

Online Appendices for “Failures in Contingent Reasoning: The Role of Uncertainty”

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A Main Findings Using Submitted Prices

In this appendix we provide further details on results using submitted prices, first described in Appendix B. Table 11 provides detail relative to Table B1.

	PROB		DET	
	All Rounds	Last 10	All Rounds	Last 10
$p < v_L$	1.12	0.85	4.10	3.39
$p = v_L$	42.69	43.03	53.91	55.52
$p = v_L + 1$	3.59	3.30	4.07	4.04
$p = v_L + 2$	1.94	1.60	1.07	0.82
$p = 1.5 \times v_L$	1.36	0.74	0.38	0.27
$p = \frac{v_L + v_H}{2}$	0.48	0.27	0.41	0.49
$p \in (v_L, v_H)$ and not yet classified	15.45	14.57	9.29	8.31
$p = v_H$	21.33	23.94	17.16	16.99
$p = v_H + 1$	1.94	2.13	1.39	1.64
$p = v_H + 2$	1.22	1.28	0.71	0.93
$p = v_L + v_H$	0.48	0.53	1.61	1.97
$p = 1.5 \times v_H$	0.0	0.0	0.05	0.11
$p > v_H$ and not yet classified	8.40	7.77	5.85	5.52
Total	100.0	100.0	100.0	100.0

Table 11: Distribution of Prices by Treatment (in %)

Notes: 188 and 183 participants in PROB and DET, respectively. All rounds include data for 3,760 (188 subjects \times 20 rounds) and 3,660 (183 subjects \times 20 rounds) in PROB and DET, respectively. Last 10 rounds include data for 1,880 (188 subjects \times 10 rounds) and 1,830 (183 subjects \times 10 rounds) in PROB and DET, respectively.

Table 12 shows the distribution of submitted prices for PROB and DET divided into five categories: $p < v_L$, $p = v_L$, $p \in (v_L, v_H)$, $p = v_H$ and $p > v_H$ for each treatment and a series of subsamples. The first two rows include all 20 rounds of part 1, the second set of two rows constrains the sample to the last 10 rounds. The third and fourth set consider subjects who never took a risky lottery in part 5 and subjects who took at least one risky lottery in part 5, respectively.

		$p < v_L$	$p = v_L$	$p \in (v_L, v_H)$	$p = v_H$	$p > v_H$	Participants
All rounds	PROB	1.1	42.7	22.8	21.3	12.1	188
	DET	4.1	53.9	15.2	17.2	9.6	183
Last 10 rounds	PROB	0.8	43.0	20.5	23.9	11.7	188
	DET	3.4	55.5	13.9	17.0	10.1	183
No risky	PROB	1.3	50.0	18.8	19.3	10.7	129
Lottery	DET	4.8	58.8	12.8	16.1	7.5	128
At least one	PROB	0.8	26.7	31.7	25.8	15.1	59
Risky Lottery	DET	2.5	42.5	20.9	19.6	14.6	55

Table 12: Main Treatments: Distribution of Prices in Part 1 (in %)

Notes: ‘All rounds’ uses prices submitted for all 20 problems and ‘Last 10 rounds’ for the last 10 problems subjects faced in part 1. ‘No risky lottery’ includes subjects who never selected a risky lottery in part 5. ‘At least one risky lottery’ involves subjects who selected at least one risky lottery in part 5.

As mentioned in Appendix B, there are substantially more prices $p = v_L$ in DET (53.9 percent) than in PROB (42.7 percent) (Table 12 all 20 rounds) and the effect is statistically significant (see Column (1) of Table 13). Offers of $p = v_H$ are 4.1 percentage points higher in PROB than in DET, a difference that increases to 6.9 percentage points in the last 10 rounds. The treatment effect, however, is not statistically significant per Column (2) of Table 13. Consistent with the classification into types, while it may be tempting to attribute $p = v_H$ prices in PROB to subjects being risk seeking, the prevalence of such prices in DET, where they are dominated, casts doubt on that interpretation.

Prices that are strictly dominated in both treatments, that is $p \notin \{v_L, v_H\}$, are more prevalent in PROB than in DET, with 36.0 (33.0) and 28.9 (27.4) percent such prices in all (the last 10) rounds, respectively. Column (3) of Table 13 shows that the treatment effect is statistically significant.¹

Finally, Table 14 reports findings in part 2. The left-hand side variables take value 1 if $p = v_L$ (the first two columns) or if $p = v_H$ (last two columns) and the unit of observation is each question of part 2. Columns (1), (3) and (5) present results that use the same controls as in Table 13. There is no treatment effect in $p = v_L$ (1), but there is a significantly higher likelihood of observing $p = v_H$ in DET per (3). When we combine findings of part 1 with those of part 2 (see columns (2), (4) and (6)), we find that being classified as V_L in part 1 increases the chances of submitting $p = v_L$ in part 2 of PROB, but not in DET (where the addition of 0.223 and -0.230 is essentially zero). We also find that being classified as V_L in part 1 significantly increases the chances of submitting $p = v_H$

¹Note that there is a class of prices $p \notin \{v_L, v_H\}$ that guarantees no losses and could be interpreted as subjects opting out of participating in the problems, namely $p < v_L$. There are few such prices in either treatment, though the fraction is a little higher in DET. Nonetheless, 1.1 (0.8) percent of prices in PROB are such that $p < v_L$ in all (the last 10) rounds, while the numbers are 4.1 (3.8) percent in DET. The proportion of subjects who perhaps mistakenly believe that they have to submit a price of $v_L + 1$ to buy a company of value v_L is also small and comparable across treatments, 3.6 (3.3) percent in PROB and 4.1 (4.0) percent in DET in all (the last 10) rounds. The instructions do include a question that checks the understanding (see Instructions Appendix) that submitting $p = v$ guarantees buying a company of value v .

	(1) $p=v_L$	(2) $p=v_H$	(3) $p \notin \{v_H, v_L\}$
Det	0.151*** (0.054)	0.002 (0.043)	-0.153*** (0.055)
Num Risky	-0.095*** (0.028)	0.034 (0.022)	0.061** (0.029)
Num Risky \times Det	0.035 (0.041)	0.008 (0.033)	-0.043 (0.042)
Num Errors	-0.091** (0.042)	-0.003 (0.033)	0.094** (0.042)
Num Errors \times Det	-0.149*** (0.058)	-0.008 (0.046)	0.158*** (0.059)
Last 10 Periods	0.007 (0.009)	0.052*** (0.008)	-0.059*** (0.007)
Last 10 Periods \times Det	0.025** (0.012)	-0.055*** (0.012)	0.030*** (0.010)
Female	-0.149*** (0.041)	0.052 (0.032)	0.097** (0.041)
White	0.118** (0.049)	-0.038 (0.039)	-0.080 (0.050)
Young	-0.026 (0.041)	0.009 (0.032)	0.017 (0.041)
Low Schooling	-0.067 (0.042)	0.061* (0.033)	0.006 (0.043)
Constant	0.548*** (0.063)	0.140*** (0.050)	0.311*** (0.064)
Observations	7420	7420	7420

Table 13: Main Treatments: Random Effects Estimations Output using Part-1 Prices

Notes: The dependent variable takes value 1 if: (1) $p = v_L$, (2) $p = v_H$, (3) $p \notin \{v_L, v_H\}$. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Last 10 rounds is a dummy variable that takes value 1 if the observation corresponds to the last 10 rounds of part 1. Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower. There are 371 individuals (188 in `PROB` and 183 in `DET`) and 20 observations in part 1 per individual for a total of 7,420 observations.

	(1) $p=v_L$	(2) $p=v_L$	(3) $p=v_H$	(4) $p=v_H$	(5) $p \notin \{v_H, v_L\}$	(6) $p \notin \{v_H, v_L\}$
Det	-0.057 (0.036)	0.045 (0.046)	0.199*** (0.059)	0.059 (0.074)	-0.142** (0.055)	-0.105 (0.066)
Num Risky	-0.002 (0.019)	0.021 (0.019)	-0.069** (0.031)	-0.054* (0.030)	0.072** (0.029)	0.033 (0.027)
Num Risky \times Det	-0.014 (0.028)	-0.036 (0.027)	0.048 (0.045)	0.041 (0.044)	-0.034 (0.042)	-0.004 (0.039)
Num Errors	0.056** (0.028)	0.079*** (0.027)	-0.150*** (0.046)	-0.137*** (0.044)	0.094** (0.043)	0.059 (0.040)
Num Errors \times Det	-0.070* (0.039)	-0.095** (0.039)	-0.092 (0.063)	-0.033 (0.063)	0.162*** (0.060)	0.128** (0.056)
Female	-0.014 (0.027)	-0.001 (0.027)	-0.080* (0.044)	-0.042 (0.043)	0.094** (0.042)	0.043 (0.039)
White	-0.006 (0.033)	-0.024 (0.032)	0.101* (0.054)	0.080 (0.052)	-0.095* (0.051)	-0.056 (0.047)
Young	0.010 (0.027)	0.004 (0.027)	-0.023 (0.044)	-0.008 (0.043)	0.013 (0.042)	0.004 (0.038)
Low Schooling	-0.035 (0.028)	-0.030 (0.027)	-0.001 (0.046)	-0.001 (0.044)	0.036 (0.043)	0.031 (0.039)
V_L (Part 1)		0.223*** (0.041)		0.155** (0.066)		-0.378*** (0.059)
V_L (Part 1) \times Det		-0.230*** (0.057)		0.187** (0.091)		0.043 (0.082)
Constant	0.144*** (0.042)	0.057 (0.044)	0.637*** (0.068)	0.561*** (0.070)	0.219*** (0.064)	0.382*** (0.063)
Observations	1855	1855	1855	1855	1855	1855

Table 14: Main Treatments: Random Effects Estimations Output using Part-2 Prices

Notes: The dependent variable takes value 1 if the subject selects in (1) and (2) $p = v_L$, in (3) and (4) $p = v_H$ and in (5) and (6) $p \notin \{v_L, v_H\}$. The regression includes all 5 rounds of part 2. Columns (2), (4) and (6) control for whether the subject was classified as submitting $p = v_L$ in the last five rounds of part 1 (V_L) and its interaction with Det. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.

in both treatments (by a positive coefficient 0.155), but there is an additional effect in DET that is significant (a coefficient of 0.187).

