Online Appendix to: On the Change of Risk Aversion in Wealth: A Field Experiment in a Closed Economic System*

Tobias Huber† Johannes G. Jaspersen‡ Andreas Richter† Dennis Strümpel†§

June 3, 2022

*The replication material for the study is available at https://doi.org/10.7910/DVN/AHF8XB.

†Munich Risk and Insurance Center, LMU Munich School of Management, LMU Munich, Germany.

‡*Corresponding Author*. Munich Risk and Insurance Center, LMU Munich School of Management, LMU Munich, Germany. Email: jaspersen@lmu.de

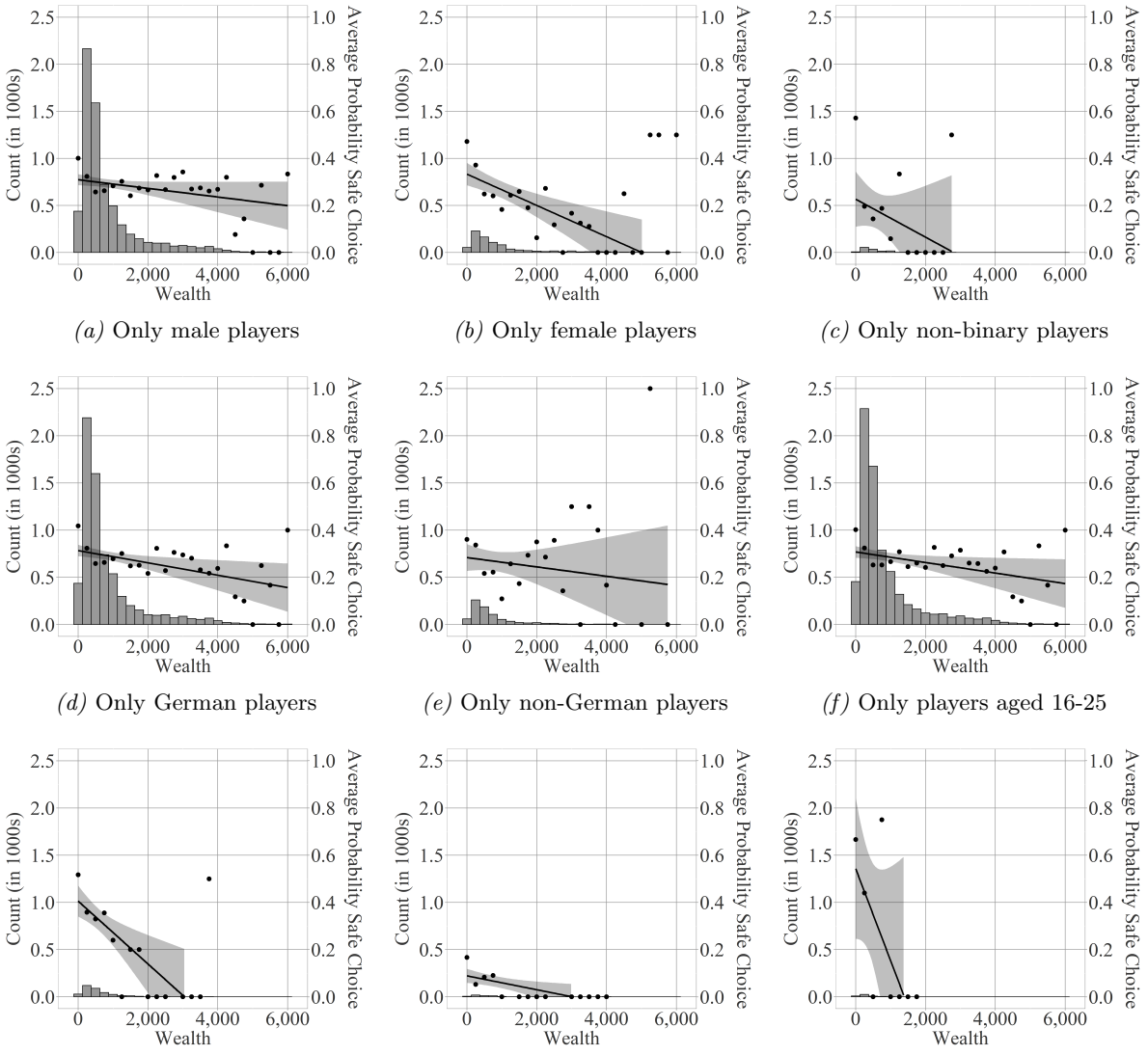
§Shoulderbyte GmbH, https://shoulderbyte.com/en/science/

Online Appendix A Deviations from Pre-analysis Plan

The analysis in the paper deviates from the pre-analysis plan registered with the AEA RCT. In this section, we display results of the preregistered analyses.

A.1 Group-Specific Descriptive Analyses

The pre-analysis plan specified the descriptive analysis in Figure 7 to be conducted for 9 individual subgroups. Since the demographic heterogeneity of the players was limited and the subgroup analyses were mostly consistent with the analysis of the full sample, these subgroup analyses were omitted in the paper. Figure A.1 shows the results of the descriptive analysis for the Absolute Treatment and Figure A.2 shows them for the Relative Treatment. Both figures show that the result for the full sample – that is, the number of safe choices is decreasing in wealth – appears consistently in all demographic subgroups.

