-Sell on the explanatory variables listed in the rows. CV-Sell is the lump-sum amount given to the individual that would exactly compensate the individual for a $100 decrease in monthly Social Security benefits. EV-Sell is the lump-sum amount equivalent to a $100 increase in monthly Social Security benefits. For further details, see the note to Table 3.

Table A.7: Cognition Index and Correlations Between Valuations

Explanatory Variables	Dependent Variable: CV-Buy (1)	Dependent Variable: Average of CV-Buy and EV-Buy (2)	Dependent Variable: EV-Sell (3)	Dependent Variable: Average of EV-Sell and EV-Buy (4)
CV-Sell	-0.12***		0.34***	
	(0.03)		(0.03)	
CV-Sell × Cognition Index, standardized	0.08**		0.01	
	(0.03)		(0.03)	
Average of CV-Sell and EV-Sell		-0.22***		
		(0.03)		
Average of CV-Sell and EV-Sell		0.20***		
× Cognition Index, standardized		(0.03)		
Average of CV-Sell and CV-Buy				0.55***
				(0.02)
Average of CV-Sell and CV-Buy				0.10***
× Cognition Index, standardized				(0.02)
Cognition index, standardized	-0.08	-0.17***	-0.11***	-0.13***
	(0.05)	(0.05)	(0.04)	(0.03)
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0343	0.0788	0.1118	0.2831
Number of observations	2065	2105	2068	2028
Mean of dependent variable	8.33	8.43	9.47	8.98
Standard deviation of dependent variable	2.05	1.97	1.71	1.28

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. Each column contains an OLS regression of the variable listed in the column heading on the explanatory variables listed in the rows. All annuity valuation measures are in logs. All regressions include controls for experimental variation, namely: log of starting value, asked after larger version, asked in wave 1, lump-sum option shown last. All variables interacted with the cognition index are demeaned so that the coefficient on the cognition index can be interpreted as the effect of the cognition literacy index when the interaction variables are equal to their sample means. Columns 1 and 2 show that the negative correlation between buy and sell valuations decreases in size for higher values of the Cognition Index. Columns 3 and 4 show that the positive correlation between CV and EV valuations increases in size for higher values of the Cognition Index, though only significantly so in column 4.

Table A.8: Robustness of Predictive Power of Actuarial Value

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable	Coefficient on log actuarial value	p-value on coefficient =1	Controls	Root MSE	Adjusted R^2	N
1.	Mean of CV-Sell and CV-Buy	1.02*** (0.25)	0.940	Basic	1.187	0.0543	2065
2.	CV-Sell	1.05*** (0.34)	0.883	Basic	1.496	0.0816	2090
3.	CV-Buy	0.98** (0.44)	0.955	Basic	2.026	0.0315	2086
4.	EV-Sell	0.74** (0.37)	0.492	Basic	1.692	0.0190	2089
5.	EV-Buy	0.84* (0.48)	0.734	Basic	2.140	0.0269	2082
6.	Mean of CV-Sell and CV-Buy	0.84*** (0.26)	0.536	Extensive	1.180	0.0649	2065
7.	CV-Sell	0.63* (0.34)	0.281	Extensive	1.478	0.1034	2090
8.	CV-Buy	1.03** (0.45)	0.945	Extensive	2.012	0.0455	2086
9.	EV-Sell	0.36 (0.38)	0.095	Extensive	1.680	0.0330	2089
10.	EV-Buy	0.96* (0.49)	0.930	Extensive	2.129	0.0370	2082

Notes: Robust standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. Each row contains an OLS regression of the log annuity valuation measure listed in column 1 on the log actuarial value and additional controls. The annuity valuation measures CV-Sell, CV-Buy, EV-Sell, and EV-Buy are defined in the text. All valuations are expressed in logs of the midpoint between the upper and lower bounds. Additional controls in rows 1-5 are those in specification 1 of Table 5, whereas the additional controls in rows 6-10 are those in specification 3 of Table 5. Rows 1 and 6 replicate columns 1 and 3 of Table 5, respectively.

Table A.9: Robustness of Table 5 to Using Log CV-Sell as the Dependent Variable

	Dependent Variable: Log CV-Sell			
Explanatory Variables	(1)	(2)	(3)	(4)
Log actuarial value	1.05***		0.63*	
	(0.34)		(0.34)	
Log theoretical utility-based annuity value		0.01		-0.01
		(0.04)		(0.16)
Age	-0.03*	0.00	-0.01	0.01
	(0.02)	(0.01)	(0.02)	(0.01)
Age squared/100	0.06***	0.01	0.02	0.00
	(0.02)	(0.01)	(0.02)	(0.01)
Female	0.03	0.12*	0.04	0.10
	(0.07)	(0.07)	(0.07)	(0.07)
Married	-0.03	-0.04	0.06	0.06
	(0.07)	(0.07)	(0.08)	(0.09)
Black	0.03	0.04	-0.06	-0.06
	(0.17)	(0.17)	(0.17)	(0.17)
Hispanic	0.42***	0.43***	0.27*	0.26*
	(0.14)	(0.14)	(0.15)	(0.15)
Other	0.01	0.01	0.02	0.02
	(0.22)	(0.22)	(0.22)	(0.22)
Education index, 1-5 scale			-0.07*	-0.07**
			(0.04)	(0.04)
Log family income			0.01	0.01
			(0.05)	(0.05)
Owns an annuity			-0.04	-0.03
			(0.07)	(0.07)
Owns home			-0.04	-0.05
			(0.10)	(0.10)
Log financial wealth			-0.03	-0.03
			(0.03)	(0.04)
Self-reported health index, 1-5 scale			-0.06	-0.06
			(0.04)	(0.04)
Ever had kids			-0.15*	-0.16*
			(0.08)	(0.08)
Risk aversion (standardized)			-0.10***	-0.11***
			(0.04)	(0.04)
Precaution (standardized)			-0.01	-0.01
			(0.04)	(0.04)
Expects returns greater than 3% p.a.			-0.09	-0.09
			(0.07)	(0.07)
Confident SS will pay promised benefits, 1-4 scale			0.16***	0.17***
			(0.04)	(0.04)
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0816	0.0767	0.1034	0.1017
Number of observations	2090	2090	2090	2090
Mean of dependent variable	10.02	10.02	10.02	10.02
Standard deviation of dependent variable	1.56	1.56	1.56	1.56

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. Each column contains an OLS regression of annuity valuation (log CV-Sell) on the explanatory variables listed in the rows. This Table is identical to Table 5 except that the dependent variable is log CV-Sell instead of the average of log CV-Sell and log CV-Buy. For the remaining notes, see the note to Table 5.

Table A.10: Robustness of Table 5 to Using Log CV-Buy as the Dependent Variable

	Dependent Variable: Log CV-Buy			
Explanatory Variables	(1)	(2)	(3)	(4)
Log actuarial value	0.98**		1.03**	
	(0.44)		(0.45)	
Log theoretical utility-based annuity value		0.09		0.33
		(0.06)		(0.22)
Age	-0.06**	-0.03*	-0.07**	-0.03
	(0.03)	(0.02)	(0.03)	(0.02)
Age squared/100	0.06**	0.02	0.06**	0.02
	(0.03)	(0.02)	(0.03)	(0.02)
Female	-0.19*	-0.11	-0.11	-0.07
	(0.10)	(0.09)	(0.10)	(0.10)
Married	0.11	0.10	0.09	0.18
	(0.10)	(0.10)	(0.11)	(0.13)
Black	0.12	0.18	0.20	0.21
	(0.21)	(0.21)	(0.22)	(0.22)
Hispanic	0.32	0.36*	0.44**	0.43**
	(0.20)	(0.20)	(0.21)	(0.21)
Other	-0.16	-0.17	-0.18	-0.19
	(0.24)	(0.24)	(0.23)	(0.23)
Education index, 1-5 scale			-0.01	-0.01
			(0.05)	(0.05)
Log family income			0.04	0.04
			(0.07)	(0.07)
Owns an annuity			-0.12	-0.08
			(0.10)	(0.10)
Owns home			-0.23	-0.24*
			(0.15)	(0.15)
Log financial wealth			0.06	0.02
			(0.04)	(0.05)
Self-reported health index, 1-5 scale			-0.01	-0.01
			(0.05)	(0.06)
Ever had kids			0.05	0.05
			(0.11)	(0.10)
Risk aversion (standardized)			0.15***	0.15***
			(0.05)	(0.05)
Precaution (standardized)			-0.14***	-0.14***
			(0.05)	(0.05)
Expects returns greater than 3% p.a.			0.28***	0.28***
			(0.09)	(0.09)
Confident SS will pay promised benefits, 1-4 scale			0.07	0.09
			(0.06)	(0.06)
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0315	0.0301	0.0455	0.0438
Number of observations	2086	2086	2086	2086
Mean of dependent variable	8.34	8.34	8.34	8.34
Standard deviation of dependent variable	2.06	2.06	2.06	2.06

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. Each column contains an OLS regression of annuity valuation (log CV-Buy) on the explanatory variables listed in the rows. This Table is identical to Table 5 except that the dependent variable is log CV-Buy instead of the average of log CV-Sell and log CV-Buy. For the remaining notes, see the note to Table 5.

Table A.11: Correlations Between Winsorized Annuity Valuation Measures (All in Natural Logs)

Pairwise correlations	CV-Sell	EV-Sell	CV-Buy	EV-Buy
CV-Sell	1			
EV-Sell	0.32***	1		
CV-Buy	-0.10***	-0.14***	1	
EV-Buy	-0.09***	-0.12***	0.72***	1

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 2 except that all annuity valuation measures are winsorized at the 10th and 90th percentiles. For further details, see the note to Table 2.

Table A.12: Explaining the Winsorized Sell-Buy Spread

	Dependent Variable: Absolute Value of Difference between Log CV-Sell (winsorized) and Log CV-Buy (winsorized)			
Explanatory Variables	(1)	(2)	(3)	(4)
Age 35 to 49	-0.05	0.18	0.15	0.24**
	(0.12)	(0.11)	(0.11)	(0.11)
Age 50 to 64	0.09	0.43***	0.39***	0.42***
	(0.11)	(0.10)	(0.10)	(0.12)
Age 65 and older	0.48***	0.79***	0.74***	0.68***
	(0.12)	(0.12)	(0.12)	(0.14)
Cognition index, standardized			-0.57***	-0.44***
			(0.04)	(0.04)
Financial literacy index, 0-3 scale		-0.43***		
		(0.05)		
Education index, 1-5 scale		-0.17***		
		(0.03)		
Number series score, standardized		-0.23***		
		(0.04)		
Controls for demographics and preferences	No	No	No	Yes
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0354	0.1540	0.1515	0.1818
Number of observations	2065	2065	2065	2065
Mean of dependent variable	2.49	2.49	2.49	2.49
Standard deviation of dependent variable	1.63	1.63	1.63	1.63

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 3 except that the Sell-Buy spead was calculated based on annuity valuation measures that were winsorized at the 10th and 90th percentiles. For further details, see the note to Table 3. The coefficients on the demographic and preference variables of the regression in column 4 are shown in Online Appendix Table A.4 column 3.

Table A.13: Effects of Randomizations for Winsorized CV-Sell Annuity Valuation

	(1)	(2)	(3)	(4)
	Dependent Variable: Winsorized Log CV-Sell			
Explanatory Variables	Entire sample	Top quintile of cognition index	Bottom quintile of cognition index	Entire sample
Log of starting value	0.30***	0.21**	0.66***	0.31***
	(0.06)	(0.11)	(0.14)	(0.05)
Asked after larger version	0.62***	0.69***	0.67***	0.61***
	(0.05)	(0.10)	(0.13)	(0.05)
Asked in wave 1	0.05	0.09	0.10	0.05
	(0.05)	(0.10)	(0.13)	(0.05)
Lump-sum option shown last	0.07	-0.05	-0.05	0.07
	(0.05)	(0.10)	(0.13)	(0.05)
Log of starting value × Cognition index				-0.11**
				(0.06)
Asked after larger version × Cognition index				-0.02
				(0.05)
Asked in wave 1 × Cognition index				0.02
				(0.05)
Lump-sum option shown last × Cognition index				0.04
				(0.05)
Cognition index				-0.14***
				(0.03)
Adjusted R^2	0.0783	0.1249	0.0935	0.0917
N	2090	368	415	2090
Mean of dependent variable	10.01	9.82	10.30	10.01
Standard deviation of dependent variable	1.20	1.15	2.01	1.20

Notes: Robust standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 4 except that the dependent variable is winsorized at the 10th and 90th percentiles. For further details, see the note to Table 4.