In summary, the evidence on prices rather than classification of subjects confirms the results from Section 3, and mirrors that risk seeking preferences cannot account for the findings. That is, using prices instead of types in part 1 confirms the evidence for the *PoC*.

B Main Treatments: Additional Information

Table 15 shows the full output of the regressions summarized on Table 4 of the text.

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
Det	0.244*** (0.060)	-0.102* (0.056)	-0.053 (0.048)	-0.074 (0.053)	-0.089 (0.063)
Num Risky	-0.062** (0.031)	-0.008 (0.029)	-0.003 (0.025)	0.073*** (0.027)	0.073** (0.033)
Num Risky \times Det	0.043 (0.046)	0.040 (0.043)	-0.011 (0.036)	-0.052 (0.040)	-0.071 (0.048)
Num Errors	-0.100** (0.046)	-0.064 (0.044)	0.048 (0.037)	0.074* (0.041)	0.116** (0.049)
Num Errors \times Det	-0.094 (0.065)	0.021 (0.061)	-0.096* (0.051)	0.083 (0.057)	0.169** (0.068)
Female	-0.131*** (0.045)	0.045 (0.042)	-0.006 (0.036)	0.068* (0.040)	0.092* (0.048)
White	0.096* (0.055)	0.018 (0.052)	-0.011 (0.044)	-0.089* (0.048)	-0.102* (0.058)
Young	-0.028 (0.045)	0.004 (0.042)	-0.006 (0.036)	0.029 (0.040)	0.030 (0.048)
Low Schooling	0.004 (0.047)	0.031 (0.044)	-0.052 (0.037)	0.031 (0.041)	0.017 (0.049)
Constant	0.286*** (0.069)	0.223*** (0.065)	0.203*** (0.055)	0.147** (0.061)	0.287*** (0.073)
Observations	371	371	371	371	371

Table 15: Main Treatments: Estimation output using last 5 rounds of part 1 and part 2 for the classification of types

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling is 'Some College' or lower.

Next, we show the classification of subjects into types using only part 1, see Table 17, and using only part 2, see Table 18.

The first robustness of classification we consider weakens the requirement that subjects submit the type specific price in each of the last 5 rounds of part 1 and all five rounds of part 2. Subjects only have to submit the type specific price in 4 of the 5 rounds (that is 80 percent of the prices have to be type specific). For each subject we first assess whether they can be classified as $V_L^{80} V_H^{80}$. We then check for the remainder, whether they can be classified as $Mix^{80} V_H^{80}$ or $V_H^{80} V_H^{80}$. And subsequently for the remainder we assess whether they can be classified as $Focal^{80}$, and then as $Dominated^{80}$. All residual subjects are classified as $Residual^{80}$, see Table 16. Figure 3 shows the evolution of types using this more lenient classification.

		$V_L^{80}V_H^{80}/V^{80}$	$\{Mix^{80}V_H^{80}, V_H^{80}V_H^{80}\}$	Focal ⁸⁰	Dom ⁸⁰	Residual ⁸⁰	Participants
All	PROB	26.6	22.9	15.4	27.1	8.0	188
	DET	49.2	15.3	4.9	21.3	9.3	183
	ONEVALUE	67.1	–	–	20.5	12.4	428
No	PROB	32.6	21.7	16.3	20.1	9.3	129
Risky	DET	52.4	14.8	6.3	15.6	10.9	128
Lottery	ONEVALUE	71.8	–	–	18.1	10.1	276
At least one	PROB	13.5	25.4	13.6	42.4	5.1	59
Risky	DET	41.8	16.4	1.8	34.5	5.5	55
Lottery	ONEVALUE	58.6	–	–	25.0	16.4	152

Table 16: Part 1 and Part 2 Type Classification Allowing for Deviations [as % of participants]

Notes: Types are defined based on the prices p_1 submitted in at least 80 percent of the last five rounds of part 1 and p_2 submitted in at least 80 percent of the five rounds of part 2. Type $V_L^{80}V_H^{80}$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{Mix^{80}V_H^{80}, V_H^{80}V_H^{80}\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$ and not classified as $V_L^{80}V_H^{80}$. Type ‘Focal⁸⁰’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L^{80}V_L^{80}$, $V_L^{80}Mix^{80}$, $Mix^{80}V_L^{80}$, $Mix^{80}Mix^{80}$, $V_H^{80}V_L^{80}$, or $V_H^{80}Mix^{80}$. Type ‘Dom⁸⁰’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual⁸⁰: All remaining subjects. In ONEVALUE subjects are classified as V^{80} if they submit $p = v$ in at least 80 percent of rounds 16-25, and as ‘Dom⁸⁰’ if $p \neq v$ in at least 80 percent of rounds 16-25, with Residual⁸⁰ being the remaining subjects. In all classifications, since there is a potential for a subject to be classified as two different types (in two different columns), we break ties such that we classify the subject in the left column.

Part 1 Types	V_H	V_L	Mix	Dom	Residual	Participants
PROB	12.2	31.9	20.7	27.7	7.5	188
DET	9.8	47.5	9.8	19.3	13.7	183

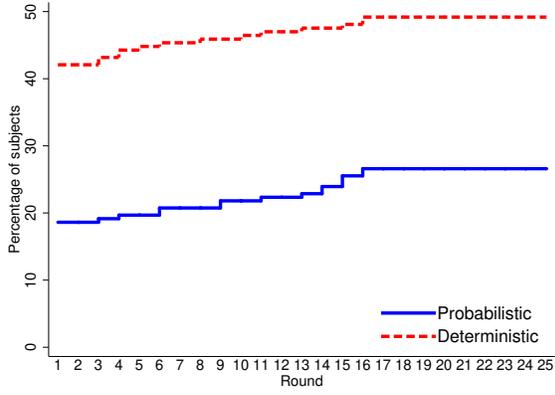
Table 17: Part 1 Type Classification [as % of participants]

Notes: Subjects are classified as belonging to a type if their submitted price corresponds to the same type in the last 5 rounds of part 1 (rounds 16-20). V_L : $p = v_L$. V_H : $p = v_H$. Mix: $p = v_L$ or $p = v_H$ (and at least one of each). Dom: $p \notin \{v_L, v_H\}$. Residual: all other subjects.

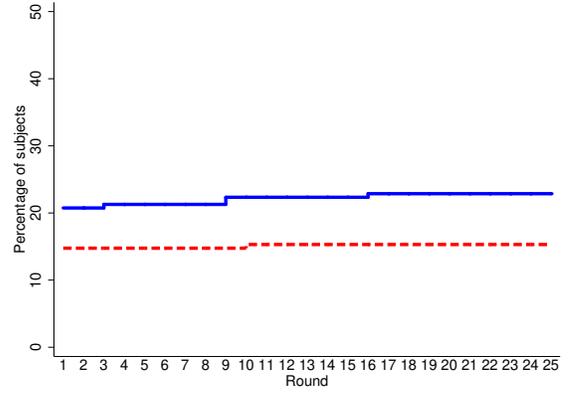
Part 2 Types	V_H	V_L	Mix	Dom	Residual	Participants
PROB	47.9	10.1	8.5	24.0	9.5	188
DET	65.0	2.2	7.1	20.2	5.5	183

Table 18: Part 2 Type Classification [as % of participants]

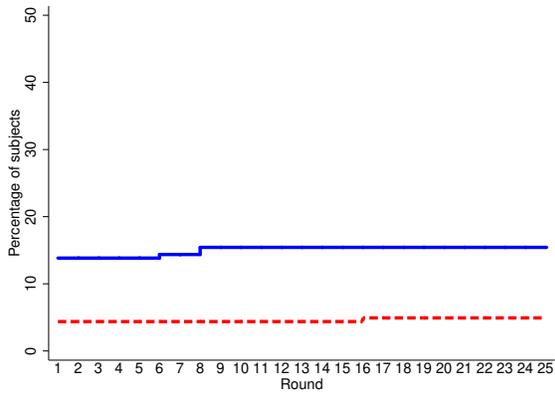
Notes: Subjects are classified as belonging to a type if their submitted price corresponds to the same type in all 5 rounds 21-25 in part 2. V_L : $p = v_L$. V_H : $p = v_H$. Mix: $p = v_L$ or $p = v_H$ (and at least one of each). Dom: $p \notin \{v_L, v_H\}$. Residual: all other subjects.



