

Appendix

Tables

Demographic characteristics		Respondents #	Respondents %
Gender	Male	82	48.81
	Female	86	51.19
Age	18 - 22	133	79.17
	22 - 39	17	10.12
	30 - 39	12	7.14
	40 - 59	6	3.57
	Arts-related	16	9.52
Major	Business-related	49	29.17
	Math & Science related	39	23.21
	Engineering & Technology	23	13.69
	Literature, Language, & Social Science	20	11.90
	Others	21	12.50
Statistics	Yes	88	52.38
	No	80	47.62
Financial items	Saving Account	147	87.50
	CDs	47	27.98
	Auto Loan	36	21.43
	Student Loan	78	46.43
Statistical Knowledge	Good	28	16.67
	Normal	77	45.83
	Poor	63	37.50

*Total respondents # = 168

Table 1: Demographic characteristics of respondents

	Statistical Knowledge			Total #
	Poor	Normal	Good	
Statistical Knowledge	63	77		63
Gender	Poor			
	Normal			
	Good			
	Male		28	77
Majors	Female	38	15	28
	Mathematics/Science	39	13	82
	Engineering/Technology	18	10	86
	Business	10	10	39
Financial Items	Literature/Social	21	4	23
	Arts	6	3	49
	Others	8	0	20
	Savings	14	1	16
Statistics	No savings	68	26	21
	Auto-loan	9	2	147
	No auto-loan	18	7	21
	Yes	59	21	36
Mean (SD)	No	40	21	132
		37	7	89
		0.5 (0)	0.8393 (0.1220)	79
		0.1905 (0.1079)	0.4425 (0.2420)	
Total #	63	77	28	168

Table 2: Number of respondents on statistical knowledge by variables

	Subjective Probabilistic Inference			Total #
	Strong	Weak	Mean (SD)	
Statistical Knowledge	11	52	0.2471 (0.2466)	63
	24	53	0.3616 (0.2795)	77
	23	5	0.6812 (0.2356)	28
	24	58	0.3188 (0.2807)	82
Gender	34	52	0.4226 (0.3075)	86
	29	10	0.6402 (0.2049)	39
	10	3	0.6686 (0.1684)	23
	6	43	0.2430 (0.2427)	49
Majors	1	19	0.2215 (0.2098)	20
	0	16	0.1214 (0.1671)	16
	2	19	0.1838 (0.1904)	21
	56	91	0.3921 (0.2988)	147
Financial Items	2	19	0.2310 (0.2609)	21
	9	27	0.3342 (0.3077)	36
	49	83	0.3822 (0.2962)	132
	43	46	0.4884 (0.2910)	89
Statistics	15	64	0.2435 (0.2548)	79
	0.6925 (0.1699)	0.2029 (0.1945)	0.3719 (0.2984)	
Mean (SD)	0.6925 (0.1699)	0.2029 (0.1945)	0.3719 (0.2984)	
Total #	58	110		168

Table 3: Number of respondents on subjective probabilistic inference by variables

Early reward: \$1,000				
Example	Rational case		Discordant case	
Late reward	today vs. in a year	in 6 months vs. in a year	today vs. in a year	in 6 months vs. in a year
\$1,020	Refuse	Refuse	Refuse	Refuse
\$1,100	Refuse	Accept	Refuse	Refuse
\$1,500	Accept	Accept	Accept	Refuse
\$2,000	Accept	Accept	Accept	Refuse
\$10,000	Accept	Accept	Accept	Refuse

Table 4: Example of rational and discordant choice

Type of probabilistic inference	Strong		Weak	
Type of choices	Rational	Discordant	Rational	Discordant
Without uncertainty	53 (0.6936)	5 (0.6806)	89 (0.2277)	21 (0.0980)
Under uncertainty No guaranteed minimum	58 (0.6925)	0 –	94 (0.2213)	16 (0.0949)
Under uncertainty With guaranteed minimum	56 (0.6922)	2 (0.7011)	103 (0.2113)	7 (0.0791)
Maximized uncertainty	57 (0.6955)	1 (0.5215)	102 (0.2098)	8 (0.1151)
Informed uncertainty	58 (0.6925)	0 –	92 (0.2975)	18 (0.1701)
Total	58 (0.6925)		110 (0.2029)	

of respondents (Mean probabilistic inference)