Table A.14: Explaining Winsorized Annuity Valuations

	Dependent Variable: Mean of Winsorized Log CV-Sell and Winsorized Log CV-Buy			
Explanatory Variables	(1)	(2)	(3)	(4)
Log actuarial value	0.93***		0.79***	
	(0.23)		(0.24)	
Log theoretical utility-based annuity value		0.04		0.17
		(0.03)		(0.12)
Age	-0.05***	-0.02*	-0.04***	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Age squared/100	0.06***	0.02	0.04***	0.01
	(0.01)	(0.01)	(0.02)	(0.01)
Female	-0.08	-0.01	-0.04	0.00
	(0.05)	(0.05)	(0.06)	(0.06)
Married	0.06	0.05	0.08	0.13*
	(0.05)	(0.05)	(0.06)	(0.07)
Black	0.09	0.12	0.09	0.09
	(0.11)	(0.11)	(0.11)	(0.11)
Hispanic	0.32***	0.35***	0.33***	0.33***
	(0.10)	(0.11)	(0.11)	(0.11)
Other	-0.01	-0.02	-0.02	-0.03
	(0.12)	(0.12)	(0.11)	(0.12)
Education index, 1-5 scale			-0.02	-0.02
			(0.03)	(0.03)
Log family income			0.02	0.02
			(0.04)	(0.04)
Owns an annuity			-0.06	-0.03
			(0.06)	(0.06)
Owns home			-0.15**	-0.16**
			(0.08)	(0.08)
Log financial wealth			0.01	-0.01
			(0.02)	(0.03)
Self-reported health index, 1-5 scale			-0.02	-0.03
			(0.03)	(0.03)
Ever had kids			-0.03	-0.04
			(0.06)	(0.06)
Risk aversion (standardized)			0.02	0.02
			(0.03)	(0.03)
Precaution (standardized)			-0.07**	-0.07**
			(0.03)	(0.03)
Expects returns greater than 3% p.a.			0.12**	0.12**
			(0.05)	(0.05)
Confident SS will pay promised benefits, 1-4 scale			0.11***	0.12***
			(0.03)	(0.03)
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0529	0.0463	0.0633	0.0590
Number of observations	2065	2065	2065	2065
Mean of dependent variable	9.17	9.17	9.17	9.17
Standard deviation of dependent variable	1.13	1.13	1.13	1.13

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 5 except that the dependent variable was calculated based on annuity valuation measures that were winsorized at the 10th and 90th percentiles. For further details, see the note to Table 5.

Table A.15: Predictive Power of Actuarial Value by the Cognition Index for Winsorized Outcomes

Dependent Variable: Mean of Log CV-Sell and Log CV-Buy	(1) Coefficient on log actuarial value	(2) p-value on coefficient =1	(3) Root MSE	(4) Adjusted R^2	(5) N
Sample split by quintiles of cognition index					
1. Bottom quintile	0.31	0.283	1.362	0.0636	407
	(0.64)				
2. Second quintile	0.24	0.217	1.202	0.0124	412
	(0.61)				
3. Third quintile	1.58***	0.234	1.096	0.0538	413
	(0.49)				
4. Fourth quintile	0.64	0.373	0.919	0.0562	468
	(0.40)				
5. Fifth quintile	1.59***	0.199	0.835	0.0718	365
	(0.46)				

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 6 except that the dependent variable was calculated based on annuity valuation measures that were winsorized at the 10th and 90th percentiles. For further details, see the note to Table 6.

Table A.16: Correlations between Annuity Valuation Measures for the Age 50+ Sample (All in Natural Logs)

Pairwise correlations	CV-Sell	EV-Sell	CV-Buy	EV-Buy
CV-Sell	1			
EV-Sell	0.29***	1		
CV-Buy	-0.11***	-0.17***	1	
EV-Buy	-0.11***	-0.17***	0.72***	1

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 2 except that the sample is restricted to respondents age 50 and above. For further details, see the note to Table 2.

Table A.17: Explaining the Sell-Buy Spread for the Age 50+ Sample

	Dependent Variable: Absolute Value of Difference between Log CV-Sell and Log CV-Buy			
Explanatory Variables	(1)	(2)	(3)	(4)
Age 65 and older	0.39***	0.35***	0.35***	0.22*
	(0.11)	(0.11)	(0.11)	(0.11)
Cognition index, standardized			-0.63***	-0.46***
			(0.06)	(0.06)
Financial literacy index, 0-3 scale		-0.42***		
		(0.08)		
Education index, 1-5 scale		-0.19***		
		(0.05)		
Number series score, standardized		-0.31***		
		(0.06)		
Controls for demographics and preferences	No	No	No	Yes
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0468	0.1515	0.1505	0.1881
Number of observations	1223	1223	1223	1223
Mean of dependent variable	2.68	2.68	2.68	2.68
Standard deviation of dependent variable	1.82	1.82	1.82	1.82

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 3 except that the sample is restricted to respondents age 50 and above. For further details, see the note to Table 3.

Table A.18: Effects of Randomizations for the Age 50+ Sample

	(1)	(2)	(3)	(4)
	Dependent Variable: Log CV-Sell			
Explanatory Variables	Entire sample	Top quintile of cognition index	Bottom quintile of cognition index	Entire sample
Log of starting value	0.36***	0.35**	0.68**	0.39***
	(0.10)	(0.15)	(0.27)	(0.10)
Asked after larger version	0.78***	0.88***	0.87***	0.76***
	(0.08)	(0.14)	(0.25)	(0.09)
Asked in wave 1	0.02	0.14	0.13	0.02
	(0.08)	(0.14)	(0.24)	(0.09)
Lump-sum option shown last	0.00	-0.06	-0.45*	-0.03
	(0.08)	(0.14)	(0.24)	(0.09)
Log of starting value × Cognition index				-0.14
				(0.11)
Asked after larger version × Cognition index				-0.04
				(0.10)
Asked in wave 1 × Cognition index				0.00
				(0.10)
Lump-sum option shown last × Cognition index				0.15
				(0.10)
Cognition index				-0.19***
				(0.05)
Adjusted R^2	0.0729	0.1441	0.0605	0.0862
N	1236	248	245	1236
Mean of dependent variable	10.12	9.87	10.49	10.12
Standard deviation of dependent variable	1.53	1.18	1.98	1.53

Notes: Robust standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 4 except that the sample is restricted to respondents age 50 and above. For further details, see the note to Table 4.

Table A.19: Explaining Annuity Valuations for the Age 50+ Sample

	Dependent Variable: Mean of Log CV-Sell and Log CV-Buy			
Explanatory Variables	(1)	(2)	(3)	(4)
Log actuarial value	1.61***		1.61***	
	(0.49)		(0.50)	
Log theoretical utility-based annuity value		0.10**		0.33**
		(0.05)		(0.16)
Age	-0.17*	0.07	-0.18**	0.04
	(0.09)	(0.05)	(0.09)	(0.05)
Age squared/100	0.16**	-0.05	0.17**	-0.02
	(0.08)	(0.04)	(0.08)	(0.04)
Female	-0.05	0.08	-0.03	0.05
	(0.08)	(0.07)	(0.08)	(0.07)
Married	0.05	0.06	0.06	0.17*
	(0.07)	(0.07)	(0.08)	(0.10)
Black	0.09	0.15	0.10	0.11
	(0.18)	(0.18)	(0.17)	(0.17)
Hispanic	0.13	0.21	0.10	0.13
	(0.20)	(0.20)	(0.21)	(0.21)
Other	-0.30	-0.26	-0.28	-0.26
	(0.22)	(0.21)	(0.22)	(0.22)
Education index, 1-5 scale			0.01	0.01
			(0.04)	(0.04)
Log family income			0.05	0.06
			(0.05)	(0.05)
Owns an annuity			-0.03	0.00
			(0.08)	(0.08)
Owns home			-0.21*	-0.19*
			(0.11)	(0.11)
Log financial wealth			0.02	-0.03
			(0.03)	(0.04)
Self-reported health index, 1-5 scale			-0.01	-0.02
			(0.04)	(0.04)
Ever had kids			-0.09	-0.09
			(0.08)	(0.08)
Risk aversion (standardized)			-0.02	-0.03
			(0.04)	(0.04)
Precaution (standardized)			-0.07*	-0.07*
			(0.04)	(0.04)
Expects returns greater than 3% p.a.			0.10	0.09
			(0.07)	(0.07)
Confident SS will pay promised benefits, 1-4 scale			0.12***	0.13***
			(0.04)	(0.04)
Controls for experimental variation	Yes	Yes	Yes	Yes
Adjusted R^2	0.0584	0.0534	0.0710	0.0661
Number of observations	1223	1223	1223	1223
Mean of dependent variable	9.17	9.17	9.17	9.17
Standard deviation of dependent variable	1.19	1.19	1.19	1.19

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 5 except that the sample is restricted to respondents age 50 and above. For further details, see the note to Table 5.

Table A.20: Predictive Power of Actuarial Value by the Cognition Index for the Age 50+ Sample

Dependent Variable: Mean of Log CV-Sell and Log CV-Buy	(1) Coefficient on log actuarial value	(2) p-value on coefficient =1	(3) Root MSE	(4) Adjusted R^2	(5) N
Sample split by quintiles of the cognition index					
1. Bottom quintile	3.44**	0.069	1.373	0.1037	242
	(1.34)				
2. Second quintile	2.27*	0.335	1.294	0.0377	246
	(1.32)				
3. Third quintile	1.30	0.775	1.101	0.0531	274
	(1.05)				
4. Fourth quintile	1.24	0.831	1.023	0.0420	215
	(1.11)				
5. Fifth quintile	0.92	0.923	0.866	0.0964	246
	(0.78)				

Notes: Robust standard errors between parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%. This table is identical to Table 6 except that the sample is restricted to respondents age 50 and above. For further details, see the note to Table 6.

Online Appendix A: The Rand American Life Panel

Sample Construction

Our survey was conducted in the RAND American Life Panel (ALP). The ALP consists of a panel of U.S. households that regularly takes surveys over the Internet. An advantage over most other Internet panels is that the respondents to the ALP need not have Internet when they get recruited (as described in more detail below) and thus can be based on a probability sample of the U.S. population.[1] This is in contrast with so-called convenience Internet samples, where respondents are volunteers who already have Internet and, for example, respond to banners placed on frequently visited web-sites, in which they are invited to complete surveys and earn money by doing so. The problem with convenience Internet samples is that their statistical properties are unknown. There is fairly extensive literature comparing probability Internet samples like the ALP to convenience Internet samples, as well as literature seeking to establish if convenience samples can somehow be made population-representative by reweighting.

For instance, Chang and Krosnick (2009) simultaneously administered the same questionnaire (on politics) to an RDD (random digit dialing) telephone sample, an Internet probability sample, and a non-probability sample of volunteers who do Internet surveys for money. They found that the telephone sample had the most random measurement error, while the non-probability sample had the least. At the same time, the latter sample exhibited the most bias (also after reweighting), producing the most accurate self-reports from the most biased sample. The probability Internet sample exhibited more random measurement error than the non-probability sample (but less than the telephone sample) and less bias than the non-probability Internet sample. On balance, the probability Internet sample produced the most accurate results. Yeager et al. (2009) conducted a follow-up study comparing one probability Internet sample, one RDD telephone sample, and seven non-probability Internet samples and a wider array of outcomes. Their conclusions were the same: both the telephone sample and the probability Internet sample showed the least bias; reweighting the non-probability samples did not help (for some outcomes, the bias got worse; for others, better). They also found that response rates do not appear critical for bias. Even with relatively low response rates, the probability samples yielded

[1] Other probability Internet surveys include the Knowledge Networks panel in the U.S. (http://www.knowledgenetworks.com/knpanel/index.html), and the CentERpanel and LISS panel in the Netherlands (http://www.centerdata.nl/en/centerpanel and http://www.centerdata.nl/en/MESS). Of these panels, the CentERpanel is the oldest (founded in 1991).

unbiased estimates. It is not clear *a priori* why non-probability samples do so much worse. As the authors note, it appears that there are some fundamental differences between Internet users and non-Internet users that cannot be redressed by reweighting. Indeed, Couper et al. (2007) and Schonlau et al. (2009) show that weighting and matching do not eliminate differences between estimates based on samples of respondents with and without Internet access. Several other studies point at equally mixed results, including Vehovar et al. (1999); Duffy et al. (2005); Malhotra and Krosnick (2007); Taylor (2000); and Loosveldt and Sonck (2008).