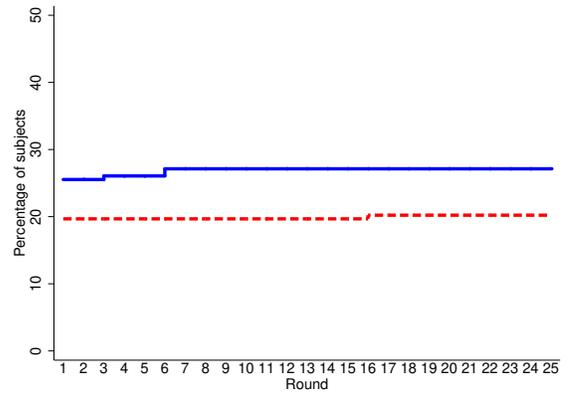
(a) $p = v_L$: n to 15 & $V_L^{80}V_H^{80}$.



(b) $p \in \{v_L, v_H\}$: n to 15 & $\{Mix^{80}V_H^{80}, V_H^{80}V_H^{80}\}$.



(c) $p \in \{v_L, v_H\}$: n to 15 & Focal⁸⁰.



(d) $p \notin \{v_L, v_H\}$: n to 15 & Dominated⁸⁰.

Figure 3: Evolution of Types (Part 1 & Part 2) Allowing for Deviations.

Notes: Percent of subjects who submit the described part-1 price p_1 in 80 percent of the rounds from round n to 20 and part-2 price p_2 in 80 percent of the rounds in part 2 by treatment.

	(1) $V_L^{80}V_H^{80}$	(2) $\{Mix^{80}V_H^{80}, V_H^{80}V_H^{80}\}$	(3) Focal ⁸⁰	(4) Dom ⁸⁰	(5) Dom ⁸⁰ or Res ⁸⁰
Det	0.272*** (0.063)	-0.085 (0.055)	-0.072* (0.042)	-0.125** (0.057)	-0.115* (0.062)
Num Risky	-0.062* (0.033)	0.011 (0.029)	-0.013 (0.022)	0.080*** (0.030)	0.064** (0.032)
Num Risky × Det	0.030 (0.048)	0.023 (0.042)	0.004 (0.032)	-0.029 (0.044)	-0.057 (0.047)
Num Errors	-0.124** (0.048)	-0.048 (0.043)	0.069** (0.032)	0.059 (0.044)	0.103** (0.048)
Num Errors × Det	-0.112* (0.067)	0.021 (0.060)	-0.090** (0.045)	0.157** (0.061)	0.181*** (0.066)
Female	-0.103** (0.047)	0.033 (0.042)	-0.032 (0.032)	0.073* (0.043)	0.103** (0.046)
White	0.132** (0.057)	0.001 (0.051)	-0.023 (0.038)	-0.106** (0.052)	-0.110* (0.056)
Young	-0.031 (0.047)	-0.001 (0.042)	0.009 (0.032)	0.046 (0.043)	0.023 (0.046)
Low Schooling	-0.033 (0.049)	0.038 (0.043)	-0.044 (0.033)	0.015 (0.044)	0.039 (0.048)
Constant	0.339*** (0.072)	0.209*** (0.064)	0.181*** (0.049)	0.212*** (0.066)	0.270*** (0.071)
Observations	371	371	371	371	371

Table 19: Main Treatments: Estimation output using last 5 rounds of part 1 and part 2 for the classification of types that allows for one deviation

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L^{80}V_H^{80}$, (2) $\{Mix^{80}V_H^{80}, V_H^{80}V_H^{80}\}$, (3) Focal⁸⁰, (4) Dom⁸⁰, (5) Dom⁸⁰ or Res⁸⁰. A subject is classified as $V_L^{80}V_H^{80}$ if they submitted $p = v_L$ in at least 80 percent of the last 5 rounds of part 1 and $p = v_H$ in at least 80 percent of the rounds of part 2. A subject is classified as $Mix^{80}V_H^{80}$ if they mix between $p = v_L$ and $p = v_H$ in the last 5 rounds of part 1, selecting at least one of the two and not being previously classified as V_L^{80} , and if they select $p = v_H$ in at least 80 percent of the rounds of part 2. The other definitions of types are adjusted accordingly. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.

Table 19 shows that the main result of Table 4 is robust to using this more lenient classification. Specifically, subjects in DET are significantly more likely to be classified as $V_L^{80}V_H^{80}$ compared to subjects in PROB. While subjects who chose risky lotteries in part 5 are less likely to be so classified, there is no significant treatment effect even though risk preferences have no bearing in DET. In addition, subjects who took risks in part 5 are more likely to be classified as the *Dominated*⁸⁰ type or as either *Dominated*⁸⁰ or *Residual*⁸⁰ type, further casting doubt that risk-seeking preferences are responsible for a correlation between a $V_L^{80}V_H^{80}$ classification and part 5 choices.

Table 16 also shows the classification of subjects in the first two parts of the One-Value treatments. In ONEVALUE, a subject is classified as V^{80} if they submit $p = v$ in at least 80 percent of the rounds 16-25, among the remainder, subjects are classified as *Dom*⁸⁰, if $p \neq v$ in at least 80 percent of rounds 16-25, and *Residual*⁸⁰ contains the remaining subjects.

		$V_L^A V_H^A / V^A$	$\{Mix^A V_H^A, V_H^A V_H^A\}$	Focal ^A	Dom ^A	Residual ^A	Participants
All	PROB	21.8	26.6	19.1	17.6	14.9	188
	DET	45.9	18.0	8.2	11.5	16.4	183
	ONEVALUE	66.8	–	–	12.9	20.3	428
No	PROB	27.1	27.1	18.6	12.4	14.7	129
Risky	DET	47.7	17.2	9.4	8.6	17.2	128
Lottery	ONEVALUE	72.5	–	–	12.3	15.2	276
At least one	PROB	10.2	25.4	20.3	28.8	15.3	59
Risky	DET	41.8	20.0	5.5	18.2	14.5	55
Lottery	ONEVALUE	56.6	–	–	13.8	29.6	152

Table 20: Part 1 and Part 2 Type Classification Allowing for Small Overbidding [as % of participants]

Notes: Adjusted Types are defined based on the prices p_1 submitted in the last five rounds of part 1 and p_2 submitted in all five rounds of part 2. Type $V_L^A V_H^A$: $p_1 \in P_L = [v_L, v_L + 2]$ and $p_2 \in P_H = [v_H, v_H + 2]$. Type $\{Mix^A V_H^A, V_H^A V_H^A\}$: $p_1 \in \{P_L, P_H\}$ and at least one $p_1 \in P_H$ and $p_2 \in P_H$ and not classified as $V_L^A V_H^A$. Type ‘Focal^A’: $p_1, p_2 \in \{P_L, P_H\}$ and at least one $p_2 \in P_L$ (corresponds to $V_L^A V_L^A$, $V_L^A Mix^A$, $Mix^A V_L^A$, $Mix^A Mix^A$, $V_H^A V_L^A$, or $V_H^A Mix^A$). Type ‘Dom^A’: $p_1, p_2 \notin \{v_L, v_H\}$ and not classified as another type. Residual^A: All remaining subjects. In ONEVALUE subjects are classified as V^A if they submit $p \in P = [v, v + 2]$ in all rounds 16-25, and as ‘Dom^A’ if $p \neq v$ in all of rounds 16-25 (and not classified as V^A), with Residual^A being the remaining subjects.

PoC is not only robust to the more lenient classification of types, but so is its quantitative importance. Difficulties with contingent reasoning amount to 40.5 percentage points (the difference between 67.1 and 26.6 percent) and 55.8 percent of that total effect can actually be attributed to the lack of certainty.

In a second robustness exercise we classify a subject as submitting $p = v_L$ and $p = v_H$ if they submit $p \in [v_L, v_L + 2]$ and $p \in [v_H, v_H + 2]$. While we had a question in the instructions testing the understanding that $p = v$ would purchase a firm of value v (see Instructions Appendix), some subjects may still be confused and pay a price that is slightly too high. Again, if we used this second classification, we would reach similar conclusions. In this case, we can think of the difference between 66.8 and 21.8 percent as difficulties with contingent reasoning, but 53.6 percent of the total difference can be attributed to *PoC*.

Finally, Table 21 provides the full output to Table 8 in the text.

	(1) V_L^4	(2) V_H^4	(3) Mix^4	(4) Dom^4	(5) Dom^4 or Res^4
Det	-0.103 (0.063)	0.045 (0.056)	0.084* (0.050)	0.010 (0.052)	-0.026 (0.059)
Num Risky	-0.059* (0.032)	0.054* (0.029)	-0.025 (0.026)	0.036 (0.027)	0.030 (0.030)
Num Risky × Det	-0.061 (0.047)	0.016 (0.042)	0.038 (0.037)	-0.017 (0.039)	0.006 (0.044)
Num Errors	-0.126*** (0.048)	0.025 (0.043)	0.003 (0.038)	0.001 (0.039)	0.097** (0.044)
Num Errors × Det	0.076 (0.066)	-0.100* (0.059)	0.010 (0.053)	0.085 (0.054)	0.014 (0.061)
Female	0.023 (0.046)	0.030 (0.042)	-0.024 (0.037)	-0.035 (0.038)	-0.029 (0.043)
White	0.104* (0.056)	-0.028 (0.050)	0.032 (0.045)	-0.086* (0.046)	-0.108** (0.052)
Young	-0.002 (0.046)	-0.007 (0.041)	0.025 (0.037)	0.007 (0.038)	-0.016 (0.043)
Low Schooling	-0.017 (0.047)	0.008 (0.042)	0.021 (0.038)	0.044 (0.039)	-0.013 (0.044)
Advice mentions all outcomes	0.134** (0.057)	-0.106** (0.051)	0.030 (0.045)	-0.089* (0.047)	-0.057 (0.053)
$V_L V_H$	0.331*** (0.059)	-0.030 (0.053)	-0.049 (0.047)	-0.188*** (0.049)	-0.252*** (0.055)
Constant	0.312*** (0.074)	0.210*** (0.066)	0.068 (0.059)	0.289*** (0.061)	0.409*** (0.069)
Observations	371	371	371	371	371

Table 21: Main Treatments: Estimation output using last 5 rounds of part 4 for the classification of types

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) V_L^4 (selecting $p = v_L$ in the last 5 rounds of part 4), (2) V_H^4 (selecting $p = v_H$ in the last 5 rounds of part 4), (3) Mix^4 (selecting $p \in \{v_L, v_H\}$ in last 5 rounds of part 4, where both $p = v_H$ and $p = v_L$ must be selected at least once), (4) Dom^4 (selecting $p \notin \{v_L, v_H\}$ in last 5 rounds of part 4), (5) Dom^4 or $Residual^4$. Det=1 is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Advice mentions all outcomes is a dummy that equals 1 if the advice of the subject mentions all four outcomes (v, p) with $v, p \in \{v_L, v_H\}$. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower. $V_L V_H$ is a dummy variable that takes value 1 if the subject is classified as $V_L V_H$ using choices from parts 1 and 2.