Table 5: Probabilistic inference by rational and discordant choices

Uncertainty	Choices	Strong PI		Total	Weak PI		Total
		Self-C	Normal		Self-C	Normal	
Maximized	Today vs. 1 year	1	57	58	18	92	110
	6 months vs. 1 year	2	56		16	94	
Informed	Today vs. 1 year	0	58	58	16	94	
	6 months vs. 1 year	0	58		7	103	

of respondents, PI = probabilistic inference, Self-C = self-contradictory

Table 6: Self-contradictory choices by probabilistic inference

Ordinary Least Squares Regression (OLS) model for ∇WW .			
	Without Uncertainty		
	Coefficient	S.E.	t p-valued
Gender (Male)	- 0.0670	0.18 (0.10)	- 0.57 0.570 (0.486)
Arts-related	- 0.1672	0.25 (0.28)	- 0.66 0.512 (0.553)
Business-related	- 0.2643	0.20 (0.25)	- 1.33 0.184 (0.292)
Math & Science related	- 0.2278	0.24 (0.23)	- 0.96 0.339 (0.362)
Engineering & Technology	- 0.3263	0.26 (0.27)	- 1.25 0.214 (0.230)
Literature & Social Science	- 0.1670	0.23 (0.26)	- 0.72 0.470 (0.516)
Statistics	0.2675	0.13 (0.09)	2.09 0.038** (0.007)
Saving Accounts	0.0169	0.18 (0.13)	0.09 0.925 (0.879)
Auto Loans	- 0.0143	0.15 (0.12)	- 0.10 0.922 (0.885)
Residency (Urban)	0.0731	0.12 (0.12)	0.62 0.533 (0.498)
Probabilistic inference	0.5999	0.32 (0.27)	1.89 0.061* (0.028)
Statistical Knowledge	1.6376	0.21 (0.33)	5.99 0.000*** (0.000)
Intercept	- 0.4293	0.27 (0.32)	- 1.61 0.109 (0.179)

This is for the cases where subjects receive clear information without uncertainty..

The table presents an OLS regression for the changes in willingness to wait in percentage points.

Robust standard errors and p-value in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: OLS regression for the changes in willingness to wait without uncertainty

Ordinary Least Squares Regression (OLS) model for ∇WW .