ALP respondents have been recruited in one of four ways. Most were recruited from respondents ages 18+ to the Monthly Survey (MS) of the University of Michigan's Survey Research Center (SRC). The MS is the leading consumer sentiment survey that incorporates the long-standing Survey of Consumer Attitudes and produces, among others, the widely used Index of Consumer Expectations. Each month, the MS interviews approximately 500 households, 300 of which are a random-digit-dial (RDD) sample and 200 of which are re-interviewed from the RDD sample surveyed six months previously. Until August 2008, SRC screened MS respondents by asking them if they would be willing to participate in a long-term research project (with approximate response categories "no, certainly not," "probably not," "maybe," "probably," "yes, definitely"). If the response category is not "no, certainly not," respondents were told that the University of Michigan is undertaking a joint project with RAND. They were asked if they would object to SRC sharing information about them with RAND so that they could be contacted later and asked if they would be willing to actually participate in an Internet survey. Respondents who did not have Internet were told that RAND would provide them with free Internet. Many MS respondents were interviewed twice. At the end of the second interview, an attempt was made to convert respondents who refused in the first round. This attempt included mentioning the fact that participation in follow-up research carries a reward of $20 for each half-hour interview. Respondents from the Michigan monthly survey without Internet were provided with so-called WebTVs (http://www.webtv.com/pc/), which allowed them to access the Internet using their television and a telephone line. The technology enabled respondents who lacked Internet access to participate in the panel and, further, use the WebTVs for browsing the Internet or email. The ALP has also recruited respondents through a snowball sample (respondents suggesting friends or acquaintances who might also want to participate), but we do not use any respondents recruited through the snowball sample in our paper. A new group of respondents

(approximately 500) has been recruited after participating in the National Survey Project created at Stanford University with SRBI. This sample was recruited in person, and at the end of their one-year participation, respondents were asked whether they were interested in joining the RAND American Life Panel. Most of these respondents were given a laptop and broadband Internet access. Recently, the American Life Panel has begun recruiting based on a random mail and telephone sample using the Dillman et al. method (2008), with a goal of achieving 5,000 active panel members, including a 1,000-person Spanish language subsample. If these new participants do not yet have Internet access, they are also provided with a laptop and broadband Internet access.

Calculation of Social Security Benefits

For most ALP respondents, we have previously estimated monthly Social Security benefits (described in Brown et al., 2013). To do so, we took respondents through a fairly detailed set of questions asking about years in which they had labor earnings and an approximation of earnings in those years. We then fed these earnings through a benefit calculator provided by SSA to calculate individuals' "Primary Insurance Amount" (PIA), which is equivalent to the benefit the individual would receive if he were to retire at his normal retirement age. Next, we applied SSA's actuarial adjustment for earlier or later claiming. We also asked respondents if the estimated benefit amount seemed reasonable to them, and we gave them an opportunity to change this estimate if they believed it was not a good approximation. All subsequent lump-sum and annuity questions then pivot off this estimated monthly Social Security benefit amount.

For the few respondents who indicated they did not expect to receive benefits (nor expect one from a living or deceased spouse), we imputed "standard monthly benefit amounts" based on age, sex, and educational level. We then asked these respondents to assume, for the purposes of the questions to follow, that they would receive this benefit, as follows:

> *Even though we understand that you are not eligible to receive Social Security benefits, we would like to ask you to complete this survey assuming you would be eligible. In other words, please answer in this survey what you would have done or chosen if you would be eligible for Social Security benefits.*

Online Appendix References

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Online Appendix B – Survey Instrument

Introduction for users of this survey instrument

- **The survey instrument was fielded as well-being modules 179 and 180 on the RAND American Life Panel (ALP)**
- **Items which are bolded are instructions to programmer or comments to the reader.**
- **Items which are non-bolded are asked of respondents.**
- **Items shown on the screen in bold are marked by for the start of the bolded text and by at the end of the bolded text.**
- **We changed the names of the four elicitation methods in the written up version of the paper compared to the names used in this survey instrument. CV-minus corresponds to CV-Buy, EV-minus to EV-Buy, CV-plus to CV-Sell, and EV-plus to EV-Sell.**

A. Randomizations

We independently randomize the following variables:

1. **VERSION_A [0, 1]: whether we ask CV-plus in wave 1 or wave 2**
   1 if we ask CV-Plus in wave 1 of the survey (survey version A)
   0 otherwise
2. **VAR_ORDER [1, 6]: Order of CV-minus**
   1. **Order: CV-minus, EV-plus, EV-minus**
   2. **Order: CV-minus, EV-minus, EV-plus**
   3. **Order: EV-plus, CV-minus, EV-minus**
   4. **Order: EV-plus, EV-minus, CV-minus**
   5. **Order: EV-minus, CV-minus, EV-plus**
   6. **Order: EV-minus, EV-plus, CV-minus**
3. **LS_FIRST [0, 1]: whether we ask the option that mentions the lumpsum amount first**
   1 if we ask the option with the lumpsum amount first
   0 otherwise
4. **SMALLTOLARGE [0, 1]: the order in which we present the changes in SS**
   1 if we show the ΔSS from smallest to largest
   0 otherwise
5. **LS_STARTVALUE [1, 3]: Size of the first lumpsum amount shown**
   1. **low starting value ($10,000)**
   2. **medium starting value ($20,000)**
   3. **high starting value ($30,000)**
6. **ORDER_STOCK [1,2]: Order of choices in Q.3.2.3**
   1. **List "single company stock" first**
   2. **List "stock mutual fund" first**

If VAR_ORDER=1 OR VAR_ORDER=2, we set CVM_ORDER = 1
If VAR_ORDER=3 OR VAR_ORDER=5, we set CVM_ORDER = 2
If VAR_ORDER=4 OR VAR_ORDER=6, we set CVM_ORDER = 3

If VAR_ORDER=3 OR VAR_ORDER=4, we set EVP_ORDER = 1
If VAR_ORDER=1 OR VAR_ORDER=6, we set EVP_ORDER = 2
If VAR_ORDER=2 OR VAR_ORDER=5, we set EVP_ORDER = 3

If VAR_ORDER=5 OR VAR_ORDER=6, we set EVM_ORDER = 1
If VAR_ORDER=2 OR VAR_ORDER=4, we set EVM_ORDER = 2
If VAR_ORDER=1 OR VAR_ORDER=3, we set EVM_ORDER = 3

B. Survey waves and versions A and B

We fielded the survey in two waves. We have two versions, version A and version B. The only difference between these versions is that in version B the order of sections 2 and 6 is switched (compared to version A). The survey instrument below is for version A. The following table specifies the order for the sections for versions A and B.

	Version A	Version B
Wave 1	Section 1 ("Intro wave 1")	Section 1 ("Intro wave 1")
	Section 2 ("CVPlus")	Section 6 ("Other tradeoffs")
	Section 3 ("Background")	Section 3 ("Background")
	Section 4 ("Close wave 1")	Section 4 ("Close wave 1")
Wave 2	Section 5 ("Intro wave 2")	Section 5 ("Intro wave 2")
	Section 6 ("Other tradeoffs")	Section 2 ("CVPlus")
	Section 7 ("No Political Risk")	Section 7 ("No Political Risk")
	Section 8 ("Close wave 2")	Section 8 ("Close wave 2")

Respondents with the VERSION_A=1 are given version A and respondents with VERSION_A=0 are given version B.

C. Syntax

Note:

- **The number between parentheses before a choice box was not displayed on the screen. It only indicates how that choice should be coded.**
- **Comments between square brackets are programming notes.**
- **Variable names between square brackets were replaced by the contents of the variable.**

D. Lookup tables (matrices) for Lumpsum amounts and BEN_DEFAULT

The following tables show lumpsum (one-time Social Security payment) amounts for three different starting values: low, medium and high, which are randomized as mentioned above.

10,000	4,000	2,000	1,000	500	Row 1
				1,500	Row 2
			3,000	2,500	Row 3
				3,500	Row 4
		7,000	5,500	4,750	Row 5
				6,250	Row 6
			8,500	7,750	Row 7
				9,250	Row 8
	30,000	20,000	15,000	12,500	Row 9
				17,500	Row 10
			25,000	22,500	Row 11
				27,500	Row 12
		60,000	40,000	35,000	Row 13
				50,000	Row 14
			100,000	80,000	Row 15
				200,000	Row 16
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	

Table1: Lumpsum amounts for LOW starting value

We put the values of the table 1 in the 16x5 matrix LS_LOW. The i^{th} row and j^{th} column of this matrix is denoted by LS_LOW[i,j]

20,000	4,000	2,000	1,000	500	Row 1
				1,500	Row 2
			3,000	2,500	Row 3
				3,500	Row 4
		10,000	7,000	5,500	Row 5
				8,500	Row 6
			15,000	12,500	Row 7
				17,500	Row 8
	60,000	30,000	25,000	22,500	Row 9
				27,500	Row 10
			40,000	35,000	Row 11
				50,000	Row 12
		100,000	80,000	70,000	Row 13
				90,000	Row 14
			200,000	150,000	Row 15
				500,000	Row 16
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	

Table2: Lumpsum amounts for MEDIUM starting value

We put the values of the table 2 in the 16x5 matrix LS_MED. The i^{th} row and j^{th} column of this matrix is denoted by LS_MED[i,j]

30,000	10,000	4,000	2,000	1,000	Row 1
				3,000	Row 2
			7,000	5,500	Row 3
				8,500	Row 4
		20,000	15,000	12,500	Row 5
				17,500	Row 6
			25,000	22,500	Row 7
				27,500	Row 8
	60,000	40,000	35,000	32,500	Row 9
				37,500	Row 10
			50,000	45,000	Row 11
				55,000	Row 12
		100,000	80,000	70,000	Row 13
				90,000	Row 14
			200,000	150,000	Row 15
				500,000	Row 16
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	

Table3: Lumpsum amounts for HIGH starting value

We put the values of the table 3 in the 16x5 matrix LS_HIGH. The i^{th} row and j^{th} column of this matrix is denoted by LS_HIGH[i,j]

The following code was used for the BEN_DEFAULT value table:

EDUCATION **1 = less than high school (< 12 years)**
2= high school degree (12 years),
3=some college (>12 and < 16 years)
4 = college degree (= 16 years)
5 = more than college (>16 years)

The variable BEN_DEFAULT was created and set to the following values:

Education	Gender	Marital status	BEN_DEFAULT
1 (<12 years)	Female	Married	660
2 (12 years)	Female	Married	790
3 (> 12 years and <16 years)	Female	Married	850
4 (16 years)	Female	Married	830
5 (>16 years)	Female	Married	850
1 (<12 years)	Male	Married	1070
2 (12 years)	Male	Married	1280
3 (> 12 years and <16 years)	Male	Married	1270
4 (16 years)	Male	Married	1330
5 (>16 years)	Male	Married	1360
1 (<12 years)	Female	Not Married	920
2 (12 years)	Female	Not Married	1080
3 (> 12 years and <16 years)	Female	Not Married	1120
4 (16 years)	Female	Not Married	1230
5 (>16 years)	Female	Not Married	1160
1 (<12 years)	Male	Not Married	1040
2 (12 years)	Male	Not Married	1190
3 (> 12 years and <16 years)	Male	Not Married	1130
4 (16 years)	Male	Not Married	1350
5 (>16 years)	Male	Not Married	1380

INITIALIZATIONS: BEGINNING OF SURVEY

[NOTE: THIS IS THE BEGINNING OF THE SURVEY.]