C Robustness to Binary Lottery Choice Controls

In this section we show that the main results in Table 4 is robust when instead of linearly controlling for the number of risky lotteries a subject chose, we use a dummy whether the subject chose at least one risky lottery in part 5. The results are shown in Table 22.

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
Det	0.229*** (0.062)	-0.098* (0.058)	-0.050 (0.049)	-0.073 (0.054)	-0.081 (0.065)
Risky	-0.160** (0.068)	-0.033 (0.064)	0.004 (0.054)	0.192*** (0.059)	0.189*** (0.071)
Risky \times Det	0.131 (0.097)	0.048 (0.092)	-0.031 (0.077)	-0.087 (0.085)	-0.148 (0.102)
Num Errors	-0.101** (0.046)	-0.063 (0.044)	0.048 (0.037)	0.074* (0.040)	0.116** (0.049)
Num Errors \times Det	-0.094 (0.064)	0.025 (0.061)	-0.096* (0.051)	0.076 (0.056)	0.164** (0.068)
Female	-0.133*** (0.045)	0.044 (0.043)	-0.005 (0.036)	0.070* (0.039)	0.094** (0.047)
White	0.095* (0.055)	0.019 (0.052)	-0.011 (0.044)	-0.092* (0.048)	-0.103* (0.058)
Young	-0.024 (0.045)	0.004 (0.043)	-0.006 (0.036)	0.025 (0.039)	0.026 (0.047)
Low Schooling	0.009 (0.047)	0.031 (0.044)	-0.053 (0.037)	0.027 (0.041)	0.013 (0.049)
Constant	0.298*** (0.070)	0.229*** (0.066)	0.200*** (0.056)	0.134** (0.061)	0.273*** (0.074)
Observations	371	371	371	371	371

Table 22: Main Treatments: Estimation output using last 5 rounds of part 1 and part 2 for the classification of types and using a discrete dummy to control for part 5 choices

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Num Risky and Num Errors are individual-specific. Risky is a dummy that takes value 1 if the subject took a risky lottery in part 5 and zero otherwise. Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.

D One-Value Treatments

		$V_L V_H / V$	$\{MixV_H, V_H V_H\}$	Focal	Dom	Residual	Participants
All	PROB	19.7	24.5	18.6	21.8	15.4	188
	DET	41.5	15.9	8.2	15.9	18.6	183
	ONEVALUE	62.6	–	–	13.6	23.8	428
No	PROB	24.8	25.6	18.6	15.5	15.5	129
Risky	DET	43.8	15.6	9.4	11.7	19.5	128
Lottery	ONEVALUE	67.8	–	–	13.4	18.8	276
At least one	PROB	8.5	22.0	18.6	35.6	15.3	59
Risky	DET	36.4	16.4	5.5	25.5	16.4	55
Lottery	ONEVALUE	53.3	–	–	13.8	32.9	152

Table 23: Type classification using rounds 15-25 [as % of participants]

Notes: Types are defined based on the prices p_1 submitted in the last five rounds of part 1 and p_2 submitted in all five rounds of part 2. Type $V_L V_H$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{MixV_H, V_H V_H\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$. Type ‘Focal’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L V_L, V_L Mix, MixV_L, MixMix, V_H V_L$, or $V_H Mix$). Type ‘Dom’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual: All remaining subjects. In ONEVALUE subjects are classified as V if they submit $p = v$ in rounds 16-25, and as ‘Dom’ if $p \neq v$ in rounds 16-25, with Residual being the remaining subjects.

		$V_L V_H$	$\{MixV_H, V_H V_H\}$	Focal	Dominated	Residual	Participants
All	ONEVALUE _{PROB}	27.8	25.5	22.2	12.5	12.0	212
	ONEVALUE _{DET}	47.2	18.4	8.0	9.9	16.5	216
V	ONEVALUE _{PROB}	41.7	28.1	27.3	0.0	2.9	139
	ONEVALUE _{DET}	65.1	21.7	10.9	0.0	2.3	129
V and	ONEVALUE _{PROB}	51.1	17.0	28.7	0.0	3.2	94
No risky lottery	ONEVALUE _{DET}	72.0	17.2	10.8	0.0	0.0	93

Table 24: ONEVALUE Treatments: Parts 3 and 4 Type Classification [as % of participants]

Notes: Types are defined based on the prices p_1 submitted in the last five rounds of part 3 and p_2 submitted in all five rounds of part 4. Type $V_L V_H$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{MixV_H, V_H V_H\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$. Type ‘Focal’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L V_L, V_L Mix, MixV_L, MixMix, V_H V_L$, or $V_H Mix$). Type ‘Dom’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual: All remaining subjects. In ONEVALUE subjects are classified as V if they submit $p = v$ in rounds 16-25 (last 5 rounds of part 1 and all rounds of part 2).

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
One Value	0.123** (0.053)	-0.064 (0.057)	0.084 (0.054)	-0.092* (0.047)	-0.142** (0.057)
Num Risky	-0.057* (0.029)	-0.008 (0.031)	-0.008 (0.029)	0.071*** (0.026)	0.073** (0.031)
Num Risky \times One Value	-0.062 (0.041)	0.109** (0.044)	-0.013 (0.041)	-0.063* (0.036)	-0.034 (0.044)
Num Errors	-0.104** (0.043)	-0.060 (0.047)	0.049 (0.044)	0.078** (0.038)	0.115** (0.046)
Num Errors \times One Value	0.038 (0.048)	0.032 (0.052)	-0.082* (0.049)	0.014 (0.043)	0.011 (0.052)
Female	-0.109*** (0.041)	-0.015 (0.044)	-0.028 (0.041)	0.062* (0.036)	0.152*** (0.043)
White	0.091** (0.046)	0.024 (0.049)	-0.021 (0.046)	-0.106*** (0.041)	-0.094* (0.049)
Young	-0.075* (0.041)	-0.000 (0.044)	0.087** (0.041)	0.027 (0.036)	-0.012 (0.044)
Low Schooling	-0.095** (0.041)	0.022 (0.045)	0.010 (0.042)	0.077** (0.037)	0.064 (0.044)
Constant	0.339*** (0.062)	0.257*** (0.066)	0.156** (0.062)	0.146*** (0.054)	0.249*** (0.066)
Observations	404	404	404	404	404

Table 25: Probabilistic Treatments: Main Treatment (Parts 1 & 2) v. One-Value Treatments (Parts 3 & 4): Estimation output using the classification of types

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. One Value is a dummy that takes value 1 if the subject participated in the ONEVALUE treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.

Finally, we discuss here the two measures in the profit space that we use to calculate the relative importance of *PoC* in the *Complexity of Contingent Reasoning*. *Measure 1* is based on the profits subjects achieve in each treatment, where for PROB we compute expected profits and for DET and ONEVALUE we compute actual profits.² We average earnings over all 25 rounds of part 1 and part 2.