	Without a guaranteed minimum				Under Known Uncertainty			
	Coefficient	S.E.	t	p-valued	Coefficient	S.E.	t	p-valued
Gender (Male)	0.1140	0.05 (0.04)	2.54	0.012** (0.005)	- 0.3489	0.11 (0.11)	- 3.15	0.002*** (0.002)
Arts-related	- 0.0172	0.09 (0.05)	- 0.18	0.855 (0.714)	- 0.0145	0.19 (0.14)	- 0.08	0.940 (0.918)
Business-related	0.0420	0.07 (0.05)	0.57	0.567 (0.410)	- 0.0041	0.15 (0.10)	- 0.03	0.978 (0.966)
Math & Science related	0.2678	0.09 (0.07)	3.04	0.003*** (0.000)	0.1127	0.18 (0.13)	0.64	0.526 (0.382)
Engineering & Technology	0.3172	0.10 (0.12)	3.24	0.001*** (0.007)	- 0.1293	0.20 (0.15)	- 0.66	0.509 (0.386)
Literature & Social Science	- 0.0306	0.09 (0.05)	- 0.36	0.722 (0.502)	0.0253	0.17 (0.12)	0.15	0.884 (0.826)
Statistics	0.1835	0.05 (0.04)	3.75	0.000*** (0.000)	- 0.1527	0.12 (0.09)	- 1.28	0.202 (0.075)
Saving Accounts	0.0121	0.07 (0.06)	0.18	0.854 (0.835)	0.0796	0.13 (0.08)	0.61	0.546 (0.336)
Auto Loans	0.0064	0.06 (0.06)	0.12	0.906 (0.915)	0.0656	0.11 (0.10)	0.61	0.540 (0.503)
Residency (Urban)	0.0178	0.04 (0.04)	0.41	0.684 (0.666)	0.1045	0.09 (0.08)	1.21	0.227 (0.213)
Probabilistic inference	- 0.0918	0.12 (0.13)	- 0.77	0.444 (0.483)	0.5403	0.25 (0.22)	2.16	0.032** (0.014)
Statistical Knowledge	0.2278	0.10 (0.11)	2.26	0.025** (0.043)	0.2608	0.20 (0.19)	1.29	0.198 (0.179)
Risk-Averse	- 0.4578	0.089 (0.04)	- 5.80	0.000*** (0.000)	- 0.4657	0.12 (0.09)	- 3.77	0.000*** (0.000)
Risk-Seeker	0.7277	0.06 (0.08)	12.13	0.000*** (0.000)	0.4309	0.13 (0.13)	3.22	0.002*** (0.001)
Intercept	- 0.1401	0.10 (0.08)	- 1.40	0.162 (0.076)	0.2476	0.21 (0.15)	1.16	0.249 (0.108)

These are for the cases where subjects receive clear information under uncertainty: including the guaranteed minimum or not.

The table presents OLS regressions for the changes in willingness to wait in percentage points.

Robust standard errors and p-value in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: OLS regression for the changes in willingness to wait under known uncertainty

Ordinary Least Squares Regression (OLS) model for ΔMRS .		Without Uncertainty			
	Coefficient	S.E.	t	p-valued	
Gender (Male)	- 0.0167	0.07 (0.06)	- 0.25	0.801 (0.791)	
Arts-related	0.0135	0.14 (0.17)	0.09	0.925 (0.936)	
Business-related	- 0.0253	0.11 (0.13)	- 0.23	0.820 (0.841)	
Math & Science related	- 0.1324	0.13 (0.13)	- 0.99	0.322 (0.317)	
Engineering & Technology	- 0.1179	0.15 (0.14)	- 0.80	0.422 (0.385)	
Literature & Social Science	0.0149	0.13 (0.13)	0.12	0.908 (0.912)	
Statistics	0.2181	0.07 (0.07)	3.05	0.003*** (0.003)	
Saving Accounts	0.0522	0.10 (0.11)	0.52	0.602 (0.637)	
Auto Loans	0.0235	0.10 (0.07)	0.52	0.602 (0.738)	
Residency (Urban)	0.1107	0.07 (0.07)	1.69	0.094* (0.101)	
Probabilistic inference	0.3023	0.18 (0.16)	1.70	0.092* (0.058)	
Statistical Knowledge	0.8943	0.15 (0.16)	5.84	0.000*** (0.000)	
Intercept	- 0.6423	0.15 (0.19)	- 4.30	0.000*** (0.001)	

This is for the cases where subjects receive clear information without uncertainty.
The table presents an OLS regression for the differences in marginal rate of substitutes in percentage points.
Robust standard errors and p-value in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: OLS regression for the differences in MRS without uncertainty

Ordinary Least Squares Regression (OLS) model for ΔMRS .