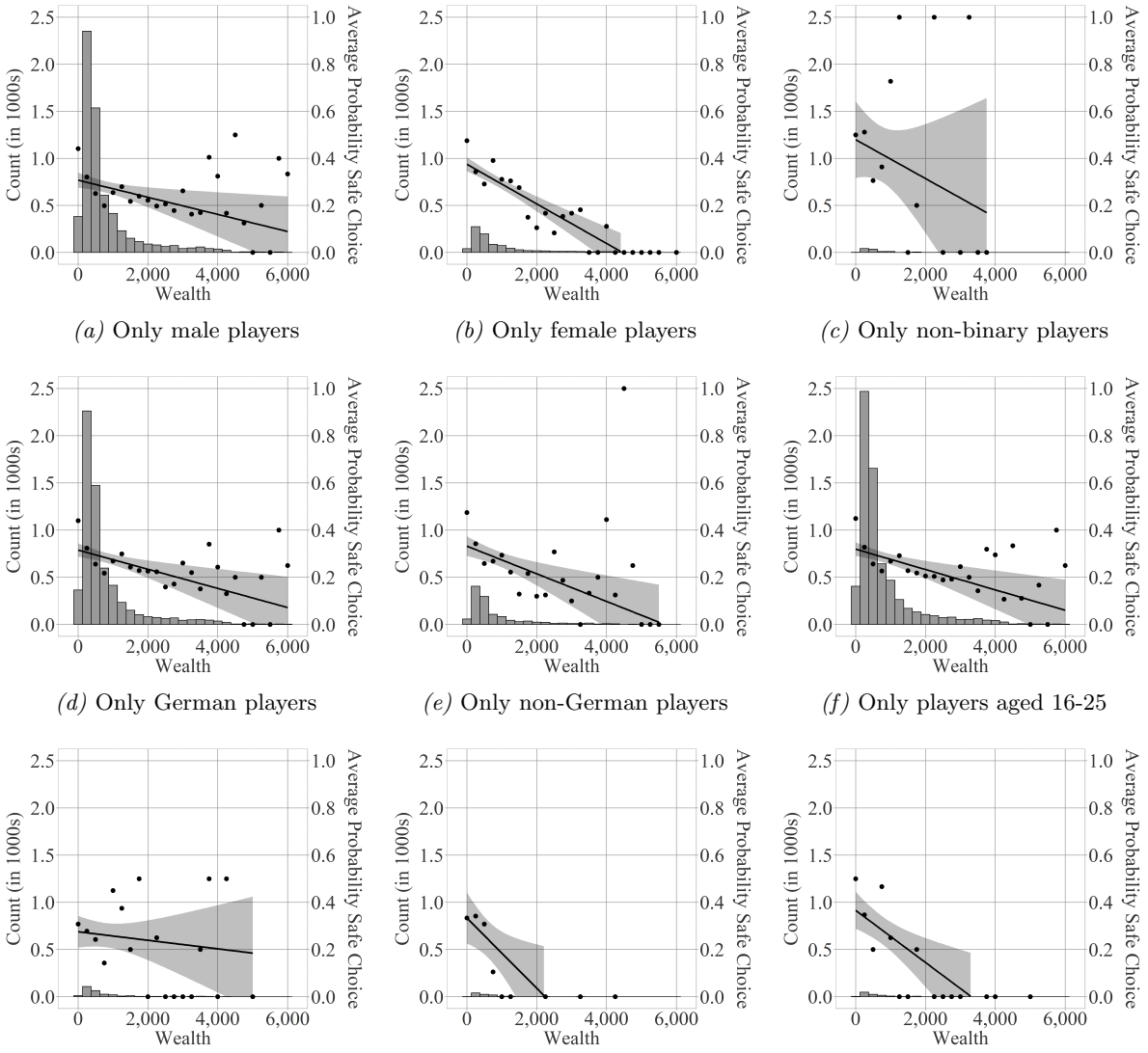


(a) Only male players *(b)* Only female players *(c)* Only non-binary players

(d) Only German players *(e)* Only non-German players *(f)* Only players aged 16-25

(g) Only players aged 26-35 *(h)* Only players aged 36-45 *(i)* Only players aged >45

Figure A.1 – Graphical analysis of safe choices contingent on wealth. The figure displays only choices of players in the Absolute Treatment. Panel captions indicate the specific demographic subgroup analyzed.



(a) Only male players *(b)* Only female players *(c)* Only non-binary players

(d) Only German players *(e)* Only non-German players *(f)* Only players aged 16-25

(g) Only players aged 26-35 *(h)* Only players aged 36-45 *(i)* Only players aged >45

Figure A.2 – Graphical analysis of safe choices contingent on wealth. The figure displays only choices of players in the Relative Treatment. Panel captions indicate the specific demographic subgroup analyzed.

A.2 Detailed Demographic Characteristics

The pre-analysis plan specified the regression analysis without instrumented wealth and with more detailed characteristics than are used in Tables 3 and 4. We instrument for wealth to address the endogeneity problem present in the data. We further refrain from more detailed subgroup analysis in the main part of the paper, because the sample size on the individual subgroups is small, with the smallest group only including 7 players (age between 36-45 in the Absolute Treatment). The results of the preregistered analyses in Tables A.1 and A.2 show that no group deviates from DARA or DRRA in a statistically significant fashion. While some groups show significantly stronger decreasing risk aversion than the reference group, these results should be treated with caution in light of the small sample sizes.

Table A.1 – Results of the population level linear probability model with detailed demographic information