²Note that to compare the earnings in PROB and DET to the earnings in the first 25 rounds of ONEVALUE, we restrict attention to ONEVALUE cases where the realized value of the firm was v_L and we simply use the submitted price p to compute earnings as $1.5 \times v_L - p$ (since if we were to use values of v_H in part 1 there would be profits in ONEVALUE that are simply not achievable by the dominant strategy in DET or - for risk-neutral subjects - in PROB). Similarly in part 2, we restrict attention to values of v_H and assign the corresponding v_L value to compute profits. Specifically, in ONEVALUE subjects saw 20 randomly drawn numbers of the 40 values that correspond to the 20 v_L and 20 v_H values in part 1. For each subject we use only values of v that correspond to a value of some v_L in part 1. That is, there is a chance that some subjects had two values of $v_L = 28$, while subjects in PROB or DET only saw one value of $v_L = 28$. To compute the profits in ONEVALUE of part 2, we consider only values v that correspond to a value of v_H in part 2. For a given value of v_H there might be several values of v_L that are coupled to it in part 2: For example, there are two questions for which $v_H = 54$. One with $v_L = 48$ and another with $v_L = 50$. We assign to half the cases of $v = 54$ a value $v_L = 48$ and the other half a value of $v_L = 50$. The profits in a given round of part 2 of the subject in ONEVALUE is computed whenever $v = v_H$ and the profit is $(1.5 \times v_L - p) + (1.5 \times v_H - p)$ if $p \geq v_H$, $(1.5 \times v_L - p)$ if $p \in [v_L, v_H)$, and 0 if $p < v_L$, where v_L is one of the values associated with v_H in part 2 of PROB or DET. For each

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
One Value	0.091 (0.067)	-0.018 (0.053)	-0.026 (0.039)	-0.040 (0.045)	-0.047 (0.060)
Num Risky	-0.017 (0.037)	0.033 (0.029)	-0.015 (0.022)	0.020 (0.025)	-0.002 (0.033)
Num Risky \times One Value	-0.077 (0.048)	-0.018 (0.038)	0.015 (0.028)	-0.001 (0.032)	0.080* (0.043)
Num Errors	-0.195*** (0.049)	-0.049 (0.039)	-0.048* (0.029)	0.159*** (0.033)	0.292*** (0.044)
Num Errors \times One Value	0.064 (0.062)	0.065 (0.049)	0.041 (0.036)	-0.073* (0.042)	-0.171*** (0.056)
Female	-0.087* (0.049)	0.047 (0.039)	0.007 (0.028)	0.042 (0.033)	0.034 (0.044)
White	0.073 (0.056)	-0.088* (0.045)	0.011 (0.033)	-0.053 (0.038)	0.003 (0.051)
Young	0.028 (0.049)	-0.062 (0.039)	-0.016 (0.028)	0.044 (0.033)	0.050 (0.044)
Low Schooling	-0.038 (0.049)	0.092** (0.039)	-0.036 (0.029)	0.026 (0.033)	-0.018 (0.044)
Constant	0.518*** (0.077)	0.218*** (0.061)	0.126*** (0.045)	0.049 (0.052)	0.138** (0.070)
Observations	395	395	395	395	395

Table 26: Deterministic Treatments: Main Treatment (Parts 1 & 2) v. One-Value Treatments (Parts 3 & 4): Estimation output using the classification of types

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. One Value is a dummy that takes value 1 if the subject participated in the ONEVALUE treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
Det	0.255*** (0.055)	-0.045 (0.054)	-0.178*** (0.047)	-0.048 (0.036)	-0.032 (0.041)
Num Risky	-0.091*** (0.029)	0.102*** (0.029)	-0.015 (0.025)	-0.007 (0.019)	0.004 (0.022)
Num Risky \times Det	0.018 (0.040)	-0.082** (0.039)	0.023 (0.034)	0.012 (0.026)	0.041 (0.030)
Num Errors	-0.024 (0.023)	-0.011 (0.023)	-0.021 (0.020)	0.059*** (0.015)	0.055*** (0.018)
Num Errors \times Det	-0.076* (0.040)	0.040 (0.040)	0.026 (0.034)	0.005 (0.027)	0.010 (0.030)
Female	-0.041 (0.042)	-0.000 (0.041)	0.004 (0.035)	0.015 (0.027)	0.037 (0.031)
White	0.013 (0.045)	-0.078* (0.044)	-0.012 (0.038)	-0.033 (0.030)	0.077** (0.034)
Young	-0.013 (0.042)	-0.065 (0.041)	0.073** (0.035)	0.038 (0.027)	0.006 (0.031)
Low Schooling	-0.120*** (0.041)	0.078* (0.040)	0.017 (0.035)	0.063** (0.027)	0.026 (0.031)
V	0.367*** (0.044)	0.103** (0.043)	0.104*** (0.037)	-0.258*** (0.029)	-0.574*** (0.033)
Constant	0.179*** (0.067)	0.191*** (0.066)	0.144** (0.057)	0.223*** (0.044)	0.487*** (0.051)
Observations	428	428	428	428	428

Table 27: ONEVALUE Treatments: Individual Types Estimations Output in Parts 3 & 4

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the instructions. Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower. The variable V is a dummy variable that equals 1 if the subject selected $p = v$ in the last 10 rounds of problems with one value (last 5 rounds of part 1 and 5 rounds of part 2).

Then, of the total payoff gain for the median subject in ONEVALUE relative to PROB, 69.2 percent is achieved by the median subject in the DET. That is, for the median subject, *Measure 1* indicates that the loss of *PoC* accounts for approximately seventy percent of the payoff loss incurred by the *Complexity of Contingent Reasoning*.³

Instead of using realized prices, *Measure 2* asks which fraction of gains a subject made when comparing their payoffs to, on the one hand, random behavior, and, on the other hand, optimal behavior. Specifically, we compute a relative payoff variable in which the numerator is the subject's profit minus the profit that would result from random prices and the denominator is the difference between the profit of the profit-maximizing action for a risk-neutral subject and the profit that results from random prices.⁴ Of the total relative payoff gains for the median subject in ONEVALUE relative to PROB, *Measure 2* reports that 70.2 percent is achieved by the median subject in DET.⁵

part, we compute average profits by round given the relevant choices as described above.

³If we constrain the sample to subjects who never took a risk in part 5 the number is 57.8 percent. This is because, particularly in PROB, subjects who take risks in part 5 are more likely to obtain lower earnings in part 1 than those who never took a risky lottery.

⁴To compute the payoff from random choice, we draw, for each question, 1000 uniform values in $[0, 150]$ and for each draw compute the profit that would result if the draw were the submitted price. We then average across the 1000 draws. We therefore have for each question an optimal, a random and an actual profit measure. We then compute, for each question, $(\text{Actual Profit} - \text{Random}) / (\text{Optimal} - \text{Random})$. Since Actual Profit could be smaller than Random (if the subject submitted, e.g. 150), note that this measure is sometimes negative. After computing the ratio for each question, we take the average at the subject level.

⁵If we constrain the sample to subjects who never took a risky lottery in part 5 the number is 63.4 percent.

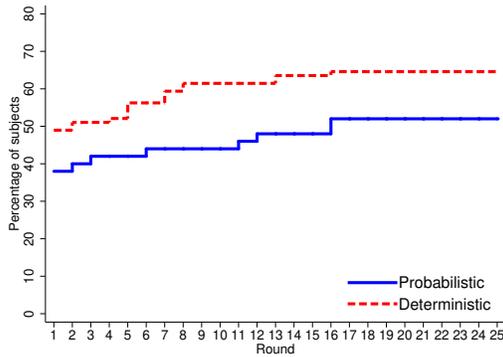
E Advice

Figure 4 shows the fraction of subjects who submit $p = v_L$ from round n to 20 for $1 \leq n \leq 16$ and submit $p = v_H$ in rounds 21-25 (part 5) in PROB and DET, dependent on whether the subject did (Figure 4a) or did not (Figure 4b) mention all four outcomes. The figure suggests that mentioning all four outcomes increases incidences of submitting the strategy $V_L V_H$. It also suggests that within each of those two groups the treatment effect is smaller. Subjects who do not mention all four outcomes are much more likely to be classified as a Dominated or Residual type.

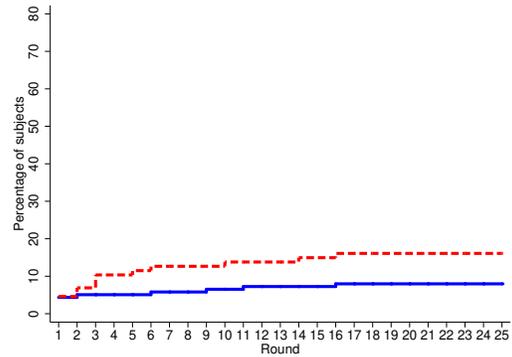
		$V_L V_H$	$\{MixV_H, V_H V_H\}$	Focal	Dom	Residual	Participants
All four	PROB	52.0	20.0	22.0	4.0	2.0	50
Outcomes	DET	64.6	7.3	7.3	7.3	13.6	96
Not all four	PROB	8.0	26.1	17.4	28.3	20.3	138
Outcomes	DET	16.1	25.3	9.2	25.3	24.1	87

Table 28: Participants classified into types using rounds 15-25 (the last 5 rounds in part 1 and in part 2) [as % of participants]

Notes: Types are defined based on the prices p_1 submitted in the last five rounds of part 1 and p_2 submitted in all five rounds of part 2. Type $V_L V_H$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{MixV_H, V_H V_H\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$. Type ‘Focal’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L V_L$, $V_L Mix$, $Mix V_L$, $Mix Mix$, $V_H V_L$, or $V_H Mix$). Type ‘Dom’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual: All remaining subjects.



(a) Subjects whose Advice mentions all Four Outcomes



(b) Subjects whose Advice does not mention all Four Outcomes

Figure 4: Percent of subjects with $p = v_L$ in round $n \leq 15$ and classified as $V_L V_H$ in PROB and DET dependent on whether their advice mentions all four outcomes.

In Table 29 we provide the full results as to the numerical price recommendation subjects provided as a function of the outcomes mentioned in the Advice.