Preloaded variables from previous waves that are used in skip patterns are:

GENDER 1 = male; 2 = female

AGE The respondent's current age in years

HIGHESTEDUCATION
1 Less than 1st grade
2 1st, 2nd, 3rd, or 4th grade
3 5th or 6th grade
4 7th or 8th grade
5 9th grade
6 10th grade
7 11th grade
8 12th grade NO DIPLOMA
9 HIGH SCHOOL GRADUATE high school DIPLOMA or the equivalent (For example: GED)
10 Some college but no degree
11 Associate degree in college Occupational/vocational program
12 Associate degree in college Academic program
13 Bachelor's degree (For example: BA,AB,BS)
14 Master's degree (For example: MA,MS,MEng,MEd,MSW,MBA)
15 Professional School Degree (For example: MD,DDS,DVM,LLB,JD)
16 Doctorate degree (For example: PhD,EdD)

For missing values/ answers for variables mentioned above, the questions were asked again in the beginning of wave 1. The variable "MARRIED" was collected regardless of whether data was available. The following question was asked to all respondents in the beginning of wave 1.

[MARRIED] Married

Are you currently married?
(0) Not Currently Married
(1) Currently married

Other preloaded questions include:

PIA_EST Estimated PIA (Social Security Primary Insurance Amount) based on previous questions asked about earnings history. So this is the Social Security benefit one would get if one claimed at full retirement age.

WORK_FOR_PAY 1 YES; 2 NO. This is a standard variable that records whether the respondent has ever worked for pay. If this variable was missing for any respondent then they were asked the following question:

[WORK_FOR_PAY] Work For Pay

Did you work for pay more than 10 years?
(1) Yes
(2) No

A new data-only variable SPOUSE was created:
Set SPOUSE = "husband" if GENDER=="female"
Set SPOUSE = "wife" if GENDER=="male"

A new data only variable FLAGHYPO was created and set FLAGHYPO=0.
A new data only variable USE_DEFAULT was created and set USE_DEFAULT=0.

SECTION 1: INTRODUCTION TO WAVE 1

[NOTE: THIS SECTION FINDS THE SOCIAL SECURITY STATUS, ELIGIBILITY, AND CLAIM AGE OF RESPONDENTS. IT ESTIMATES THE SOCIAL SECURITY BENEFIT AMOUNT OF RESPONDENTS BASED ON THEIR AGE, EARNINGS HISTORY, AND YEARS IN THE WORK FORCE AND PROVIDES RESPONDENTS AN OPPORTUNITY TO CORRECT THE ESTIMATE. THIS SECTION WAS ASKED OF ALL RESPONDENTS.]

[**WAIT_WARNING]** Wait Warning
The page after this may take several seconds to load. Please click the next button now, and do not click your browser's back button while the page is loading. Thank you.

Q.1.1: [INTRODUCTION TO SECTION 1]
We are interested in understanding how and when people would like to receive their Social Security benefits.

In this survey, we sometimes ask questions that are difficult to answer exactly. Please take time to consider the questions and give us your best guess even if you do not know the exact answer. Having your best guess will be very helpful to us.

Thank you very much for your participation!

Q.1.2: [SS_STATUS] Social Security Status

In this survey, we mean by "Social Security benefits" any benefits that you yourself receive or will receive from the Social Security program, including retiree, disability, spouse, or survivor benefits.

Which of the following statements best describes you?

(1) ☐ I receive Social Security benefits now.
(2) ☐ I don't receive Social Security benefits now but, under current law, I will be eligible to receive them in the future.
(3) ☐ I will never be eligible under current law to receive Social Security benefits.

[Create new variable SS_STATUS_ORIG, and set SS_STATUS_ORIG=SS_STATUS]

[ASK IF SS_STATUS=3]
Q.1.3: [SS_ELIG] Social Security Eligibility

Why do you think you will never be eligible to receive Social Security benefits?

(1) ☐ My main job was/is not covered by Social Security.
(2) ☐ I don't have or will not have a sufficient work history to become eligible for Social Security benefits.
(3) ☐ I do not think Social Security will be around by the time I would start claiming benefits
(4) ☐ Other: _____ [Give open-ended text box]

[SHOW IF SS_ELIG=3]
Q.1.4: [SS_AROUND] Assume Social Security will still be around

Please answer the questions in this survey assuming that current Social Security rules still apply when you first claim Social Security benefits. Thank you.

[IF SS_ELIG=3, SET SS_STATUS=2]

[ASK IF SS_STATUS=3]
Q.1.5: [SSEL_SPOUSE] Eligible For Social Security Based on Spouse

People who are not eligible to receive Social Security based on their own work history may receive Social Security benefits based on the earnings history of their spouse, late spouse, or ex-spouse.

Do you think you may be eligible to receive benefits based on the past or future earnings of your **[SPOUSE]**, late **[SPOUSE]**, ex-**[SPOUSE]**, or perhaps a future **[SPOUSE]**?

(1) ☐ Yes
(2) ☐ No

[IF SSEL_SPOUSE==1 AND SS_STATUS==3: SET SS_STATUS=2]
[IF (SSEL_SPOUSE==2 OR SSEL_SPOUSE=MISSING) AND SS_STATUS==3: SET FLAGHYPO=1]

[ASK IF FLAGHYPO=1]
[If FLAGHYPO=1 AND AGE>=62, SET SS_STATUS=1] /* if eligible, they would be claiming */
[If FLAGHYPO=1 AND AGE<62, SET SS_STATUS=2] /* if eligible, they would not yet have claimed */
[If FLAGHYPO=1, SET CLAIM_AGE=62]
[If FLAGHYPO=1, SET BEN_EST=BEN_DEFAULT]
Q.1.6: [HYPOELIGIBLE] Hypothetically Eligible

Even though we understand that you are not eligible to receive Social Security benefits, we would like to ask you to complete this survey assuming you would be eligible. In other words, please answer in this survey what you would have done or chosen if you would be eligible for Social Security benefits.

The typical Social Security benefit for **[If MARRIED=1, insert** "a married"**; if MARRIED=0, insert** "an unmarried"**] [If GENDER="male" insert** "man"**; if GENDER="female" insert** "woman"**]** with **[insert the respondent's educational attainment based on the categories in EDUCATION]** is $[BEN_DEFAULT] per month.

For the purpose of this survey, let's assume that you **[If SS_STATUS==2, insert** "are supposed to"**]** get a Social Security benefit of $[BEN_DEFAULT] per month, and that you **[If SS_STATUS==1, insert** "started receiving"; **If SS_STATUS==2, insert** "would start receiving"**]** Social Security benefits at age 62.

[If FLAGHYPO=1, GO TO SECTION 2]

Q.1.7.1: [CLAIM_AGE] Social Security benefits claim age
[ASK IF SS_STATUS==1 (RECEIVING BENEFITS):]
At what age did you start receiving Social Security benefits?
At age: _____

Q.1.7.2: [CHECKCLAIM_AGE1] CHECK CLAIM AGE
[ASK IF SS_STATUS==1 AND CLAIMING AGE > CALCULATED AGE]

You told us earlier that you are already receiving Social Security benefits. Therefore, the age at which you started receiving Social Security benefits cannot be higher than your current age. Please go back and revise your answer.

Q.1.7.3: **[CLAIM_AGE] Social Security benefits claim age**
[ASK IF SS_STATUS==2 (NOT RECEIVING BENEFITS YET)]:
At what age do you plan to start receiving Social Security benefits?
At age: _____

Q.1.7.4: [**CHECKCLAIM_AGE1] Check Claim Age**
[ASK IF SS_STATUS==2 (NOT RECEIVING BENEFITS YET) AND CLAIMING AGE < CALCULATED AGE]:
You told us earlier that you are not currently receiving Social Security benefits. Therefore, the age at which you plan to start receiving Social Security benefits cannot be lower than your current age. Please go back and revise your answer.

[ALWAYS: (THE CODE BELOW ENSURES CLAIM_AGE WILL NEVER BE MISSING)]
[SET CLAIM_AGE_ORIG=CLAIM_AGE]
[SET CLAIM_AGE=MAX(AGE+1, 62) IF CLAIM_AGE=MISSING AND SS_STATUS==2]
[SET CLAIM_AGE=MIN(AGE, 62) IF CLAIM_AGE=MISSING AND SS_STATUS==1]

[NOTE: THE SERIES OF QUESTIONS 1.8.1-1.8.6 BELOW WERE ONLY ASKED IF THE VARIABLE PIA_EST WAS MISSING (AND THEREFORE COULD NOT BE PRELOADED). THE VARIABLE PIA_EST CONTAINS THE ESTIMATED SOCIAL SECURITY MONTHLY BENEFITS IF THE PERSON CLAIMS BENEFITS AT THE FULL RETIREMENT AGE, AND IS BASED ON A SERIES OF QUESTIONS ASKED

PREVIOUSLY IN THE AMERICAN LIFE PANEL ABOUT THE PERSON'S WORK HISTORY. THE SERIES OF QUESTIONS AND THE SKIP LOGIC BELOW IS IDENTICAL TO THE EARLIER SERIES OF QUESTIONS ASKED TO ESTIMATE PIA_EST.]

[IF WORK_FOR_PAY ≠ "YES" OR PIA_EST ≠ missing, Skip Q1.8.1 through Q.1.8.6]

Q.1.8.1: [YEAR_START_WORK] Year Start Work For Pay

In what year did you first start to work for pay?

[Note to programmer: Insert "a drop down box from 1900 to 2011"]

[ASK IF YEAR_ START_WORK < YEAR_OF_BIRTH + 14]

Q.1.8.2: [WORKED_TO_EARLY] Start Working Before 14

You said you started working before you were 14 years old. You indicated that you started working before you were 14 years old. For what follows, we will just assume that pay from age 14 on counts. If you believe you made an error in entering the date you began working, you may go back and change it.

Q.1.8.3: [INCOME_INTRO] Income Introduction

We would now like to ask you some more information about the period when you started working for pay (in [YEAR_START_WORK]) up to now.

[Note to Programmer: LOOP FROM 1 TO [number of questions INCOME_CAT] DO: /* number of periods loop */

Q.1.8.4: [INCOME_NOT_WORK] Income Not Work

[Insert "[income cat start year fill] - [income cat end year fill]"**]** Was there ever a time when you did not work in the "[income cat start year fill] - [income cat end year fill]" period?

---

(1) ☐ Yes
(2) ☐ No

[ASK IF INCOME_NOT_WORK=YES]

Q.1.8.5: [INCOME_NOT_WORK_HOW_LONG] Income Not Work Months

[Insert "[income cat start year fill] - [income cat end year fill]"**]** How many months in total do you estimate not working for pay in the "[income cat start year fill] - [income cat end year fill]" period?

(1) ☐ _____ [Give open-ended text box allowing only integers]

[ASK IF INCOME_CAT fill amount 1 = and INCOME_CAT fill amount 2 = and INCOME_CAT fill amount 3]

Q.1.8.6: [INCOME_CAT] Income categories

[Insert "[income cat start year fill] - [income cat end year fill]"**]** Could you please give us an estimate of how much you were making on average per year in the "[income cat start year fill] - [income cat end year fill]" period "[fill for income cat question]?

(1) ☐ More than $[INCOME_CAT fill amount 1]
(2) ☐ Between $[INCOME_CAT fill amount 2] and $[INCOME_CAT fill amount 1]
(3) ☐ Between $[INCOME_CAT fill amount 3] and $[INCOME_CAT fill amount 2]
(4) ☐ Less than $[INCOME_CAT fill amount 3]

End Do /* End of number of periods loop */

[Note to programmers: based on the responses to Q1.8.1 through Q1.8.6, calculate PIA_EST using the same algorithm as used in the earlier ALP module]

[NOTE TO PROGRAMMERS: PLEASE USE THE VARIABLE PIA_EST (PRELOADED OR CALCULATED FROM Q.1.8.1-Q.1.8.6) AND THE VARIABLE CLAIM_AGE ASKED ABOVE TO COMPUTE THE ESTIMATED MONTHLY SOCIAL SECURITY BENEFITS FOR EACH RESPONDENT IF THEY START CLAIMING AT CLAIM_AGE. PLEASE USE THE SOCIAL SECURITY AGE ADJUSTMENT RULES

APPROPRIATE FOR THE BIRTH COHORT THAT THE RESPONDENT BELONGS TO IN THIS CALCULATION. PLEASE NAME THE RESULTING VARIABLE BEN_EST_ORIG1.]