	Dependent variable: safe choice			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	−0.022**	−0.049**	−0.037***	−0.088***
	(0.009)	(0.023)	(0.008)	(0.018)
Female × Wealth (in 1000s)		0.038		0.066***
		(0.024)		(0.020)
Non-binary× Wealth (in 1000s)		0.007		0.049
		(0.044)		(0.038)
Age 26-35 × Wealth (in 1000s)		−0.033		0.013
		(0.038)		(0.027)
Age 36-45 × Wealth (in 1000s)		−0.058**		−0.134***
		(0.024)		(0.042)
Age >45 × Wealth (in 1000s)		−0.356***		−0.073**
		(0.092)		(0.035)
Not German × Wealth (in 1000s)		−0.034		−0.019
		(0.040)		(0.017)
Female	0.008	−0.028	−0.001	−0.061
	(0.030)	(0.033)	(0.042)	(0.039)
Non-binary	−0.073	−0.089	0.118*	0.075
	(0.056)	(0.067)	(0.062)	(0.067)
Age 26-35	0.038	0.062	−0.011	−0.024
	(0.038)	(0.041)	(0.034)	(0.045)
Age 36-45	−0.180***	−0.139**	−0.062	0.016
	(0.062)	(0.064)	(0.062)	(0.076)
Age >45	0.069	0.222***	−0.005	0.053
	(0.052)	(0.063)	(0.037)	(0.053)
Dec.Time <3.5s	−0.021	0.007	−0.002	0.012
	(0.033)	(0.032)	(0.024)	(0.025)
Not German	0.608***	0.609***	0.629***	0.628***
	(0.017)	(0.017)	(0.017)	(0.017)
Threshold	−0.010	−0.010	−0.048***	−0.050***
	(0.013)	(0.013)	(0.017)	(0.017)
Safe on Right	0.009	0.008	0.011	0.011
	(0.009)	(0.009)	(0.011)	(0.011)
Lottery Expectations	−0.080***	−0.081***	−0.041	−0.040
	(0.026)	(0.026)	(0.029)	(0.029)
Individual fixed effects	NO	NO	NO	NO
Lottery fixed effects	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES
Number of players	1,144	1,144	1,072	1,072
Observations	10,170	10,170	9,230	9,230
Adjusted R^2	0.280	0.281	0.263	0.265

Note: The table displays the results of a linear probability model with the choice of the safe lottery as the dependent variable. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) consider players in the Relative Treatment. Wealth is defined as the current level of in-game currency. The reference category for the demographic variables are male German players aged 16 to 25. All regressions include fixed effects on the lottery level. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

Table A.2 – Results of the individual level probability model with detailed demographic information

	Dependent variable: safe choice			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	−0.025***	−0.031***	−0.034***	−0.047**
	(0.006)	(0.012)	(0.006)	(0.023)
Female × Wealth (in 1000s)		0.007		0.020
		(0.013)		(0.024)
Non-binary× Wealth (in 1000s)		−0.022		−0.050
		(0.092)		(0.038)
Age 26-35 × Wealth (in 1000s)		0.010		0.006
		(0.028)		(0.033)
Age 36-45 × Wealth (in 1000s)		−0.009		−0.069**
		(0.009)		(0.029)
Age >45 × Wealth (in 1000s)		−0.370**		−0.029
		(0.162)		(0.022)
Not German × Wealth (in 1000s)		0.001		−0.009
		(0.026)		(0.012)
Dec.Time <3.5s	0.546***	0.546***	0.549***	0.548***
	(0.016)	(0.016)	(0.016)	(0.016)
Threshold	−0.009	−0.008	−0.047***	−0.047***
	(0.013)	(0.013)	(0.017)	(0.016)
Safe on Right	0.010	0.009	0.007	0.007
	(0.009)	(0.009)	(0.009)	(0.009)
Lottery Expectations	−0.051**	−0.051**	−0.043*	−0.043*
	(0.024)	(0.024)	(0.026)	(0.026)
Individual fixed effects	YES	YES	YES	YES
Lottery fixed effects	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES
Number of players	1,144	1,144	1,072	1,072
Observations	10,170	10,170	9,230	9,230
Adjusted R^2	0.430	0.430	0.402	0.402

Note: The table displays the results of a linear probability model with the choice of the safe lottery as the dependent variable. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) consider players in the Relative Treatment. Wealth is defined as the current level of in-game currency. The reference category for the demographic variables are male German players aged 16 to 25. All regressions include fixed effects on the lottery level and the subject level. Standard errors clustered on the subject level are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

A.3 Analysis using risk aversion coefficients

The pre-analysis plan specified an analysis using the fact that each choice made by players directly implies a bound on their risk aversion. For this, we conduct a non-linear estimation method which uses the implied bounds directly. Specifically, for every lottery decision between the risky lottery L_R and the safe payment x_j a preference $L_R \prec x_j$ implies that the risk aversion coefficient of the player needs to be larger than a certain amount r_j which is independent of the specific utility function of the player. Adopting a stochastic choice environment we see that for a decision by player i regarding lottery j, the probability of choosing the safe amount $P(x_j \succ L_R)$ is equivalent to the probability that the risk aversion coefficient of player i is larger than r_j. Including an error term to reflect the stochastic nature of choice, we can write

$$P(x_j \succ L_R) = P(r_i + \varepsilon > r_j). \tag{1}$$

We can now assume a functional form for r_i and a distribution for ε to obtain a likelihood function. For the sake of simplicity, we assume a linear function, specifying

$$r_{i,h} = \alpha + \beta \text{Wealth}_{i,h} + \vec{\gamma}_1 X_{1,i} + \vec{\gamma}_2 X_{2,i,h}, \tag{2}$$

where h indicates the specific decision of the player and $X_{1,i}$ and $X_{2,i,h}$ are matrices of control variables. For ε, we assume a standard normal distribution. The risk aversion coefficients act as pre-specified lottery fixed effects in the estimation. Because the fixed effects are pre-specified, they need to be put in relation to the standard deviation of the error term. We thus normalize the risk aversion coefficients according to $\bar{r}_j = 3.92 \frac{r_j - r_j^{min}}{r_j^{max} - r_j^{min}} - 1.96$. In this way, they cover 95% of the probability mass of the error distribution. Note that this normalization is only one possible assumption. The advantage of a normalization based on $r_j^{max} - r_j^{min}$ is that it leads to homogeneous assumptions between the two treatments which use risk aversion coefficients measured on different scales.

Results of the estimation with block-bootstrapped standard errors are given in Table A.3.[1] We observe a negative and statistically significant effect of wealth on the risk aversion coefficient. Due to the standardization, the effect sizes cannot be interpreted in absolute terms, but they can be compared between the two treatments. We thus see that the effect of wealth on the risk aversion coefficient is stronger in the relative treatment when normalized to the full range of observable coefficients.

[1] An analysis woth more detailed demographic characteristics did not have a stable solution. That is, the solution of the maximum likelihood estimation depended on the initializing vector. This is to be expected with the small number of observations in some of the individual groups. Since we were not able to find stable results, we refrain from reporting them here.