In Table 30 we provide a detailed description of the classification of subjects based on their submitted prices in parts 1 and 2 as a function of the outcomes mentioned in the advice. Tables 29 and 30

Part 3 Recommendation		Advice: Outcomes Mentioned						Sum
		None	All	Large Gain	Large Loss	$p = v_L$	Error	
PROB	v_L	8.5	20.2	0.5	10.7	2.7	0.5	43.1
	v_H	8.5	1.6	10.7	1.6	0.0	2.1	24.5
	Mix $\{v_L, v_H\}$	1.1	4.3	1.0	1.1	0.0	0.5	8.0
	Dom	12.8	0.5	0.5	0.0	0.5	0.6	14.9
	Unclassified	9.5	0.0	0.0	0.0	0.0	0.0	9.5
Sum		40.4	26.6	12.8	13.3	3.2	3.7	100.0
DET	v_L	5.5	51.4	0.0	3.3	3.8	0.0	63.9
	v_H	9.8	0.0	4.9	0.0	0.0	2.7	17.5
	Mix $\{v_L, v_H\}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Dom	8.7	0.6	0.5	0.0	0.0	0.5	10.4
	Unclassified	5.4	0.5	0.6	0.6	0.5	0.6	8.2
Sum		29.5	52.5	6.0	3.8	4.4	3.8	100.0

Table 29: Part 3 (Recommendation) v. Part 3 (Advice Outcomes Categories)

Notes: 188 participants in PROB and 183 in DET. There are four outcomes (v, p) where $v, p \in \{v_L, v_H\}$. All (none) are subjects who mentioned all (none of the) four outcomes in any form. Large Gain: Subjects who mention either $\{(v_L, v_L)$ and $(v_H, v_H)\}$, $\{(v_H, v_H)\}$, $\{(v_L, v_H)$ and explicitly $(v_H, v_H)\}$, $\{(v_L, v_L)$, (v_H, v_L) and $(v_H, v_H)\}$. Large Loss: Subjects who mention either $\{(v_L, v_H)\}$, $\{(v_L, v_H)$ and implicitly $(v_H, v_H)\}$, $\{(v_L, v_L)$, (v_H, v_L) and $(v_L, v_H)\}$, $\{(v_L, v_L)$, (v_L, v_H) and $(v_H, v_H)\}$. $p = v_L$: Subjects who mention outcomes: $\{(v_L, v_L)\}$, $\{(v_L, v_L)$ and $(v_H, v_L)\}$. Error: Subjects who compute one of the payoffs wrongly.

illustrate that the advice subjects provide is a strong indicator of the choices they make in parts 1 and 2.

Table 31 provides a decomposition of the outcomes that subjects mention in their advice. Of subjects who mention all four outcomes in PROB, there are 3 subjects (1.6 percent) who recommend $p = 120$ (for details see Table 29). One of these three subjects explicitly computes the payoffs for the four outcomes, and in part 5 selects the lottery that corresponds to $p = 120$ when facing a choice between the lotteries induced by $p = 20$ and $p = 120$. The other two subjects who recommend $p = 120$ only describe the four outcomes qualitatively, and when they face the lotteries in part 5 they actually select the $p = 20$ lottery.

Table 32 reproduces the classification of subjects presented in Table 36 and adds the rows that show how many subjects observed at least one advice that mentions all four outcomes and how many observed no advice that mentions all four outcomes.

Figure 5 presents the evolution of the classification of types in ADVPROB and ADVDET relative to the main treatments for subjects who are eventually classified as $V_L V_H$.

		Advice: Outcomes Mentioned						Sum
		None	All	Large Gain	Large Loss	$p = v_L$	Error	
PROB	$V_L V_H$	2.1	13.8	1.1	1.6	1.1	0.0	19.7
	$\{MixV_H, V_H V_H\}$	9.0	5.3	5.3	4.8	0.0	0.0	24.4
	Focal ($V_L X$)	2.1	4.3	0.0	3.7	1.1	0.0	11.2
	Focal ($\{MixX, V_H X\}$)	1.1	1.6	2.7	0.5	0.0	1.6	7.5
	Dom	17.6	1.1	2.1	0.5	0.5	0.0	21.8
	Residual	8.5	0.5	1.6	2.1	0.5	2.1	15.4
Sum		40.4	26.6	12.8	13.3	3.2	3.7	100.0
DET	$V_L V_H$	1.6	33.9	0.6	3.8	1.1	0.5	41.5
	$\{MixV_H, V_H V_H\}$	8.2	3.8	2.7	0.0	0.6	0.6	15.9
	Focal ($V_L X$)	1.6	2.7	0.0	0.0	1.1	0.0	5.4
	Focal ($\{MixX, V_H X\}$)	0.6	1.1	0.5	0.0	0.6	0.0	2.8
	Dom	9.8	3.9	1.6	0.0	0.0	0.5	15.8
	Residual	7.7	7.1	0.5	0.0	1.1	2.2	18.6
Sum		29.5	52.5	6.0	3.8	4.4	3.8	100.0

Table 30: Parts 1 and 2 (Type Classification) v. Part 3 (Advice Outcomes Categories)

Notes: 188 participants in PROB and 183 in DET. There are four outcomes (v, p) where $v, p \in \{v_L, v_H\}$. All (none) are subjects who mentioned all (none of the) four outcomes in any form. Large Gain: Subjects who mention either $\{(v_L, v_L)$ and $(v_H, v_H)\}$, $\{(v_H, v_H)\}$, $\{(v_L, v_H)$ and explicitly $(v_H, v_H)\}$, $\{(v_L, v_L)$, (v_H, v_L) and $(v_H, v_H)\}$. Large Loss: Subjects who mention either $\{(v_L, v_H)\}$, $\{(v_L, v_H)$ and implicitly $(v_H, v_H)\}$, $\{(v_L, v_L)$, (v_H, v_L) and $(v_L, v_H)\}$, $\{(v_L, v_L)$, (v_L, v_H) and $(v_H, v_H)\}$. $p = v_L$: Subjects who mention outcomes: $\{(v_L, v_L)\}$, $\{(v_L, v_L)$ and $(v_H, v_L)\}$. Error: Subjects who compute one of the payoffs wrongly. $X \in \{V_L, Mix\}$.

		PROB	DET
All Outcomes		26.6	52.5
Large Gains		12.8	6.0
Some Outcomes	Large Losses	13.3	3.8
$p = v_L$ outcomes		3.2	4.4
No Outcome		40.4	29.5
Mistake		3.7	3.8
Sum		100.0	100.0

Table 31: Classification on what Outcomes Subjects mention in their Part 3 Advice [as % of participants]

Notes: 188 participants in PROB and 183 in DET. There are four outcomes (v, p) where $v, p \in \{v_L, v_H\}$. The first row shows all subjects who mention all four outcomes in any form. The bottom five rows contain subjects who report on specific subsets of outcomes: Large Gains: $\{(v_L, v_L)$ and $(v_H, v_H)\}$, $\{(v_H, v_H)\}$, $\{(v_L, v_H)$ and explicitly $(v_H, v_H)\}$, $\{(v_L, v_L)$, (v_H, v_L) and $(v_H, v_H)\}$. Large Losses: $\{(v_L, v_H)\}$, $\{(v_L, v_H)$ and implicitly $(v_H, v_H)\}$, $\{(v_L, v_L)$, (v_H, v_L) and $(v_L, v_H)\}$, $\{(v_L, v_L)$, (v_L, v_H) and $(v_H, v_H)\}$. $p = v_L$ outcomes: $\{(v_L, v_L)\}$, $\{(v_L, v_L)$ and $(v_H, v_L)\}$. No outcome: No outcome is reported in any form. Mistake: One of the payoffs is wrongly computed.

		V_L, V_H	$\{Mix, V_H\}, V_H$	Focal	Dominated	Residual	Participants
All	PROB	24.4	22.0	22.0	14.6	17.1	41
	DET	72.5	5.0	10.0	7.5	5.0	40
Observed at least one Advice that mentions all outcomes	PROB	27.6	27.6	13.8	6.9	24.1	29
	DET	71.8	5.1	10.3	7.7	5.1	39
No Advice mentions all outcomes	PROB	16.7	8.3	41.7	33.3	0.0	12
	DET	100.0	0.0	0.0	0.0	0.0	1
Selected Advice that mentions all outcomes	PROB	33.3	13.3	20.0	6.7	26.7	15
	DET	78.1	3.1	6.3	6.3	6.2	32
Did not Select Advice that mentions all outcomes	PROB	19.2	26.9	23.1	19.2	11.5	26
	DET	50.0	12.5	25.0	12.5	0.0	8

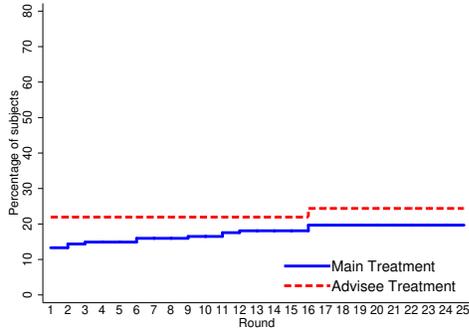
Table 32: Advisee Treatments: Parts 1 and 2 Type Classification [as % of participants]

Notes: Type are defined based on the prices p_1 submitted in the last five rounds of part 1 and p_2 submitted in all five rounds of part 2. Type $V_L V_H$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{Mix V_H, V_H V_H\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$. Type ‘Focal’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L V_L, V_L Mix, Mix V_L, Mix Mix, V_H V_L$, or $V_H Mix$). Type ‘Dom’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual: All remaining subjects.