IF BEN_EST_ORIG1 ≥ 200, THEN SET BEN_EST_ORIG=BEN_EST_ORIG1.
IF BEN_EST_ORIG1 < 200, THEN SET BEN_EST_ORIG=200
IF BEN_EST_ORIG1 = MISSING, THEN SET BEN_EST_ORIG=MISSING.

[SHOW IF SS_STATUS==1 (CURRENTLY RECEIVING BENEFITS) AND (AGE ≥ 60 OR BEN_EST_ORIG=MISSING)]
Q.1.9: [BEN_LEVEL] Social Security Benefits Level

Approximately how much are your monthly Social Security benefits?

Even if you do not know exactly, please give your best guess.

(As before, please report any Social Security benefits paid to you yourself (by check or direct deposit), not benefits paid to any other member in your household).

$_____ **[NUMBER BOX WITH RANGE 0-3500]** per month.

[Note to programmers: please record the first answer to this question in BEN_LEVEL1.

[Display If BEN_LEVEL1 (social security benefits level) > 3500]
[checkBEN_LEVEL3500] Social Security Benefits Level Check > 3500

> Due to how Social Security calculates your benefits, it is very unlikely that your monthly benefit will be this high. Please go back and change your answer to something between $0 and $3500 per month.

[Display If BEN_LEVEL1 (social security benefits level) < 0]
[checkBEN_LEVEL0] Social Security Benefits Level Check <0

> Monthly Social Security benefits cannot be negative. Please go back and change your answer to something between $0 and $3500 per month.

The final response for all respondents should be recorded in the variable BEN_LEVEL.]

[SET BEN_EST=BEN_LEVEL]
[GO TO Q.1.13, "USE_DEFAULT"]

[Ask if BEN_EST_ORIG ≠ missing:]
Q.1.10: [BEN_OVERRIDE, BEN_NEW] ESTIMATED SOCIAL SECURITY BENEFITS

Based on the information you have provided to us about your own earnings history, we estimate that, under current Social Security Law, you are supposed to get a Social Security retirement benefit of approximately $[BEN_EST_ORIG] per month if you claim benefits at age [CLAIM_AGE].

Think of any dollar amount mentioned in this survey in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation).

Our estimate does not take into account Social Security benefits you may receive based on the earnings of a past or current spouse.

Do you think our estimate is about right for benefits you yourself are supposed to get from the Social Security program whether these benefits are retiree, disability, spouse, or survivor benefits?

(1) ☐ Yes, I believe the Social Security benefits I am supposed to get are roughly $[BEN_EST_ORIG] per month.
(2) ☐ No, I believe the Social Security benefits I am supposed to get are roughly $_____ **[NUMBER BOX WITH RANGE 0-6000, variable name: BEN_NEW]** per month.

The instrument made sure that those who check option 2 fill in the number box; and they were reminded once if they left it blank. The first answer to their question was recorded in BEN_NEW1.

[DISPLAY IF BEN_NEW1 (benefits new) > 6000]
[checkBEN_NEW6000] Benefits New Check > 6000

Due to how Social Security calculates your benefits, it is very unlikely that your monthly benefit will be this high. Please go back and change your answer to something between $0 and $6000 per month.

[DISPLAY If BEN_NEW1 (benefits new) < 0]
[checkBEN_NEW0] Benefits New Check < 0

Monthly Social Security benefits cannot be negative. Please go back and change your answer to something between $0 and $6000 per month.

[DISPLAY IF BEN_OVERRIDE==2 and BEN_NEW == missing]
[checkBEN_NEWempty] Benefits New Check Value Empty

You selected the second option but did not fill in a value. Your answers are important to us. Please go back and fill in a value.

The final response for the number box for each respondent was recorded in the variable BEN_NEW.]

IF BEN_OVERRIDE==1, SET BEN_EST=BEN_EST_ORIG
IF BEN_OVERRIDE==2, SET BEN_EST=BEN_NEW

[ASK IF BEN_OVERRIDE==2]
Q.1.11 [OVERRIDE_WHY] Reason why R changed our estimate

Thank you for correcting our estimate of your Social Security benefits. We are interested in knowing what this correction was based on. Please check all boxes that apply.

(1) ☐ I know the amount of Social Security that I am supposed to get from my annual Social Security mailing
(2) ☐ I included Social Security survivor benefits that you did not include in your estimate
(3) ☐ I included Social Security spousal benefits that you did not include in your estimate
(4) ☐ I included Social Security disability benefits that you did not include in your estimate
(5) ☐ Your estimate simply didn't appear right to me
(6) ☐ Other _____ [Give open-ended text box]

[Note to programmer: Respondent is allowed to select multiple options]

[Ask if BEN_EST_ORIG=missing:]
Q.1.12: [BEN_EST_OWN]

In this question, we would like get your estimate of the Social Security benefits you are supposed to get under current law if you claim benefits at age [CLAIM_AGE].

As a point of reference, the typical Social Security benefit for **[If MARRIED=1, insert** "a married"**; if MARRIED=0, insert** "an unmarried"**] [If GENDER="male" insert** "man"**; if GENDER="female" insert** "woman"**]** with **[insert the respondent's educational attainment based on the categories in EDUCATION]** is $[BEN_DEFAULT] per month.

Please give your answer in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation). Please report benefits you yourself are supposed to get from the Social Security program whether these benefits are retiree, disability, spouse, or survivor benefits?

Even if you do not know exactly, please give your best guess.

I believe the Social Security benefits I am supposed to get are roughly $_____ **[NUMBER BOX WITH RANGE 0-6000, variable name: BEN_EST_OWN]** per month if I claim benefits at age [CLAIM_AGE].

[DISPLAY IF BEN_EST_OWN1 (benefits estimate own) > 6000]
[checkBEN_EST_OWN6000] Benefits Estimate Own Check > 6000

Due to how Social Security calculates your benefits, it is very unlikely that your monthly benefit will be this high. Please go back and change your answer to something between $0 and $6000 per month.

[DISPLAY IF BEN_EST_OWN1 (benefits estimate own) <0]
[checkBEN_EST_OWN0 benefits estimate own check < 0]

Monthly Social Security benefits cannot be negative. Please go back and change your answer to something between $0 and $6000 per month.

The final response for the number box for all respondents were recorded in the variable BEN_EST_OWN.]

[Set BEN_EST=BEN_EST_OWN]

[Ask if BEN_EST=missing]
Q.1.13 [USE_DEFAULT, BEN_EST_RAW]: Tell respondent that we are using a default amount for his/her SS benefits

The typical Social Security benefit for **[If MARRIED=1, insert** "a married"**; if MARRIED=0, insert** "an unmarried"**] [If GENDER="male" insert** "man"**; if GENDER="female" insert** "woman"**]** with **[insert the respondent's educational attainment based on the categories in EDUCATION]** is $[BEN_DEFAULT] per month. For the rest of the survey, let's assume that you **[If SS_STATUS==2, insert** "are supposed to"**]** get a Social Security benefit of $[BEN_DEFAULT] per month.

[Ask if BEN_EST<200]
Q.1.14 [USE_DEFAULT, BEN_EST_RAW]: Tell respondent that we are using a default amount for his/her SS benefits

Thank you for providing us with your estimated Social Security benefits of $[BEN_DEFAULT] per month. Some of the questions that follow only apply for Social Security benefits of at least $200 per month. For purposes of answering the remaining questions in this survey, we would therefore like to ask you to please assume that your Social Security benefits would be $200 per month.

[Set BEN_EST_RAW=BEN_EST]
[Set BEN_EST=BEN_DEFAULT]
[Set USE_DEFAULT=1]

SECTION 2: CV-PLUS ANNUITY TRADE-OFF QUESTIONS

[NOTE: A COMPENSATING VARIATION (CV-PLUS) MEASURE IS ELICITED IN THIS SECTION. HERE RESPONDENTS ARE ASKED TO MAKE A TRADE-OFF CHOICE BETWEEN REPONDENTS' EXISITING SOCIAL SECURITY MONTHLY BENEFIT LEVEL AND THEIR EXISTING SOCIAL SECURITY MONTLY BENENIT AMOUNT MINUS A VARYING AMOUNT (SS_VARAMT) AND AN ADDITION OF A ONE-TIME PAYMENT /LUMPSUM AMOUNT (LS_AMT).]

Q.2.1. [TRADEOFF – INTRO]. Introduction to annuity tradeoff questions

In the next few questions, we are going to ask you to make a number of choices about Social Security benefits.

Please assume that all amounts shown are after tax (i.e., you don't owe any tax on any of the amounts we will show you).

Think of any dollar amount mentioned in this survey in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation).

[WAIT_WARNING] Wait Warning

The page after this may take several seconds to load. Please click the next button now, and do not click your browser's back button while the page is loading. Thank you.

[Notes to programmers:

There are two nested loops in this section.

1. **The outer loop has 2, 3 or 4 iterations and loops over the change in the Social Security amount: SS_VARAMT. The outerloop is indexed by the variable i. (The number of iterations depends on the respondent's estimated Social Security benefits. For most respondents there are four iterations, but the number is lower for a few respondents with very low benefit amounts).**

2. **The inner loop has 4 or 5 iterations and loops over the amount of the one-time payment offered: LS. The inner loop is indexed by the variable j. (The number if iterations is generally 4. It is only 5 when we set SS_VARAMT=100)**

Let the variable SS_VARAMT be a vector of length N_VARAMT. Let SS_VARAMT[i] denote the i^{th} element of SS_VARAMT.

Initialization of SS_VARAMT

If BEN_EST < 300
Set N_VARAMT=2
SS_VARAMT={100, BEN_EST}
Endif

If BEN_EST ≥ 300 AND BEN_EST<600
Set N_VARAMT=3
Create the vector AMT={200, 300, 400}
Delete elements of AMT that are greater than (BEN_EST-100)
Pick at random one element of AMT, call this element AMTRND
Set SS_VARAMT={100, BEN_EST, AMTRND}
Endif

If BEN_EST ≥ 600
Set N_VARAMT=4

Create the vector AMT={200, 300, 400, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000} /* Note that the amount 500 is missing from this list on purpose */
Delete elements of AMT that are greater than (BEN_EST-100)
Pick at random one element of AMT, call this element AMTRND
Set SS_VARAMT={100, 500, BEN_EST, AMTRND}
Endif

If SMALLTOLARGE==1
Sort the elements if SS_VARAMT from smallest to largest (i.e. such that SS_VARAMT[i] < SS_VARAMT[i+1] for all i)
Else
Sort the elements if SS_VARAMT from largest to smallest (i.e. such that SS_VARAMT[i] > SS_VARAMT[i+1] for all i)
Endif

Initialization of LS_AMT
If LS_STARTVALUE ==1
Set the 16x5 matrix LS_AMT=LS_LOW
Elseif LS_STARTVALUE ==3
Set the 16x5 matrix LS_AMT=LS_HIGH
Else
Set the 16x5 matrix LS_AMT=LS_MED
Endif

Start of the nested loops that ask CV-PLUS

For i=1 to N_VARAMT /* START OF THE OUTER LOOP FOR CVPLUS */

If SS_VARAMT=100
Set N_LS=5
Else
Set N_LS=4
Endif

[Show if i>1]
Q.2.2:[CV-Plus Roadmap] Roadmap to new series of CV-plus tradeoff question.

Now we would like to show a similar series of questions about choices between two money amounts, but the amount of the Social Security benefits in one of the options is different from before.

As before, please assume that all amounts shown are after tax (i.e., you don't owe any tax on any of the amounts we will show you).

As before, please think of any dollar amount mentioned in this survey in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation).

Q.2.3: [CVPLUS]: CV-PLUS TRADE-OFF QUESTION
Set ROW=1
For j=1 to N_LS /* START OF THE INNER LOOP FOR CVPLUS*/
[If j = 1, Display:]
In this question, we are going to ask you to make a choice between two money amounts.
[Else, Display:]
Now we ask you the same question but with a different amount for the one-time payment.
[Endif]

Please click on the option that you would prefer.
[SHOW IF MARRIED==1:] Benefits paid to your [SPOUSE] will stay the same for either choice.