	Under Known Uncertainty			
	Without a guaranteed minimum		With a guaranteed minimum	
	Coefficient	S.E.	t	p-valued
Gender (Male)	0.0660	0.03 (0.03)	2.19	0.030** (0.042)
Arts-related	0.0051	0.06 (0.04)	0.08	0.936 (0.906)
Business-related	0.0665	0.05 (0.03)	1.35	0.178 (0.059)
Math & Science related	0.1455	0.06 (0.04)	2.46	0.015** (0.001)
Engineering & Technology	0.1984	0.07 (0.06)	3.02	0.003*** (0.002)
Literature & Social Science	0.279	0.06 (0.04)	0.48	0.630 (0.436)
Statistics	0.1062	0.03 (0.03)	3.23	0.002*** (0.001)
Saving Accounts	0.0335	0.04 (0.06)	0.76	0.451 (0.607)
Auto Loans	- 0.0380	0.04 (0.05)	- 1.04	0.300 (0.456)
Residency (Urban)	- 0.0267	0.03 (0.03)	- 0.91	0.364 (0.387)
Probabilistic inference	- 0.0674	0.08 (0.07)	- 0.84	0.403 (0.363)
Statistical Knowledge	0.0706	0.07 (0.06)	1.04	0.299 (0.269)
Risk-Averse	- 0.9784	0.05 (0.05)	- 18.46	0.000*** (0.000)
Risk-Seeker	0.2493	0.04 (0.04)	6.19	0.000*** (0.000)
Intercept	- 0.0716	0.07 (0.08)	- 1.07	0.287 (0.376)

These are for the cases where subjects receive clear information under uncertainty: including the guaranteed minimum or not.

The table presents OLS regressions for the differences in marginal rate of substitutions in percentage points.

Robust standard errors and p-value in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: OLS regression for the differences in MRS under known uncertainty

# (%) of respondents					
Prediction		Underestimation	Normal	Overestimation	Total
Gender	Male	27 (32.93)	41 (50.00)	14 (17.07)	82
	Female	24 (27.91)	48 (55.81)	14 (16.28)	86
Major	Arts-related	3 (18.75)	10 (62.50)	3 (18.75)	16
	Business-related	20 (40.82)	18 (36.73)	11 (22.45)	49
	Math & Science	8 (20.51)	26 (66.67)	5 (12.82)	39
	Engineering & Tech	8 (20.51)	13 (56.52)	4 (17.39)	23
	Literature & Social Sci	5 (25.00)	11 (55.00)	4 (20.00)	20
	Others	9 (42.86)	11 (52.38)	1 (4.76)	21
	Statistics	25 (28.09)	48 (53.93)	16 (17.98)	89
PI	Yes	26 (32.91)	41 (51.90)	12 (15.19)	79
	No	37 (33.64)	54 (49.09)	19 (17.27)	110
SK	Weak	14 (24.14)	35 (60.34)	9 (15.52)	58
	Strong	16 (25.40)	36 (57.14)	11 (17.46)	63
	Poor	25 (32.47)	40 (51.95)	12 (15.58)	77
	Normal	10 (35.71)	13 (46.43)	5 (17.86)	28
Total		51 (30.36)	89 (52.98)	28 (16.67)	168

PI = Probabilistic Inference, SK = Statistical Knowledge

Table 11: Subjective prediction of the amount in the envelope under unknown uncertainty

# (%) of respondents				
Forecasting Accuracy		Success	Failure	Total
Gender	Male	33 (40.24)	49 (59.76)	82
	Female	31 (36.05)	55 (63.95)	86
Major	Arts-related	2 (12.50)	14 (87.50)	16
	Business-related	10 (20.41)	39 (79.59)	49
	Math & Science	24 (61.54)	15 (38.46)	39
	Engineering & Tech	16 (69.57)	7 (30.43)	23
	Literature & Social Sci	5 (25.00)	15 (75.00)	20
	Others	11 (52.38)	1 (4.76)	21
	Statistics	47 (52.81)	42 (47.19)	89
PI	Yes	17 (21.52)	62 (78.48)	79
	No	21 (19.09)	89 (80.91)	110
SK	Weak	43 (74.14)	15 (25.86)	58
	Strong	16 (25.40)	47 (74.60)	63
	Poor	27 (35.06)	50 (64.94)	77
	Normal	21 (75.00)	7 (25.00)	28
Total		64 (38.10)	104 (61.90)	168