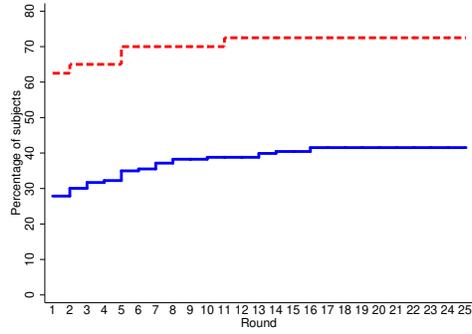
	(1) $V_L V_H$	(2) $\{Mix V_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
Det	0.223*** (0.046)	-0.068* (0.041)	-0.109*** (0.036)	-0.066* (0.039)	-0.047 (0.047)
Advisee	0.024 (0.081)	-0.038 (0.074)	0.058 (0.065)	-0.043 (0.070)	-0.045 (0.084)
Det × Advisee	0.257** (0.106)	-0.100 (0.096)	-0.000 (0.085)	-0.014 (0.091)	-0.157 (0.110)
Num Errors	-0.152*** (0.032)	-0.050* (0.029)	-0.003 (0.026)	0.121*** (0.027)	0.205*** (0.033)
Num Errors × Advisee	0.014 (0.083)	0.038 (0.075)	-0.076 (0.066)	-0.027 (0.071)	0.023 (0.086)
Female	-0.130*** (0.041)	0.048 (0.037)	-0.005 (0.033)	0.067* (0.035)	0.087** (0.043)
White	0.085* (0.050)	0.015 (0.046)	-0.013 (0.040)	-0.091** (0.043)	-0.088* (0.052)
Young	-0.037 (0.041)	-0.005 (0.037)	-0.003 (0.033)	0.030 (0.035)	0.045 (0.042)
Low Schooling	0.003 (0.042)	0.066* (0.038)	-0.073** (0.034)	0.018 (0.036)	0.004 (0.044)
Constant	0.285*** (0.063)	0.204*** (0.057)	0.230*** (0.050)	0.177*** (0.054)	0.281*** (0.065)
Observations	452	452	452	452	452

Table 33: Main Treatment v. Advisee Treatment: Individual Types Estimations Output

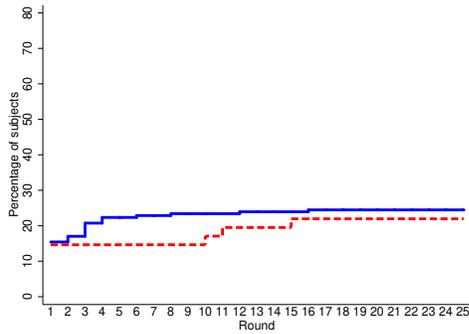
Notes: Results from two linear regressions: PROB compares probabilistic treatments (Main and Advice), DET compares deterministic treatments (Main and Advice). The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $Mix V_H, V_H V_H$ (3) Focal, (4) Dom, (5) Dom or Res. Advisee is a dummy variable that takes value 1 if the observation corresponds to the Advisee treatment. The regression also includes demographic controls (Gender, Ethnicity, Age and Schooling) and a control for the number of errors in the instructions.



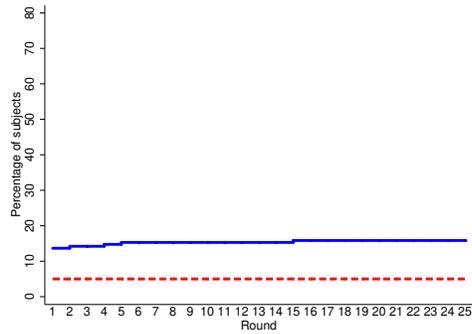
(a) Probabilistic: $p = v_L$: n to 15 & $V_L V_H$.



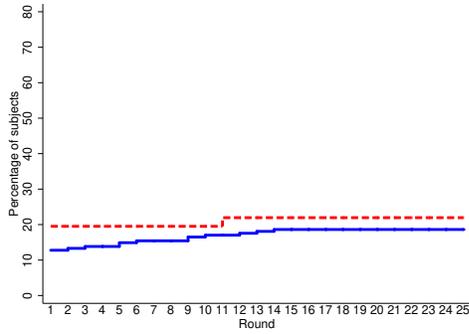
(b) Deterministic: $p = v_L$: n to 15 & $V_L V_H$.



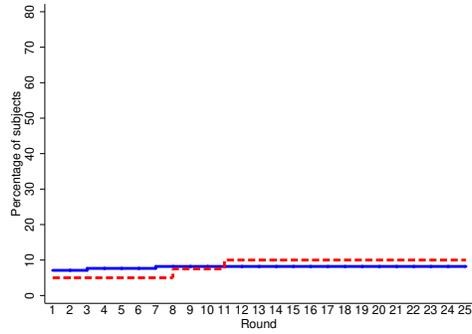
(c) Probabilistic: $p \in \{v_L, v_H\}$: n to 15 & $\{MixV_H, V_H V_H\}$



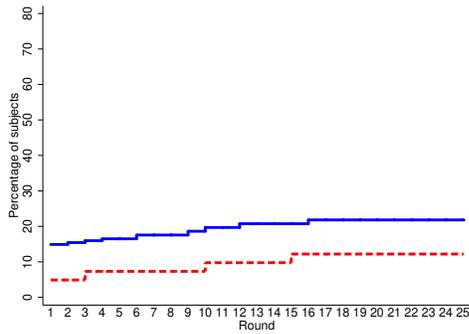
(d) Deterministic: $p \in \{v_L, v_H\}$: n to 15 & $\{MixV_H, V_H V_H\}$



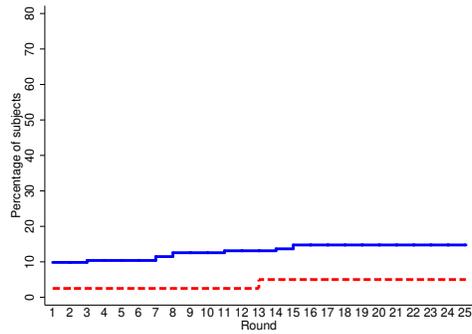
(e) Probabilistic: $p \in \{v_L, v_H\}$: n to 15 & Focal.



(f) Deterministic: $p \in \{v_L, v_H\}$: n to 15 & Focal.



(g) Probabilistic: $p \notin \{v_L, v_H\}$: n to 15 & Dominated.



(h) Deterministic: $p \notin \{v_L, v_H\}$: n to 15 & Dominated.

Figure 5: Evolution of Types: Main Treatments and Advisee Treatments.

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
Det	0.373*** (0.104)	-0.173** (0.080)	-0.058 (0.089)	-0.022 (0.076)	-0.141 (0.092)
Selected Advice mentions all outcomes	0.253** (0.107)	-0.034 (0.082)	-0.146 (0.092)	-0.111 (0.078)	-0.074 (0.095)
Num Errors	-0.161** (0.078)	0.004 (0.060)	-0.069 (0.067)	0.098* (0.057)	0.226*** (0.069)
Female	-0.138 (0.100)	0.085 (0.077)	-0.023 (0.086)	0.066 (0.073)	0.076 (0.089)
White	-0.046 (0.130)	-0.018 (0.099)	-0.067 (0.111)	-0.025 (0.095)	0.131 (0.115)
Young	-0.111 (0.100)	-0.022 (0.076)	-0.006 (0.085)	0.047 (0.073)	0.138 (0.088)
Low Schooling	0.096 (0.103)	0.233*** (0.079)	-0.171* (0.088)	-0.113 (0.075)	-0.158* (0.092)
Constant	0.331** (0.165)	0.139 (0.126)	0.438*** (0.141)	0.158 (0.121)	0.091 (0.147)
Observations	81	81	81	81	81

Table 34: Advisee Treatments: Individual Types Estimations Output in parts 1 and 2

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. The variable ‘Selected Advice mentions all outcomes’ is a dummy variable that takes value 1 if the advice selected as the ‘most helpful’ by the advisee mentions all four outcomes. Num Errors is individual-specific. Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject’s gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is ‘Some College’ or lower.

	(1) $V_L V_H$	(2) $\{MixV_H, V_H V_H\}$	(3) Focal	(4) Dom	(5) Dom or Res
Det	0.117 (0.073)	0.021 (0.074)	0.004 (0.064)	-0.084 (0.070)	-0.142* (0.082)
Advice mentions all outcomes	0.395*** (0.068)	-0.088 (0.069)	0.062 (0.059)	-0.184*** (0.065)	-0.369*** (0.076)
Advice mentions all outcomes \times Det	0.025 (0.092)	-0.148 (0.093)	-0.112 (0.080)	0.090 (0.088)	0.234** (0.103)
Num Risky	-0.029 (0.029)	-0.015 (0.029)	0.003 (0.025)	0.058** (0.028)	0.042 (0.032)
Num Risky \times Det	0.004 (0.042)	0.050 (0.043)	-0.016 (0.037)	-0.036 (0.040)	-0.039 (0.047)
Num Errors	-0.045 (0.043)	-0.075* (0.044)	0.057 (0.038)	0.048 (0.041)	0.063 (0.048)
Num Errors \times Det	-0.042 (0.062)	-0.027 (0.063)	-0.119** (0.054)	0.086 (0.059)	0.188*** (0.069)
Female	-0.095** (0.041)	0.031 (0.042)	-0.005 (0.036)	0.056 (0.039)	0.068 (0.046)
White	0.063 (0.050)	0.032 (0.051)	-0.011 (0.044)	-0.079* (0.048)	-0.084 (0.056)
Young	-0.007 (0.041)	-0.007 (0.042)	-0.009 (0.036)	0.024 (0.039)	0.022 (0.046)
Low Schooling	0.010 (0.043)	0.034 (0.043)	-0.048 (0.037)	0.026 (0.041)	0.004 (0.048)
Constant	0.132* (0.069)	0.257*** (0.070)	0.178*** (0.060)	0.220*** (0.066)	0.433*** (0.077)
Observations	371	371	371	371	371

Table 35: Main Treatments: Estimation Output using last 5 rounds of part 1 and part 2 for the classification of types

Notes: Results from a linear regression. The dependent variable takes value 1 if the subject is classified as (1) $V_L V_H$, (2) $\{MixV_H, V_H V_H\}$, (3) Focal, (4) Dom, (5) Dom or Res. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Advice mentions all outcomes is a dummy variable that takes value 1 if the advice mentions all outcomes. Num Risky and Num Errors are individual-specific. Num Risky is the number of risky lotteries the subject chose in part 5 (from 0 to 3). Num Errors is the number of errors the subject made in the part 1 instructions (from 0 to 2). Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.