Suppose Social Security gave you a choice between:

[If LS_FIRST=0, Display:]
(1) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month.
or
[If BEN_EST ≤ SS_VARAMT, Display:]
(2) ☐ Receiving no Social Security benefits but receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age [CLAIM_AGE]"**; else insert** "one year from now"**]**.
[Else Display:]
(2) ☐ Receiving a Social Security benefit of $[BEN_EST - SS_VARAMT[i]] per month and receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age [CLAIM_AGE]"**; else insert** "one year from now"**]**.
[Endif]

[Else Display:]

[If BEN_EST ≤ SS_VARAMT, Display:]
(2) ☐ Receiving no Social Security benefits but receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age [CLAIM_AGE]"**; else insert** "one year from now"**]**.
[Else Display:]
(2) ☐ Receiving a Social Security benefit of $[BEN_EST - SS_VARAMT[i]] per month and receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age [CLAIM_AGE]"**; else insert** "one year from now"**]**.
[Endif]
or
(1) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month.

[Endif]

[If Respondent selects option 1 (so NOT the one-time payment)]
[Set ROW=ROW+2^(4-j)] /* Note: this will increase the offered one-time payment in the next iteration */
[Endif]

[If the respondent does not check either option, prompt once using the standard ALP language in situations like these (something along the lines of "Are just sure you do not want to choose between these two options."). If the respondent still does not answer, set j=5 so that we skip out of the inner loop to the next iteration of the outer loop]

j=j+1 /* END OF THE INNERLOOP FOR CV PLUS */
EndFor
i=i+1
EndFor /* END OF THE OUTERLOOP FOR CV PLUS */

SECTION 3: BACKGROUND QUESTIONS

[NOTE: THIS SECTION ASKS QUESITONS IN ORDER TO COLLECT CONTROL VARIABLES SUCH AS SUBJECTIVE HEALTH, FINANCIAL LITERACY, RISK AVERSION, ANNUITY HOLDINGS, MORTALITY EXPECTATIONS, PERCEPTION OF POLITICAL RISK, AND LIQUIDITY CONSTRAINTS.]

Q.3.1: [HEALTH] Subjective Health *[ms1_C901]*

Would you say your health is . . .?

(1) Excellent
(2) Very good
(3) Good
(4) Fair
(5) Poor

Financial Literacy

Q 3.2.1 [INT_RATE_LITERACY] Interest rate literacy *[ms5_L001]*

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?

(1) More than $102
(2) Exactly $102
(3) Less than $102
(4) Don't Know

Q 3.2.2 [INFLATION] Inflation Literacy *(ms5_L003)*

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

(1) More than today
(2) Exactly the same as today
(3) Less than today
(4) Don't Know

Q 3.2.3 [SAFER] Stock literacy *[ms5_P002]*

Please tell us whether this statement is true or false? Buying a **[If ORDER_STOCK=1, insert "**single company stock**"; else insert "**stock mutual fund**"]** usually provides a safer return than a **[If ORDER_STOCK=1, insert "**stock mutual fund**"; else insert "**single company stock**"]**.

(1) True
(2) False
(3) Don't know

Q 3.2.4 [FINKNOWL] Self-rated Financial Knowledge *[ms33_FINKNOWL]*

How would you rate your knowledge about financial matters?

(1) Very High
(2) High
(3) Moderate
(4) Low
(5) Very Low

Q 3.2.5 [HS_FIN_EDUC_PROGRAM] High school financial education programs *[ms5_B003]*

Did your high school offer financial education programs?

(1) Yes
(2) No

Q 3.2.6 [EMP_FIN_EDUC_PROGRAM] Employer's financial education program *[ms5_Z001]*
Did any of the employers you work for or worked for offer financial education programs (for example retirement seminars)?

(1) Yes
(2) No
(3) Don't know

Q 3.2.7 [RET_SAV_PLAN] Retirement savings plan [JV357 in HRS]
Have you developed a plan for retirement saving?

(1) Yes
(2) More or less
(3) No

[IF RET_SAV_PLAN = 1 skip to Q3.2.8, IF RET_SAV_PLAN = 2 skip to Q3.2.8, IF RET_SAV_PLAN = 3 skip to Q3.3.1]

Q 3.2.8 [RET_SAV_PLAN_1] Able to stick to retirement saving plan *[JV358 in HRS]*
How often have you stuck to this plan: would you say always, mostly, rarely, or never?

(1) Always
(2) Mostly
(3) Rarely
(4) Never

Questions on Risk Aversion and Precautionary Savings Motives

[NOTE: Options from 1 to 7 are included for the following questions where 1 indicates "completely agree" and 7 indicates "completely disagree".]

[RISKAVERSION_INTRO]: The following statements concern saving and taking risks. Please indicate for each statement to what extent you agree or disagree, on a scale from 1 to 7. Here 1 indicates you "completely agree" and 7 indicates you "completely disagree."

Q 3.3.1 [SPAAR1] Safe investments 1
I think it is more important to have safe investments and guaranteed returns, than to take a risk to have a chance to get the highest possible returns.

Q 3.3.2 [SPAAR2] Safe investments 2
I would never consider investing in the stock market because I find it too risky.

Q 3.3.3 [SPAAR3] Safe investments 3
If I think an investment will be profitable, I am prepared to borrow money to make this investment.

Q 3.3.4 [SPAAR4] Safe investments 4
I want to be certain that my investments are safe.

Q 3.3.5 [SPAAR5] Safe investments 5
I think I should take greater financial risks to improve my financial position.

Q 3.3.6 [RISKREWARD] Risk Reward
I am prepared to take the risk to lose money, when there is also a chance to gain money.

Q 3.3.7 [PRE_MOTIVES1] Precautionary motives 1
I save to have some money to cover unforeseen expenses

Q 3.3.8 [PRE_MOTIVES2] Precautionary motives 2
I save to have enough money in my bank account to be sure I will be able to meet my financial liabilities

---

Planning Horizon

Q 3.4 [FIN_PLAN] Financial planning methods *[MS16_FD004]*

In deciding how much of their income to spend or save, people are likely to think about different financial planning periods. In planning your household saving and spending, which time period is most important to you?

(1) Next few months
(2) Next year
(3) Next few years
(4) Next 5-10 years
(5) Longer than 10 years
(6) I don't plan

Annuity Holdings

Q 3.5.1 [ANNUITY_NOW] Any receipt of pension or annuity benefits now

Not including Social Security benefits, do you **[If MARRIED=1, insert "** and your [SPOUSE]**"]** currently receive any monthly pension or benefits that will continue for as long as you live?

(7) Yes
(8) No
(9) Other _____

[IF ANNUITY_NOW = 1, skip to 3.5.2, IF ANNUITY_NOW = 2, skip to 3.5.3, IF ANNUITY_NOW = 3, skip to 3.5.3]

Q 3.5.2 [ANNUITY_NOW1] Current monthly pension or annuity benefits

If you add it all up, about how much is the total amount per month? $ _____

Q 3.5.3 [ANNUITY_LATER] Monthly pension or annuity benefits later

Not including Social Security benefits, do you **[If MARRIED=1, insert "** and your [SPOUSE]**"]** anticipate receiving in the future any monthly pension or payments that will continue for as long as you live?

(1) Yes
(2) No
(3) Other _____

[IF ANNUITY_LATER = 1 skip to 3.5.4, IF ANNUITY_LATER = 2 skip to 3.6.1, IF ANNUITY_LATER = 3 skip to 3.6.1]

Q 3.5.4 [ANNUITY_LATER1] Monthly pension or annuity benefits 1

Adding it all up, about how much will the total amount be per month? $ _____

Mortality Expectations

[Note to Programmer: ASK Q3.6.1 IF AGE < 65, ELSE GO TO Q3.6.2]

Q 3.6.1 [MORT_EXP1] Mortality expectations 1 [HRS LP028]

What is the percent chance that you will live to be 75 or more? Please move the slider below to indicate what you think will be the chance that you will live to be 75 or more where 0 means "absolutely no chance" and 100 means "absolutely certain".

[Note to Programmer: Slider is inserted as shown below:]

|----------|
00---10---20---30---40---50---60---70---80---90---100
Absolutely Absolutely
No chance Certain

[ASK Q3.6.2 IF AGE < 90, ELSE GO TO Q3.7]
Q 3.6.2 [MORT_EXP2] Mortality expectations 2 [HRS LP029]
[Note to Programmer:
Fill values assigned as follows
85 (IF AGE IS LESS THAN 65) /* note: this non-monotonic pattern follows the HRS version of this question */
80 (IF AGE IS 65-69)
85 (IF AGE IS 70-74)
90 (IF AGE IS 75-79)
95 (IF AGE IS 80-84)
100 (IF AGE IS 85+)]

What is the percent chance that you will live to be **[FILLVALUE]** or more? Please move the slider below to indicate what you think will be the chance that you will live to be **[FILLVALUE]** or more, where 0 means "absolutely no chance" and 100 means "absolutely certain".

[Note to Programmer: Slider inserted as shown below:]

```
     |-----------------------------------------------------------------|
   00---10---20---30---40---50---60---70---80---90---100
Absolutely                                    Absolutely
No chance                                     Certain
```

Q.3.7: [PLCTCL_TRST] Perception of political risk *[Greenwald language]*
How confident are you that the Social Security system will be able to provide you with the level of future benefits you are supposed to get under current law?

(1) Very confident
(2) Somewhat confident
(3) Not too confident
(4) Not at all confident

Expected Returns
[The following questions are displayed as a table]
Q 3.8.1 [SAV_PLAN_1] Saving Plan 1
Suppose you received an additional $10,000 this year. Thinking about your household financial situation, how do you think you would use it?

Please type how much of the $10,000 you would use for each action in the boxes below. You can put the money in as many or as few categories as you wish.

About how much of it do you think you would use to:

(1)	spend	$_____
(2)	pay off credit cards	$_____
(3)	pay off other debt	$_____
(4)	save	$_____
(5)	other	$_____

Respondents are prompted to make sure the amounts add to $10,000
[DISPLAY IF total <> 10000]
[checkSAV_PLAN_1total] check total
Your total adds up to $[]. Please go back and change the numbers in the table so they add up to $10,000 or choose next to continue.

[The following questions are displayed as a table]
Q 3.8.2 [SAV_PLAN_2] Saving Plan 2
Now assume that you cannot spend the $10,000, but have to save it for the future. How would you do that?

Please type how much of the $10,000 you would use for each action in the boxes below. You can put the money in as many or as few categories as you wish. Please do not use commas, dollar signs or decimal points.

(1) Put some in the bank $_____
(2) Invest some in bonds $_____
(3) Invest some in CDs $_____
(4) Invest some in stocks $_____
(5) Buy property/real estate $_____
(6) Other $_____

[NOTE: Respondents are prompted to make sure the amounts add to $10,000.]
[DISPLAY IF total <> 10000]
[checkSAV_PLAN_2total] check total
Your total adds up to $[] Please go back and change the numbers in the table so they add up to $10,000 or choose next to continue.]

Q 3.8.3 [SAV_PLAN_3] Saving Plan 3
Of the $10,000 that you had to save, about how much do you think you might earn on it per year, on average?

(1) Less than or equal to 0%,
(2) 1-3%,
(3) 4-6%,
(4) 7-9%
(5) 10-12%
(6) 13% or more

Liquidity Constraints

Q 3.9.1 [ComeUp5000] Come up with $5000

If you had to, could you come up with $5,000 **[If CLAIM_AGE>AGE+1, insert** "by age CLAIM_AGE"**; else insert** "within one year from now"**]**?

(1) Yes, I am certain I could
(2) I probably could
(3) I probably could not
(4) No, I definitely could not

[Ask if ComeUp5000=1 or ComeUp5000=2]
Q 3.9.2 [FromWhere5000_MC, FromWhere_Box] How would you get the $5000

How would you come up with this $5000?

Choose all that apply:

(1) I would use my current savings or investments
(2) I would save the money out of my income between now and **[If CLAIM_AGE>AGE+1, insert** "age CLAIM_AGE"**; else insert** "one year from now"**]**?
(3) I would borrow it from family or friends
(4) I would use one or more credit cards
(5) I would use a home equity loan or home mortgage
(6) I would take out a payday loan or use a pawnshop
(7) I would sell something that I own, not including my home
(8) I would work additional hours, now or in the future
(9) Other: _____ [provide open-ended text box]

SECTION 4: CLOSING OF WAVE 1

[NOTE: THIS IS ASKED OF ALL RESPONDENTS AT THE END OF WAVE 1.]