Table A.3 – Results of the non-linear estimation using risk aversion coefficients

	Dependent variable: $r_i > r_j$			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	-0.085**	-0.123**	-0.183***	-0.104**
	(0.043)	(0.051)	(0.028)	(0.050)
Not Male × Wealth (in 1000s)		0.074		-0.430***
		(0.119)		(0.132)
Age >25 × Wealth (in 1000s)		-0.182		-0.219*
		(0.373)		(0.129)
Not German × Wealth (in 1000s)		0.067		-0.154
		(0.190)		(0.099)
Not Male	-0.013	-0.248	0.136*	0.399**
	(0.131)	(0.156)	(0.070)	(0.161)
Age >25	0.116	0.143	-0.124	0.279*
	(0.180)	(0.217)	(0.093)	(0.166)
Not German	0.242*	-0.089	0.333***	0.255**
	(0.145)	(0.161)	(0.065)	(0.119)
Dec. Time <3.5s	2.517***	2.521***	2.600***	2.617***
	(0.131)	(0.129)	(0.074)	(0.148)
Threshold	-0.036	-0.276***	-0.089	-0.151***
	(0.077)	(0.076)	(0.096)	(0.096)
Safe on Right	-0.170***	0.068	0.082*	-0.138**
	(0.052)	(0.052)	(0.048)	(0.059)
Lottery Expectations	-0.375***	-0.295***	-0.149*	-0.240**
	(0.113)	(0.112)	(0.085)	(0.122)
Constant	-0.460***	-0.535***	-0.661***	-0.678***
	(0.080)	(0.080)	(0.058)	(0.073)
Observations	10,222	10,222	9,230	9,230
Number of players	1,144	1,144	1,072	1,072
Bootstrapped st. err.	YES	YES	YES	YES
Lottery fixed effects	YES[a]	YES[a]	YES[a]	YES[a]
Individual FE	NO	NO	NO	NO

Note: The table displays the results of a non-linear model which estimates the influence of wealth on risk aversion directly. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) considers players in the Relative Treatment. Wealth is defined as the current level of in-game currency. Block-bootstrapped standard errors on the level of the individual based on 1,000 replications are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.
[a] Lottery fixed effects are included, but predetermined by the risk aversion coefficient implied by the lottery faced by the player.

A.4 Estimations without the first three lottery choices

The pre-analysis plan specifies analyses with and without the first three choices of individuals. This specification was made based on the expectation of more lottery choices per player than we ended up observing in the final data. We nevertheless report the non-instrumented panel analysis with the restricted sample below. To get an idea of how the sample changes due to the restriction, we display the descriptive statistics of the new sample in Table A.4. The sample is significantly smaller than in the main analysis with the number of players being reduced by about 40%. Also, subjects are, on average, richer when making the lottery decisions and particularly have fewer lottery decisions at wealth levels smaller than 500 units of in-game currency. Median wealth increases from 491 in the sample of the main analysis to 672 in the restricted sample.

Because the distribution of wealth was so strongly affected by the sample restriction, we report both the results for the wealth measure used in the main analysis as well as those for alternative wealth measure that includes all money already spent in the shop. As can be seen in Table A.5, the sign of the coefficients does not change, but the coefficient looses significance in the Absolute Treatment. This is likely due to the smaller number of observations at low wealth levels. However, when considering the alternative wealth measure, a negative and significant effect can still be seen in the Absolute Treatment. This is not true in the Relative Treatment, but given the concerns of identification with the alternative wealth measure in this treatment, this does not affect our overall conclusions.

Table A.4 – Descriptive statistics of the treatment groups and the overall sample without the first three lottery decisions

	Absolute Treatment	Relative Treatment	P-Value Difference	Overall
Panel A: User Demographics				
Unique Users	695	627		1,322
Not German	83 (11.9%)	88 (14.0%)	0.294	171 (12.9%)
Age				
16-25	646 (92.9%)	579 (92.3%)	0.752	1,225 (92.7%)
26-35	39 (5.6%)	24 (3.8%)	0.164	63 (4.8%)
36-45	2 (0.3%)	15 (2.4%)	0.002***	17 (1.3%)
> 45	8 (1.2%)	9 (1.4%)	0.831	17 (1.3%)
Sex				
Male	611 (87.9%)	556 (88.7%)	0.73	1,167 (88.3%)
Female	73 (10.5%)	61 (9.7%)	0.708	134 (10.1%)
Non-Binary	11 (1.6%)	10 (1.6%)	1	21 (1.6%)
Panel B: Gameplay Information				
Game Runs				
Mean (SD)	20.7 (16)	21.6 (17.1)	0.324	21.2 (16.5)
Median [Min, Max]	15 (5, 122)	17 (5, 126)		16 (5, 126)
Lottery Choices				
Mean (SD)	10.6 (12.1)	10.5 (11.6)	0.89	10.5 (11.9)
Median [Min, Max]	6 (1, 86)	6 (1, 95)		6 (1, 95)
Spending				
Mean (SD)	3,149.4 (4,190.8)	2,725.9 (4,315.6)	0***	2,949.5 (4,255.3)
Median [Min, Max]	1,750 (0, 39,500)	1,500 (0, 52,000)		1,500 (0, 52,000)
Wealth				
Mean (SD)	1,095.9 (1,034.9)	1,015.4 (1,013.0)	0***	1,057.9 (1,025.4)
Median [Min, Max]	710 (100, 5,992)	615 (100, 5,963)		672 (100, 5,992)
Decision Time				
Mean (SD)	5.5 (6.0)	6.0 (6.5)	0***	5.7 (6.2)
Median [Min, Max]	4.2 (0.8, 60.0)	4.5 (0.9, 60.0)		4.3 (0.8, 60.0)
Safe Choices				
Mean (SD)	0.422 (0.494)	0.396 (0.489)	0.002***	0.410 (0.492)
Median [Min, Max]	0.0 (0.0, 1.0)	0.0 (0.0, 1.0)		0.0 (0.0, 1.0)
Decision at Threshold	824 (11.2%)	468 (7.1%)	0***	1,292 (9.3%)

Note: The table shows the descriptive statistics of the players and the individual lottery decisions without the first three lottery decisions. The first column shows the data of the Absolute Treatment, the second column those of the Relative Treatment. The last column combines both samples. Spending refers to the amount of money spent in the in-game shop. Decisions at Threshold are those for which the current wealth plus the high outcome of the risky decision allowed the purchase of the next more expensive item in the shop, while the current wealth plus the safe outcome of the lottery did not.