PI = Probabilistic Inference, SK = Statistical Knowledge

Table 12: Subjective forecast accuracy of the amount in the envelope under unknown uncertainty

OLS model for ∇WW	Under Unknown Uncertainty							
	Maximized uncertainty				Informed uncertainty			
	Coefficient	S.E.	t	p-valued	Coefficient	S.E.	t	p-valued
Gender (Male)	0.0866	0.06 (0.06)	1.47	0.144 (0.166)	0.0699	0.07 (0.07)	1.06	0.291 (0.299)
Arts-related	- 0.0834	0.12 (0.09)	- 0.67	0.501 (0.342)	0.0128	0.11 (0.10)	0.11	0.911 (0.898)
Business-related	0.0705	0.10 (0.08)	0.72	0.471 (0.364)	- 0.0301	0.09 (0.07)	- 0.35	0.730 (0.675)
Math & Science related	0.0911	0.12 (0.11)	0.79	0.433 (0.390)	0.1697	0.10 (0.10)	1.63	0.100* (0.105)
Engineering & Technology	0.0276	0.13 (0.11)	0.21	0.831 (0.810)	0.2292	0.11 (0.12)	2.00	0.047** (0.064)
Literature & Social Science	0.0428	0.11 (0.10)	- 0.67	0.501 (0.656)	- 0.0283	0.10 (0.10)	- 0.27	0.785 (0.769)
Statistics	- 0.0663	0.07 (0.06)	- 1.02	0.309 (0.258)	0.2071	0.07 (0.07)	2.92	0.004*** (0.006)
Saving Accounts	- 0.0276	0.09 (0.08)	- 0.32	0.752 (0.727)	0.1521	0.08 (0.06)	1.98	0.050** (0.011)
Auto Loans	- 0.0254	0.08 (0.07)	- 0.36	0.722 (0.724)	- 0.0323	0.07 (0.06)	- 0.51	0.608 (0.574)
Residency (Urban)	- 0.0159	0.06 (0.06)	- 0.28	0.783 (0.786)	- 0.0051	0.05 (0.05)	- 0.10	0.920 (0.922)
Probabilistic inference	0.2957	0.15 (0.15)	1.88	0.062* (0.056)	0.3757	0.15 (0.16)	2.48	0.014** (0.020)
Statistical Knowledge	0.1355	0.14 (0.15)	1.02	0.311 (0.370)	0.3295	0.12 (0.15)	2.79	0.006*** (0.026)
Risk-Averse	0.0269	0.10 (0.08)	0.26	0.796 (0.749)	0.1345	0.07 (0.07)	1.85	0.067* (0.067)
Risk- Seeker	0.0643	0.08 (0.09)	0.81	0.420 (0.464)	0.0728	0.08 (0.08)	0.92	0.358 (0.362)
Overestimation	0.0437	0.08 (0.09)	0.55	0.581 (0.609)	- 0.0051	0.10 (0.09)	- 0.05	0.960 (0.955)
underestimation	- 0.1313	0.06 (0.06)	- 2.10	0.038** (0.021)	0.0629	0.07 (0.07)	0.84	0.402 (0.359)
Accuracy (Success)					0.2446	0.08 (0.08)	3.28	0.001*** (0.001)
Intercept	- 0.0502	0.13 (0.11)	- 0.37	0.710 (0.650)	- 0.6190	0.13 (0.11)	- 4.59	0.000*** (0.000)

Maximized Uncertainty: this is for the cases where subjects do not receive information under uncertainty.

Informed Uncertainty: this is for the cases where subjects receive information about the consequences of others under uncertainty.

The table presents OLS regressions for the changes in willingness to wait in percentage points.

Robust standard errors and p-value in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 13: OLS regression for the changes in willingness to wait under unknown uncertainty