Q 4.1.1: [CS_001] HOW PLEASANT INTERVIEW
Could you tell us how interesting or uninteresting you found the questions in this interview?

(1) Very interesting
(2) Interesting
(3) Neither interesting nor uninteresting
(4) Uninteresting
(5) Very uninteresting

Q 4.1.2: [CS_003] Comments
Do you have any other comments on the interview? Please type these in the box below.
[Insert Open box]

SECTION 5: INTRODUCTION TO WAVE 2

[NOTE: THIS SECTION ASKS THE EITHER THE CV-PLUS VERSION (VERSION B) OR THE OTHER VARIATIONS WHICH CONSISTS OF CV-MINUS, EV-PLUS AND EV-MINUS (VERSION A) DEPENDING ON THE RANDOMIZATION. IT ALSO ASKS THE "NO POLITICAL RISK VERSION" OF CV-PLUS TO ALL RESPONDENTS.]

[WAIT_WARNING] Wait Warning

The page after this may take several seconds to load. Please click the next button now, and do not click your browser's back button while the page is loading. Thank you.

Q.5.1. [WAVE2_INTRO] Introduction to wave 2
Recently, we asked you a number of questions about when and how you would like to receive your Social Security benefits.

We very much appreciate your help. Today, we would like to ask you some more questions about this.

Once again, please take time to consider the questions and give us your best guess even if you do not know the exact answer. Having your best guess will be very helpful to us.

Thank you very much for your participation!

[If SS_STATUS==2 and FLAGHYPO=0 (not currently receiving SS and not hypothetical benefits), show:]
Q5.2. [BENEFIT_REMINDER] Reminding the respondent about his/her benefits

We would like to remind you that in the prior survey we used $[BEN_EST] as the monthly Social Security benefits that your are supposed to get under current law if you claim benefits at age [CLAIM_AGE].

As before, we mean by "Social Security benefits" any benefits that you yourself receive or will receive from the Social Security program, including retiree, disability, spouse, or survivor benefits.

[IF SS_ELIG=3, DISPLAY:] /* So to those who said in wave 1 that they thought SS would no longer be around */

Please answer the questions in this survey assuming that current Social Security rules still apply when you first claim Social Security benefits. Thank you.

[ENDIF]

[If FLAGHYPO=1, Show]
Q.5.3: [ReminderHypoEligible] Reminder for those ineligble, but who answer questions hypothetically

Even though you told us in the prior survey that you are not eligible to receive Social Security benefits, we would like to again ask you to complete our survey assuming you would be eligible. In other words, please answer in this survey what you would have done or chosen if you would be eligible for Social Security benefits.

The typical Social Security benefit for **[If MARRIED=1, insert** "a married"**; if MARRIED=0, insert** "an unmarried"**] [If GENDER="male" insert** "man"**; if GENDER="female" insert** "woman"**]** with **[insert the respondent's educational attainment based on the categories in EDUCATION]** is $[BEN_DEFAULT] per month.

For the purpose of this survey, let's assume that you **[If SS_STATUS==2, insert** "are supposed to"**]** get a Social Security benefit of $[BEN_DEFAULT] per month, and that you **[If SS_STATUS==1, insert** "started receiving"; **If SS_STATUS==2, insert** "would start receiving"**]** Social Security benefits at age 62.

SECTION 6: CV-MINUS AND EV ANNUITY TRADE-OFF QUESTIONS

[NOTE: COMPENSATING VARIATION (CV-MINUS) AND EQUILVALENT VARIATION (EV-PLUS/EV-MINUS) MEASURES ARE ELICITED IN THIS SECTION. SPECIFICALLY, RESPONDENTS ARE ASKED TO MAKE A TRADE-OFF CHOICE BETWEEN:

1) CV-MINUS: REPONDENTS' EXISITING SOCIAL SECURITY MONTHLY BENEFIT LEVEL AND THEIR EXISTING SOCIAL SECURITY MONTLY BENENIT AMOUNT WITH AN INCREMENT OF A VARYING AMOUNT (SS_VARAMT) MINUS A ONE-TIME PAYMENT /LUMPSUM AMOUNT (LS_AMT).

2) EV-PLUS: REPONDENTS' EXISITING SOCIAL SECURITY MONTHLY BENEFIT LEVEL WITH A ONE-TIME PAYMENT/LUMPSUM AMOUNT (LS_AMT) AND REPONDENTS' EXISITING SOCIAL SECURITY MONTHLY BENEFIT LEVEL WITH AN INCREMENT OF A VARYING AMOUNT (SS_VARAMT)

3) EV-MINUS: REPONDENTS' EXISITING SOCIAL SECURITY MONTHLY BENEFIT LEVEL MINUS A ONE-TIME PAYMENT/LUMPSUM AMOUNT (LS_AMT) AND REPONDENTS' EXISITING SOCIAL SECURITY MONTHLY BENEFIT LEVEL WITH A DECREMENT OF A VARYING AMOUNT (SS_VARAMT).]

Q.6.1. [TRADEOFF – INTRO]. Introduction to annuity tradeoff questions

In the next few questions, we are going to ask you to make a number of choices about Social Security benefits.

Please assume that all amounts shown are after tax (i.e., you don't owe any tax on any of the amounts we will show you).

Think of any dollar amount mentioned in this survey in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation).

[WAIT_WARNING] Wait Warning

The page after this may take several seconds to load. Please click the next button now, and do not click your browser's back button while the page is loading. Thank you.

[Note to programmer:

There are two nested loops in this section.

1. **The outer loop has 3 iterations and loops over the version of the tradeoff question that is asked (either CV-Minus, EV-Plus, or EV-minus). The outerloop is indexed by the variable i.**

2. **The inner loop has 4 iterations and loops over the amount of the one-time payment offered: LS. The inner loop is indexed by the variable j.**

Initialization of SS_VARAMT
Set SS_VARAMT=100

Initialization of LS_AMT
If LS_STARTVALUE ==1
Set the 16x5 matrix LS_AMT=LS_LOW
Elseif LS_STARTVALUE ==3
Set the 16x5 matrix LS_AMT=LS_HIGH
Else
Set the 16x5 matrix LS_AMT=LS_MED
Endif

Start of the nested loops that ask other versions of the tradeoff questions

For i=1 to 3 /* START OF THE OUTER LOOP FOR OTHER TRADEOFF QUESTIONS */

[Show if i>1]
Q.6.2: [Roadmap other versions] Roadmap to other tradeoff questions.
Now we would like to show a different series of questions about choices about Social Security benefits.

As before, please assume that all amounts shown are after tax (i.e., you don't owe any tax on any of the amounts we will show you).

As before, think of any dollar amount mentioned in this survey in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation).

Q.6.3: [OtherTradeoff]: OTHER VERSIONS OF TRADE-OFF QUESTION

Set ROW=1

For j=1 to 4 /* START OF THE INNER LOOP FOR OTHER TRADEOFF QUESTIONS */

[If j = 1, Display:]
In this question, we are going to ask you to make a choice between two money amounts.
[Else, Display:]
Now we ask you the same question but with a different amount for the one-time payment.
[Endif]

Please click on the option that you would prefer.

[SHOW IF MARRIED==1:] Benefits paid to your [SPOUSE] will stay the same for either choice.

Suppose Social Security gave you a choice between:

[If CVM_ORDER==i] /* THIS GIVES THE CV-MINUS VERSION */

[Note to programmer: The way the ROW variable is updated depends on how each option is numbered]

[If LS_FIRST=0, Display:]

(2) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month.

or

(1) ☐ Receiving a Social Security benefit of $[BEN_EST + SS_VARAMT] per month and making a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to Social Security.

[Else Display:]

(1) ☐ Receiving a Social Security benefit of $[BEN_EST + SS_VARAMT] per month and making a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to Social Security.

or

(2) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month.

[Endif]

[Endif] /* End of CV-Minus version */

[If EVP_ORDER==i] /* THIS GIVES THE EV-PLUS VERSION */

[Note to programmer: The way the ROW variable is updated depends on how each option is numbered]

[If LS_FIRST=0, Display:]

(1) ☐ Receiving a Social Security benefit of $[BEN_EST + SS_VARAMT] per month.

or

(2) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month and receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**.

[Else Display:]

(2) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month and receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**.

or

(1) ☐ Receiving a Social Security benefit of $[BEN_EST + SS_VARAMT] per month.

[Endif]

[Endif] /* End of EV-Plus Version */

[If EVM_ORDER==i] /* THIS GIVES THE EV-MINUS VERSION */

[Note to programmers: The way the ROW variable is updated depends on how each option is numbered]

[If LS_FIRST=0, Display:]

[If BEN_EST ≤ SS_VARAMT, Display:]

(2) ☐ Receiving no Social Security benefits.

[Else Display:]

(2) ☐ Receiving a Social Security benefit of $[BEN_EST - SS_VARAMT] per month.

[Endif]

or

(1) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month and making a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to Social Security.

[Else Display:]

(1) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month and making a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to Social Security.

or

[If BEN_EST ≤ SS_VARAMT, Display:]

(2) ☐ Receiving no Social Security benefits.

[Else Display:]

(2) ☐ Receiving a Social Security benefit of $[BEN_EST - SS_VARAMT] per month.

[Endif]

[Endif]

[Endif] **/* End of EV-Minus version */**

[If Respondent selects option 1] **/*so making the one-time payment (for CV-minus and EV-minus) or NOT receiving the one-time payment (for EV-plus) */**

[Set ROW=ROW+2^(4-j)] **/* Note: this will increase the size of one-time payment in the next iteration, so it makes option 1 less attractive */**

[Endif]

[If the respondent does not check either option, prompt once using the standard ALP language in situations like these (something along the lines of "Are you sure you do not want to choose between these two options."). If the respondent still does not answer, set j=5 so that we skip out of the inner loop to the next iteration of the outer loop]

j=j+1 **/* END OF THE INNERLOOP FOR OTHER TRADEOFF QUESTIONS */**

EndFor

i=i+1

EndFor **/* END OF THE OUTERLOOP FOR OTHER TRADEOFF QUESTIONS */**

SECTION 7: NO-POLITICAL-RISK TRADE-OFF QUESTION

[NOTE: THIS SECTION REPLICATES ONE OF THE COMPENSATION VARIATION MEASURES (CV-PLUS) BUT ASSUMING THAT THERE IS NO POLITICAL RISK. IT IS ASKED OF ALL RESPONDENTS AT THE END OF WAVE 2.]

Q.7.1. [NOPOLRISK – INTRO]. Introduction to annuity tradeoff question without political risk

The next few questions are similar to the questions we have asked before about choices about Social Security benefits but with one difference:
 From now on, please assume that you are absolutely certain to receive all income promised as future Social Security benefits or as a future one-time payment. In other words, please assume that it is absolutely certain that Social Security will make payments as promised, and that there is no chance at all of any benefit changes in the future other than the trade-offs discussed in the question below.

As before, please assume that all amounts shown are after tax (i.e., you don't owe any tax on any of the amounts we will show you).

As before, think of any dollar amount mentioned in this survey in terms of what a dollar buys you today (because Social Security will adjust future dollar amounts for inflation).

[NOTE TO PROGRAMMER:
Initialization of SS_VARAMT

Set SS_VARAMT=100

Initialization of LS_AMT
If LS_STARTVALUE ==1
Set the 16x5 matrix LS_AMT=LS_LOW
Elseif LS_STARTVALUE ==3
Set the 16x5 matrix LS_AMT=LS_HIGH
Else
Set the 16x5 matrix LS_AMT=LS_MED
Endif]

Q.7.2: [NOPOLRISK]: NO-POLITICAL-RISK VERSION OF CV-PLUS TRADE-OFF QUESTION
Set ROW=1
For j=1 to 4 /* START OF THE NOPOLRISK LOOP */

[If j = 1, Display:]
In this question, we are going to ask you to compare and make a choice between two money amounts.
[Else, Display:]
Now we ask you the same question but with a different amount for the one-time payment.
[Endif]

Reminder: ** Please assume that you are absolutely certain to receive all income promised as future Social Security benefits or as a future one-time payment. In other words, please assume that it is absolutely certain that Social Security will make payments as promised, and that there is no chance at all of any benefit changes in the future other than the trade-offs discussed in the question below. **<end b>

Please click on the option that you would prefer.
[SHOW IF MARRIED==1:] Benefits paid to your [SPOUSE] will stay the same for either choice.