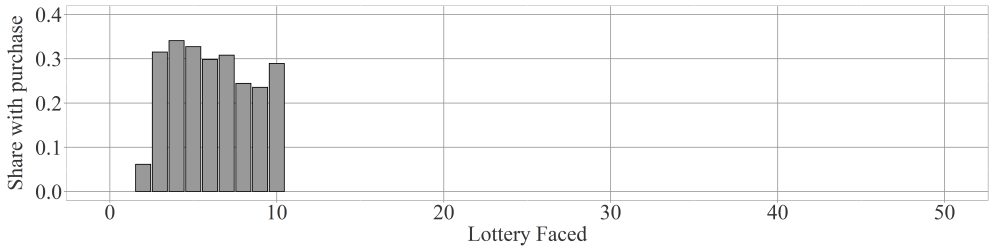
Table A.5 – Results of the linear probability model excluding the first three lottery decisions

	Dependent variable: safe choice			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	−0.006		−0.020***	
	(0.006)		(0.006)	
Alt. Wealth (in 1000s)		−0.005**		−0.003
		(0.002)		(0.003)
Dec.Time <3.5s	0.555***	0.556***	0.549***	0.550***
	(0.019)	(0.019)	(0.020)	(0.020)
Threshold	0.006	0.006	−0.026	−0.029*
	(0.014)	(0.014)	(0.018)	(0.018)
Safe on Right	0.009	0.008	0.009	0.009
	(0.010)	(0.010)	(0.010)	(0.010)
Lottery Expectations	−0.011	−0.016	−0.066	−0.066
	(0.037)	(0.037)	(0.044)	(0.043)
Control variables	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES
Lottery fixed effects	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES
Number of players	688	688	620	620
Observations	7,326	7,326	6,555	6,555
Adjusted R^2	0.532	0.532	0.490	0.489

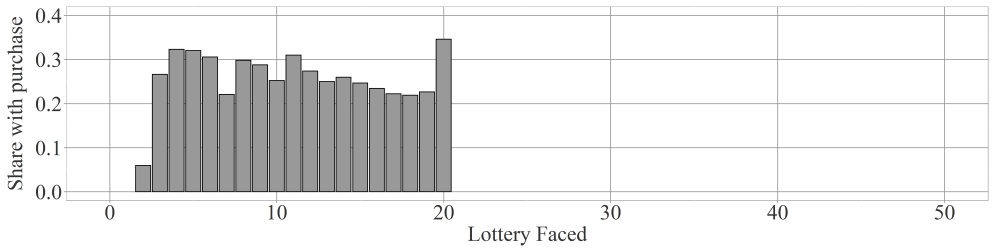
Note: The table displays the results of a linear probability model with the safe choice as the dependent variable. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) consider players in the Relative Treatment. Wealth is defined as the current level of in-game currency. The first three lottery decisions are excluded from the analysis. All regressions include fixed effects on the lottery level and the subject level. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

Online Appendix B Additional Graphical Analyses

This appendix shows additional graphical analyses of the data. Figure B.3 repeats the analysis of Figure 5 by individual cohorts of players. The pattern is comparable to the analysis of the full sample. Some differences arise because the analysis in the main text considers the full sample and truncates the display at 50 Lottery decisions, while the figures below only consider those players with a set number of total rounds played. Figures B.4 and B.5 repeat the graphical analysis of safe choices by wealth for other upper limits than the one chosen in Figure 7.

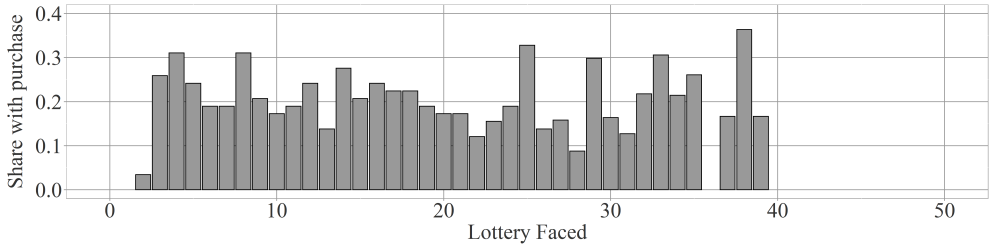


(a) Players making between 6 and 10 lottery decisions total (n = 406)

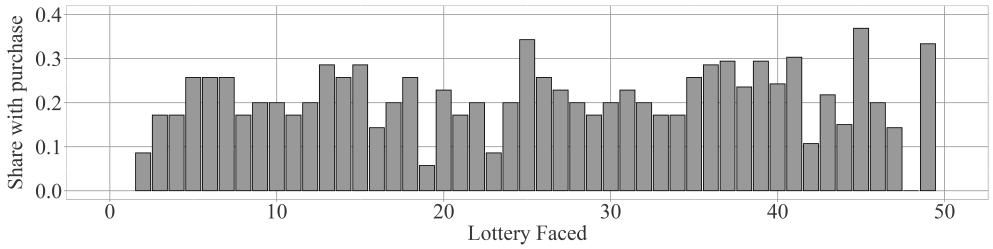


(b) Players making between 11 and 20 lottery decisions total (n = 353)

(c) Players making between 21 and 30 lottery decisions total (n = 135)

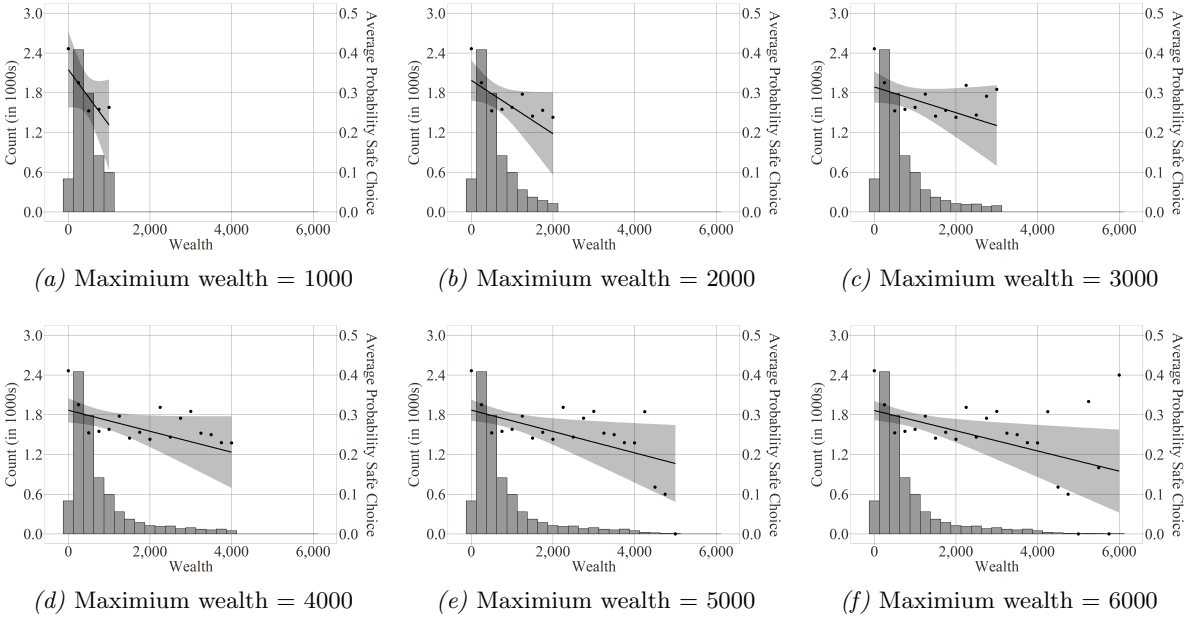


(d) Players making between 31 and 40 lottery decisions total (n = 58)



(e) Players making between 41 and 50 lottery decisions total (n = 35)

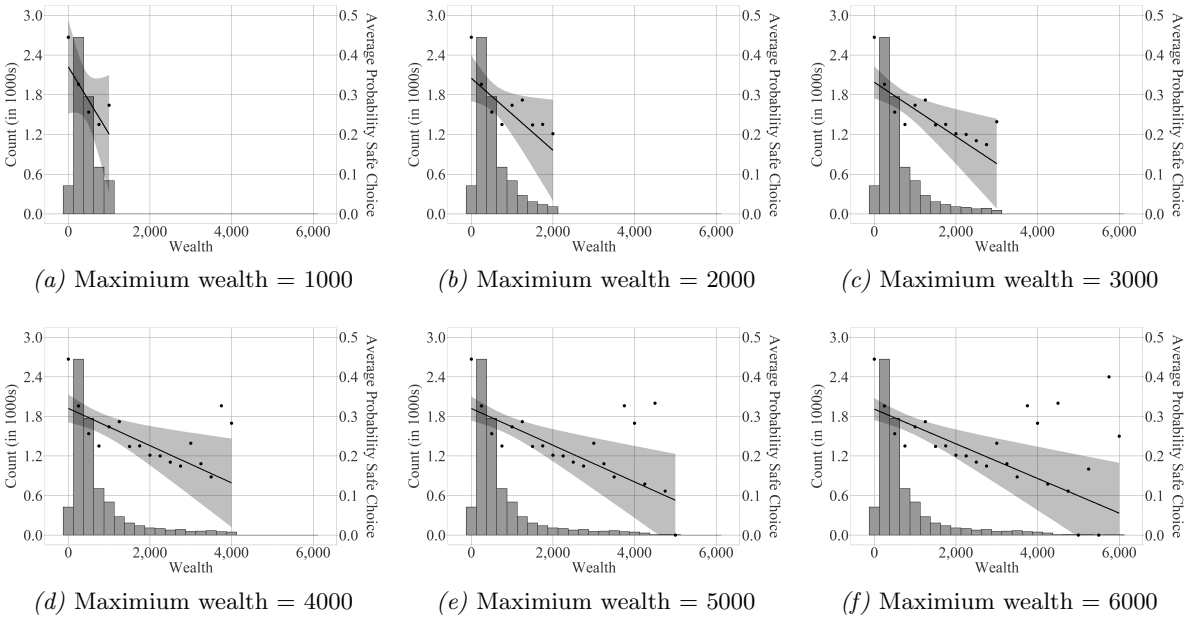
Figure B.3 – Histograms show the share of players who purchased something from the in-game store between two lottery decisions. The different panels refer to different sets of players which are split based on the total number of lottery decisions they made.



(a) Maximium wealth = 1000 *(b)* Maximium wealth = 2000 *(c)* Maximium wealth = 3000

(d) Maximium wealth = 4000 *(e)* Maximium wealth = 5000 *(f)* Maximium wealth = 6000

Figure B.4 – Graphical analysis of safe choices contingent on wealth. The figure displays only choices of players in the Absolute Treatment. Panels differ in the upper limit of wealth used for the sample selection.



(a) Maximium wealth = 1000 *(b)* Maximium wealth = 2000 *(c)* Maximium wealth = 3000

(d) Maximium wealth = 4000 *(e)* Maximium wealth = 5000 *(f)* Maximium wealth = 6000

Figure B.5 – Graphical analysis of safe choices contingent on wealth. The figure displays only choices of players in the Relative Treatment. Panels differ in the upper limit of wealth used for the sample selection.