Suppose Social Security gave you a choice between:

[If LS_FIRST=0, Display:]

(1) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month.

or

[If BEN_EST ≤ SS_VARAMT, Display:]

(2) ☐ Receiving no Social Security benefits but receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**.

[Else Display:]

(2) ☐ Receiving a Social Security benefit of $[BEN_EST - SS_VARAMT] per month and receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**.

[Endif]

[Else Display:]

[If BEN_EST ≤ SS_VARAMT, Display:]

(2) ☐ Receiving no Social Security benefits but receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**.

[Else Display:]

(2) ☐ Receiving a Social Security benefit of $[BEN_EST - SS_VARAMT] per month and receiving a one-time payment of $[LS_AMT[ROW,j]] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**.

[Endif]

or

(1) ☐ Receiving your **[If SS_STATUS==1, insert** "current"**; if SS_STATUS==2, insert** "expected"**]** Social Security benefit of $[BEN_EST] per month.

[Endif]

[If Respondent selects option 1 (so NOT the one-time payment)]

[Set ROW=ROW+2^(4-j)] /* Note: this will increase the offered one-time payment in the next iteration */

[Endif]

[If the respondent does not check either option, prompt once using the standard ALP language in situations like these (something along the lines of "Are just sure you do not want to choose between these two options."). If the respondent still does not answer, set j=5 so that we skip out of the inner loop to the next iteration of the outer loop]

j=j+1 /* END OF THE NOPOLRISK LOOP */

EndFor

Liquidity Constraints

[ASK Q 7.3.1 – Q 7.3.4 IF lowest value of lumpsum amount in CV MINUS respondent was unwilling to pay <100000]
Q 7.3.1 [CanPayLS] Could respondent pay the lumpsum in CV-Minus
[Generate a variable CVM_MIN that is equal to the lowest value of the lumpsum amount in the CV-MINUS question that the respondent was unwilling to pay. So, CVM_MIN is the minimum of the sequence of [LS_AMT[ROW,j]] displayed in CVMINUS restricted to those j where the respondent chose option (2).]

Previously, you told us you would rather receive your [**If SS_STATUS==1, insert** "current"; **if SS_STATUS==2, insert** "expected"] Social Security benefit of **$[**BEN_EST] per month than make a one-time payment of **$[**CVM_MIN] **[If CLAIM_AGE>AGE+1, insert "**at age CLAIM_AGE**"; else insert "**one year from now**"]** to receive a Social Security benefit of $**[**BEN_EST + SS_VARAMT] per month.

Please indicate your reason for this choice:

(1) I cannot come up with $[CVM_MIN] [If CLAIM_AGE>AGE+1, insert "by age CLAIM_AGE"; else insert "within one year from now"].

(2) I could come up with $[CVM_MIN] but I do not want to use the money this way.

[ASK IF Could respondent pay the lumpsum in CV-Minus = I cannot come up with $^FLCVM_MIN ^FLCanPayLS3]
[Ask if CanPayLS=1 :]
Q 7.3.2 [PayIfHadMoney] Would R pay the LS if R had the money?

Suppose you had an additional $[CVM_MIN] in savings **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]**, do you think you would make a one-time payment of $[CVM_MIN] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to receive a Social Security benefit of $[BEN_EST + SS_VARAMT] per month (instead of receiving your **[If SS_STATUS==1, insert "**current**"; if SS_STATUS==2, insert "**expected**"]** Social Security benefit of $[BEN_EST] per month)?

(1) Yes
(2) No

[ASK IF Would R pay the LS if R had the money = No]
[Ask if PayIfHadMoney =2 :]
[The following questions are displayed as a table]

Q.7.3.3: [WhyNotHypo] Why not pay LS even if R had the money

Why do you choose not to make a one-time payment of $[CVM_MIN] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to receive a Social Security benefit of $[BEN_EST + SS_VARAMT] per month even if you had at least $[CVM_MIN] in savings?

Why do you choose not to make a one-time payment of $[CVM_MIN] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to receive a Social Security benefit of $[BEN_EST + SS_VARAMT] per month even if you had an additional $[CVM_MIN] in savings?

Please choose the main reason:

(1) I don't expect to live long enough for this to be a good deal
(2) I believe I can invest the money better on my own
(3) I would prefer to spend more money now rather than having more to spend later
(4) I would prefer to use the money to help pay for an upcoming large expense
(5) I would prefer to save the money for an emergency
(6) I would prefer to leave the money to my family
(7) I don't trust that the government will make good on the deal
(8) Other:_____ [provide open-ended text box]

Else

[The following questions are displayed as a table]
[Ask if CanPayLS=2 :]
Q 7.3.4 [WhyNotActual] Why not pay LS even if R had the money

Why do you choose not to make a one-time payment of $[CVM_MIN] [If CLAIM_AGE>AGE+1, insert "at age CLAIM_AGE"; else insert "one year from now"] to receive a Social Security benefit of $[BEN_EST + SS_VARAMT] per month even though you can come up with $[CVM_MIN]?

Why do you choose not to make a one-time payment of $[CVM_MIN] **[If CLAIM_AGE>AGE+1, insert** "at age CLAIM_AGE"**; else insert** "one year from now"**]** to receive a Social Security benefit of $[BEN_EST + SS_VARAMT] per month even though you can come up with $[CVM_MIN]?

Please choose the main reason:

(1) I don't expect to live long enough for this to be a good deal
(2) I believe I can invest the money better on my own
(3) I would prefer to spend more money now rather than having more to spend later
(4) I would prefer to use the money to help pay for an upcoming large expense
(5) I would prefer to save the money for an emergency
(6) I would prefer to leave the money to my family
(7) I don't trust that the government will make good on the deal
(8) Other:_____ [provide open-ended text box]

[ASK IF CALCULATED AGE < 65]
Q.7.4.1: [P028] Die Before 75

What is the percent chance that you will die before age 75? Please move the slider below to indicate what you think will be the chance that you will die before age 75, where 0 means "absolutely no chance" and 100 means "absolutely certain".

[ASK IF CALCULATED AGE < 90]
Q.7.4.2: [P029] Die Before [85, 90, 95, 100]

What is the percent chance that you will die before age [85/90/95/100]? Please move the slider below to indicate what you think will be the chance that you will die before age [85/90/95/100], where 0 means "absolutely no chance" and 100 means "absolutely certain".

SECTION 8. CLOSING OF WAVE 2

[NOTE: THIS IS ASKED OF ALL RESPONDENTS AT THE END OF WAVE 2.]

Q 8.1: [CS_001] HOW PLEASANT INTERVIEW
Could you tell us how interesting or uninteresting you found the questions in this interview?

(1) Very interesting
(2) Interesting
(3) Neither interesting nor uninteresting
(4) Uninteresting
(5) Very uninteresting

Q 8.2: [CS_003] Comments
Do you have any other comments on the interview? Please type these in the box below.
[Insert Open box]

Online Appendix C: Can a Kinked Utility Function Rationalize the Results?

In this online appendix, we examine whether our results can be rationalized using a kinked utility function, i.e., by a utility specification that is typically used to explain endowment or status quo effects. As explained in more detail below, while we find that a kinked utility function (with marginal utility falling discontinuously for units of the good above the reference point) could explain the observed choices in the CV version, such a kinked utility function cannot explain the observed choices for the EV version. In short, a kinked utility function cannot simultaneously explain our findings for the CV and the EV choices.

To see this, recall the four types of choices we offered respondents, as described by the table in the text:

Four Variants of the Annuity Valuation Tradeoff Question

	"Sell" Version		"Buy" Version	
	Choice A	Choice B	Choice A	Choice B
Compensating Variation (CV)	[*SSB-X*] + *LS*	[*SSB*]	[*SSB+X*] − *LS*	[*SSB*]
Equivalent Variation (EV)	[*SSB*] + *LS*	[*SSB+X*]	[*SSB*] − *LS*	[*SSB-X*]

Note: *SSB* stands for current/expected monthly Social Security benefits, *X* is the amount by which monthly Social Security benefits would change and *LS* is a one-time, lump-sum payment. Positive amounts are received by the individual while negative amounts indicate a payment by the individuals. Amounts between square brackets are paid monthly for as long as the individual lives, whereas *LS* is a one-time payment. The individual is asked to elect Choice A or Choice B.

Given that *SSB* is the current or expected amount of Social Security Benefits, it would be the natural reference point, and we denote it by *Ref* in the table below. We used *X*=$100 and found *LS* ≈ $13,000 in the sell version and *LS* ≈ $3,000 in the buy versions. Hence, our findings can be summarized by:

Findings for the Annuity Valuation Tradeoff Question

	"Sell" Version		"Buy" Version	
	Choice A	Choice B	Choice A	Choice B
Compensating Variation (CV)	[*Ref-100*] + *13,000*	[*Ref*]	[*Ref+100*] − *3,000*	[*Ref*]
Equivalent Variation (EV)	[*Ref*] + *13,000*	[*Ref+100*]	[*Ref*] − *3,000*	[*Ref-100*]

Note: *Ref* stands for the reference point current/expected monthly Social Security benefits. Positive amounts are received by the individual while negative amounts indicate a payment by the individuals. Amounts between square brackets are paid monthly for as long as the individual lives, whereas amounts outside square brackets are a one-time payment. The individual is asked to elect Choice A or Choice B.

Suppose that the individual's utility from Social Security benefits (Y) takes the standard kinked form used to explain endowment effects:

$$U(Y) = \alpha\, Y - \beta\, (Y\text{-}Ref)\, \mathbf{1}(Y>Ref),$$

where α denotes the marginal utility of Social Security benefits below the reference level and β denotes the decrease in marginal utility of Social Security that occurs at the reference point. In other words, $\beta=0$ implies there is no kink, and $0<\beta<\alpha$ denotes the case where marginal utility falls discontinuously at the kink but remains positive. Finally, $\mathbf{1}(.)$ denotes the indicator function, i.e., $\mathbf{1}(.)$ equals one if the expression between parentheses is true and zero otherwise.

If we make the standard assumption that U(.) is money metric, then the choices for the CV version can be rationalized by solving:

CV-Sell: $U(Ref\text{-}100) + 13{,}000 = U(Ref) \rightarrow \alpha\,(Ref\text{-}100) + 13000 = \alpha\, Ref \rightarrow \alpha = 130$
CV-Buy: $U(Ref+100) - 3{,}000 = U(Ref) \rightarrow \alpha\,(Ref+100) - 100\,\beta - 3000 = \alpha\, Ref \rightarrow \beta = 100$

In short, the CV choices can indeed be rationalized by a standard kinked utility function, where the marginal utility of Social Security benefits is 130 below the kink point, but falls to 130-100=30 after the kink point.

However, this same utility function cannot rationalize the EV choices:

EV-Sell: $U(Ref) + 13000 = U(Ref+100) \rightarrow \alpha\, Ref + 13000 = \alpha\,(Ref+100) - 100\beta \rightarrow 13000 = 100(\alpha-\beta)$
EV-Buy: $U(Ref) - 3000 = U(Ref\text{-}100) \rightarrow \alpha\, Ref - 3000 = \alpha\,(Ref\text{-}100) \rightarrow 3000 = 100\alpha$

Clearly, using the values $\alpha = 130$ and $\beta = 100$ that we obtained in the CV case above cannot rationalize the EV choices. In short, the observed choices for CV and EV are not simultaneously consistent with a single kinked utility function. Moreover, the EV choices can be rationalized only by $\alpha = 30$ and $\beta = -100$. The negative value of β implies that the marginal utility *increases* as we pass the reference point; below the reference point, the marginal utility is 30 whereas it is 30-(-100)=130 above the reference point. In short, the EV choices cannot be rationalized by a standard kinked utility function where marginal utility falls discontinuously as the reference point is passed.