Online Appendix C Estimation results including control variables

C.1 Individual level linear probability model

Table C.1 – Full results of the individual level two-stage least squares linear probability model

	Dependent variable: safe choice			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	−0.041***	−0.043***	−0.037***	−0.030***
	(0.007)	(0.009)	(0.007)	(0.009)
Not Male × Wealth (in 1000s)		0.002		−0.046**
		(0.019)		(0.020)
Age >25 × Wealth (in 1000s)		0.003		−0.012
		(0.036)		(0.021)
Not German × Wealth (in 1000s)		0.016		0.005
		(0.027)		(0.016)
Dec.Time <3.5s	0.549***	0.549***	0.549***	0.548***
	(0.016)	(0.016)	(0.016)	(0.016)
Threshold	−0.011	−0.011	−0.046***	−0.047***
	(0.013)	(0.013)	(0.017)	(0.016)
Safe on Right	0.010	0.010	0.006	0.007
	(0.009)	(0.009)	(0.009)	(0.009)
Lottery Expectations	−0.049**	−0.049**	−0.043*	−0.043*
	(0.024)	(0.024)	(0.026)	(0.025)
Control variables	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES
Lottery fixed effects	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES
Number of players	1,144	1,144	1,072	1,072
1st Stage F-statistic on Wealth	3,630	2,458	1,114	989.7
Observations	10,170	10,170	9,230	9,230
Adjusted R^2	0.430	0.430	0.402	0.401

Note: The table displays the results of a two-stage least squares linear probability model with the safe choice as the dependent variable. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) consider players in the Relative Treatment. Wealth is defined as the current level of in-game currency and is instrumented for using its one period lag. All regressions include fixed effects on the lottery level and the subject level. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

C.2 Robustness results including control variables

Table C.2 – Results of the population level two-stage least squares linear probability model with alternative specifications

	Dependent variable: safe choice					
	Absolute Treatment			Relative Treatment		
	(1)	(2)	(3)	(4)	(5)	(6)
Wealth (in 1000s)	−0.025***	−0.025*		−0.008***	−0.038***	
	(0.007)	(0.013)		(0.002)	(0.014)	
Altern. Wealth (in 1000s)			−0.019***			−0.019***
			(0.005)			(0.004)
Not Male	−0.020	−0.021	−0.026	0.008	0.016	0.060*
	(0.028)	(0.039)	(0.028)	(0.042)	(0.045)	(0.035)
Age >25	0.016	0.032	0.004	−0.012	−0.015	−0.012
	(0.036)	(0.052)	(0.035)	(0.026)	(0.035)	(0.025)
Not German	−0.026	−0.026	−0.035	0.0001	−0.013	0.004
	(0.033)	(0.039)	(0.031)	(0.025)	(0.032)	(0.025)
Dec.Time <3.5s	0.612***		0.626***	0.619***		0.641***
	(0.017)		(0.016)	(0.017)		(0.016)
Decision Time		−0.037***			−0.039***	
		(0.002)			(0.003)	
(Decision Time)^2		0.001***			0.001***	
		(0.00004)			(0.00005)	
Threshold	−0.012	−0.022	−0.008	−0.054***	−0.071***	−0.049***
	(0.013)	(0.015)	(0.013)	(0.017)	(0.019)	(0.017)
Safe on Right	0.008	0.004	0.010	0.011	0.006	0.010
	(0.009)	(0.011)	(0.009)	(0.011)	(0.012)	(0.010)
Lottery Expectations	−0.081***	−0.169***	−0.074***	−0.038	−0.104***	−0.043
	(0.026)	(0.035)	(0.026)	(0.029)	(0.038)	(0.029)
Individual fixed effects	NO	NO	NO	NO	NO	NO
Lottery fixed effects	YES	YES	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES	YES	YES
Number of players	1,144	1,144	1,144	1,072	1,072	1,072
1st Stage F-statistic on Wealth	1,165	7,027	199.6	6,931	2,629	51.43
Observations	10,240	10,170	10,170	9,446	9,230	9,230
Adjusted R^2	0.280	0.060	0.291	0.260	0.061	0.262

Note: The table displays the results of a two-stage least squares linear probability model with the safe choice as the dependent variable. Columns (1) through (3) consider players in the Absolute Treatment. Columns (4) through (6) consider players in the Relative Treatment. Wealth in columns (1), (2), (4), and (5) is defined as the current level of in-game currency. Alternative wealth (Alt. W.) in columns (3) and (6) is defined as the current level of in-game currency and all money spent in the game so far. Decisions by players with a current level of in-game currency higher than 6,000 units are excluded from the analyses reported in columns (2), (3), (5) and (6) but included in the analyses reported in columns (1) and (4). All wealth measures in all estimations are instrumented for using the one period lag of the current level of in-game currency. All regressions include fixed effects on the lottery level. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

Table C.3 – Results of the individual level two-stage least squares linear probability model with alternative specifications

	Dependent variable: safe choice					
	Absolute Treatment			Relative Treatment		
	(1)	(2)	(3)	(4)	(5)	(6)
Wealth (in 1000s)	-0.029^{***}	-0.042^{***}		-0.005^{***}	-0.038^{***}	
	(0.008)	(0.009)		(0.002)	(0.008)	
Altern. Wealth (in 1000s)			-0.025^{***}			-0.020^{***}
			(0.005)			(0.004)
Dec.Time <3.5s	0.550^{***}		0.559^{***}	0.544^{***}		0.561^{***}
	(0.016)		(0.016)	(0.016)		(0.015)
Decision Time		-0.040^{***}			-0.040^{***}	
		(0.002)			(0.002)	
(Decision Time)^2		0.001^{***}			0.001^{***}	
		(0.00004)			(0.00004)	
Threshold	-0.009	-0.022	-0.007	-0.052^{***}	-0.067^{***}	-0.048^{***}
	(0.013)	(0.015)	(0.013)	(0.017)	(0.018)	(0.017)
Safe on Right	0.009	0.006	0.010	0.007	0.002	0.006
	(0.009)	(0.010)	(0.009)	(0.010)	(0.011)	(0.009)
Lottery Expectations	-0.049^{**}	-0.103^{***}	-0.061^{**}	-0.042	-0.073^{**}	-0.043^{*}
	(0.024)	(0.030)	(0.025)	(0.026)	(0.030)	(0.024)
Individual fixed effects	NO	NO	NO	NO	NO	NO
Lottery fixed effects	YES	YES	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES	YES	YES
Number of players	1,144	1,144	1,144	1,072	1,072	1,072
1st Stage F-statistic on Wealth	588.8	3,431	155.3	4,444	1,063	251.1
Observations	10,240	10,170	10,170	9,446	9,230	9,230
Adjusted R^2	0.431	0.290	0.426	0.400	0.281	0.394

Note: The table displays the results of a two-stage least squares linear probability model with the safe choice as the dependent variable. Columns (1) through (3) consider players in the Absolute Treatment. Columns (4) through (6) consider players in the Relative Treatment. Wealth in columns (1), (2), (4), and (5) is defined as the current level of in-game currency. Alternative wealth (Alt. W.) in columns (3) and (6) is defined as the current level of in-game currency and all money spent in the game so far. Decisions by players with a current level of in-game currency higher than 6,000 units are excluded from the analyses reported in columns (2), (3), (5) and (6) but included in the analyses reported in columns (1) and (4). All wealth measures in all estimations are instrumented for using the one period lag of the current level of in-game currency. All regressions include fixed effects on the lottery level and the subject level. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

Table C.4 – Results of the individual level two-stage least squares linear probability model including a linear time trend

	Dependent variable: safe choice			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	-0.023^{***}	-0.025^{***}	-0.022^{***}	-0.019^{**}
	(0.008)	(0.010)	(0.008)	(0.009)
Not Male × Wealth (in 1000s)		0.006		-0.036^{*}
		(0.018)		(0.020)
Age >25 × Wealth (in 1000s)		0.004		−0.010
		(0.036)		(0.022)
Not German × Wealth (in 1000s)		0.010		0.009
		(0.021)		(0.016)
Time Trend	-0.003^{***}	-0.003^{***}	-0.003^{***}	-0.002^{***}
	(0.001)	(0.001)	(0.001)	(0.001)
Dec.Time <3.5s	0.552^{***}	0.552^{***}	0.553^{***}	0.552^{***}
	(0.016)	(0.016)	(0.016)	(0.016)
Threshold	−0.010	−0.010	-0.046^{***}	-0.047^{***}
	(0.012)	(0.012)	(0.017)	(0.017)
Safe on Right	0.010	0.010	0.006	0.007
	(0.009)	(0.009)	(0.009)	(0.009)
Lottery Expectations	-0.054^{**}	-0.054^{**}	-0.046^{*}	-0.046^{*}
	(0.024)	(0.024)	(0.024)	(0.024)
Control variables	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES
Lottery fixed effects	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES
Number of players	1,144	1,144	1,072	1,072
1st Stage F-statistic on Wealth	3,915	2,930	915.8	1,043
Observations	10,170	10,170	9,230	9,230
Adjusted R^2	0.434	0.433	0.403	0.403

Note: The table displays the results of a two-stage least squares linear probability model with the safe choice as the dependent variable. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) consider players in the Relative Treatment. Wealth is defined as the current level of in-game currency and is instrumented for using its one period lag. All regressions include fixed effects on the lottery level and the subject level. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.

Table C.5 – Results of the individual level two-stage least squares linear probability model excluding the first period

	Dependent variable: safe choice			
	Absolute Treatment		Relative Treatment	
	(1)	(2)	(3)	(4)
Wealth (in 1000s)	-0.020^{***}	-0.022^{**}	-0.023^{***}	-0.015^{*}
	(0.007)	(0.009)	(0.007)	(0.009)
Not Male × Wealth (in 1000s)		0.0003		-0.048^{**}
		(0.018)		(0.021)
Age >25 × Wealth (in 1000s)		0.003		−0.005
		(0.025)		(0.022)
Not German × Wealth (in 1000s)		0.011		−0.0001
		(0.031)		(0.016)
Dec.Time <3.5s	0.561^{***}	0.561^{***}	0.557^{***}	0.556^{***}
	(0.017)	(0.017)	(0.017)	(0.017)
Threshold	0.011	0.011	-0.032^{*}	-0.033^{**}
	(0.013)	(0.013)	(0.017)	(0.017)
Safe on Right	0.008	0.008	0.009	0.009
	(0.009)	(0.009)	(0.010)	(0.010)
Lottery Expectations	−0.039	−0.040	−0.033	−0.035
	(0.028)	(0.028)	(0.030)	(0.029)
Control variables	YES	YES	YES	YES
Individual fixed effects	YES	YES	YES	YES
Lottery fixed effects	YES	YES	YES	YES
Clustered st. err.	YES	YES	YES	YES
Number of players	926	926	873	873
1st Stage F-statistic on Wealth	2,995	2,023	947.6	831
Observations	9,026	9,026	8,158	8,158
Adjusted R^2	0.488	0.488	0.446	0.446

Note: The table displays the results of a two-stage least squares linear probability model with the safe choice as the dependent variable. Columns (1) and (2) consider players in the Absolute Treatment. Columns (3) and (4) consider players in the Relative Treatment. Wealth is defined as the current level of in-game currency and is instrumented for using its one period lag. All regressions include fixed effects on the lottery level and the subject level and exclude the first decision of each player. Standard errors, heteroscedasticity-robust and clustered on the subject level, are in parentheses. *, **, and *** indicate significance at the 10, 5, and 1 percent level, respectively.