		$V_L V_H$	$\{MixV_H, V_H V_H\}$	Focal	Dominated	Residual	Participants
All	ADVPROB	24.4	22.0	22.0	14.6	17.1	41
	ADVDET	72.5	5.0	10.0	7.5	5.0	40
Selected Advice that mentions all outcomes	ADVPROB	33.3	16.7	16.7	11.1	22.2	18
	ADVDET	78.1	3.1	6.3	6.3	6.2	32
Did not Select Advice that mentions all outcomes	ADVPROB	17.4	26.1	26.1	17.4	13.0	23
	ADVDET	50.0	12.5	25.0	12.5	0.0	8

Table 36: Type Classification in Advisee Treatments [as % of participants].

Notes: Type are defined based on the prices p_1 submitted in the last five rounds of part 1 and p_2 submitted in all five rounds of part 2. Type $V_L V_H$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{MixV_H, V_H V_H\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$. Type ‘Focal’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L V_L$, $V_L Mix$, $Mix V_L$, $Mix Mix$, $V_H V_L$, or $V_H Mix$). Type ‘Dom’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual: All remaining subjects.

F Summary of Instructions and Screenshots of the Interface

Figure 6 provides screenshots of part 1 round 1 of our Main Treatments for the Acquiring-a-Company problem. A summary of the instructions for the Acquiring-a-Company problem is provided in Appendix A. Fully detailed instructions are provided in the Instructions Appendix.

We now provide a summary of the instructions for the Probability-Matching treatments. Fully detailed instructions are provided in the Instructions Appendix. For screenshots of the first problem that subjects face see Figure 7 and Figure 8 for the probabilistic and deterministic versions, respectively. Below, in upright letters we present lines that are specific to $PROB^{PM}$. In italics and between brackets we show the corresponding line for DET^{PM} . In bold we display lines that are common to both treatments. The instructions below make reference to a figure, please see the screenshots for a reference to such figure.

Summary of Instructions:

There are 10 boxes as you can see in the figure below. Six of the 10 boxes are green and four are orange. That is, 60 percent of the boxes are green and 40 percent of the boxes are orange.

One of the 10 boxes is randomly drawn. You do not know the color of the Randomly Drawn Box.

You make a guess, “Guess Green” or “Guess Orange.”

We apply your guess to the Randomly Drawn box. [*We apply your guess to every single one of the 10 boxes.*]

Assume that your guess is “Guess Green.” Then you receive:

- \$5 if the Randomly Drawn Box is green. [*\$0.50 for each box that is green.*]
- \$0 if the Randomly Drawn Box is orange. [*\$0 for each box that is orange.*]

Assume that your guess is “Guess Orange.” Then you receive:

- \$5 if the Randomly Drawn Box is orange. [*\$0.50 for each box that is orange.*]
- \$0 if the Randomly Drawn Box is green. [*\$0 for each box that is green.*]

Please decide how many tickets say “Guess Green” and how many tickets say “Guess Orange,” where you have 100 tickets in total.

The computer will randomly select one of these 100 tickets.

The randomly selected ticket determines your guess that is applied to the Randomly Drawn Box. [*every single one of the 10 boxes.*]

G Examples of Advice

After the examples, we provide comments as to why the advice was classified in the corresponding category, in cases where it is not obvious. The advices mentioned below are verbatim, and hence they may contain mistakes or grammatical errors. To make recommendations, subjects use the terminology used in the instructions. For example, they refer to a company of low value as company A and to a company of high value as company B.

PROB

- Computes both payoffs explicitly: “*You should not go with an offer in the middle of the two values, as going above 20 reduces your profits if A is selected but also does not help your chances of purchasing B if that is selected. So the two options are bid 20, if A is selected you make a profit of 20, if B is selected you make 0, making an average value of 10. If you bid 120, if A is selected your profit is -180, if B is selected your profit is 120, making an average value of -30. Statistically based on the law of averages you should always bid the value of the lower option.*”

Round 1/12

- There are 10 boxes as you can see in the figure below. Six of the 10 boxes are green and four are orange. That is, 60 percent of the boxes are green and 40 percent of the boxes are orange.
- One of these 10 boxes is randomly drawn. You do not know the color of the Randomly Drawn Box.
- You make a guess, "Guess Green" or "Guess Orange."
- We apply your guess to the Randomly Drawn Box.
- Assume that your guess is "Guess Green." Then you receive
 - \$5 if the Randomly Drawn Box is green.
 - \$0 if the Randomly Drawn Box is orange.
- Assume that your guess is "Guess Orange." Then you receive
 - \$5 if the Randomly Drawn Box is orange.
 - \$0 if the Randomly Drawn Box is green.
- Please decide how many tickets say "Guess Green" and how many tickets say "Guess Orange," where you have to have 100 tickets in total.
- The computer will randomly select one of these 100 tickets.
- The randomly selected ticket determines your guess that is applied to the Randomly Drawn Box.



Please choose a ticket allocation. Remember the allocation must add up to 100 tickets.



Figure 7: PROB^{PM}: Screenshots of Round 1

Round 1/12

- There are 10 boxes as you can see in the figure below. Six of the 10 boxes are green and four are orange. That is, 60 percent of the boxes are green and 40 percent of the boxes are orange.
- You make a guess, "Guess Green" or "Guess Orange."
- We apply your guess to every single one of the 10 boxes.
- Assume that your guess is "Guess Green." Then you receive
 - \$0.50 for each box that is green.
 - \$0 for each box that is orange.
- Assume that your guess is "Guess Orange." Then you receive
 - \$0.50 for each box that is orange.
 - \$0 for each box that is green.
- Please decide how many tickets say "Guess Green" and how many tickets say "Guess Orange," where you have to have 100 tickets in total.
- The computer will randomly select one of these 100 tickets.
- The randomly selected ticket determines your guess that is applied to every single one of the 10 boxes.



Please choose a ticket allocation. Remember the allocation must add up to 100 tickets.

0 10 20 30 40 50 60 70 80 90 100

"Guess Green" tickets

"Guess Orange" tickets

Total:



Figure 8: DET^{PM}: Screenshots of Round 1

- Payoffs mentioned qualitatively: “*I would submit 20. Worst case you would sit at 0 profit. Best case A is selected a you would make profit. I don’t think submitting 120 is worth the risk.*” Comments: Outcome $(v, p) = (v_L, v_H)$ mentioned (*Worst case you would sit at 0 profit*); Outcome $(v, p) = (v_L, v_L)$ qualitatively mentioned (*Best case A is selected a you would make profit*). Outcomes (v_H, v_L) and (v_H, v_H) qualitatively mentioned when the subject states: ‘*I don’t think submitting 120 is worth the risk.*’ We code this recommendation as mentioning the outcomes for the following reason. The phrase ‘worth the risk’ indicates that there is a potential gain, but that the risk is too high for it to be worth it.
- Mentions outcomes, but does not compute Expected Payoffs: “*I would advise you to bid 20 for the company. This would decrease your risk to "0" but your possible profit to "20". If you bid 120 for the company, you could profit 120 but if the company selected is "A" then your would lose 180. There is no risk with bidding 20 since if "B" is selected your profit is "0". So bidding 20 is the selection with no chance of losing money.*”
- Advice mentions large losses “*You should enter the price that is equal to value A, the lower value. If you pick a higher price to get the higher value, if the lower value is selected instead you could lose money.*”
- Advice mentions large gains “*I think you should always go with the possible higher amount of B since it will result in more of a profit for you if it happens to be the selected company.*”
- Advice mentions $p = v_L$ outcomes: “*I would be willing to pay \$20. In my opinion that is the safest amount. If you are lucky and the value is A, you make money, if the value is B, you loose nothing.*”
- Mentions no outcome: “*70, provides a good amount.*”
- Makes some mistake: “*You will make a lot more money if B is chosen but there is still a chance A will be chosen. If you choose 20 you will definitely make some money. But if you choose a number higher than 20 is A is chosen then you cannot buy the property and your profit is zero. If you are a risk taker, choose a value higher to or equal to 120. I hope that helps you.*” Comment: We do not code an advice as including a mistake if the subject is conceptually correct, but he/she makes a mistake in arithmetic. We only count as mistakes when there is some conceptual mistake in the advice. In the case of the example recall that if $p \geq v_L$, then a company of value $v = v_L$ is purchased. The following sentence is conceptually incorrect: ‘*But if you choose a number higher than 20 is A is chosen then you cannot buy the property and your profit is zero.*’

DET

- Computes both payoffs explicitly: “*My only advice is to do the math for each company purchase. To purchase both companies you are looking at now will cost 120 for EACH at a minimum.*”

While the value of company B will be 180 to you, the final value after your purchase cost will be 60. Seems like an OK prospect until you factor in the loss you will take on the purchase of company A. You will spend 120 to purchase to company A which only has a value of 30 to you when you purchase it. Subtract the purchase cost of 120 and you are left with -90. Add -90 (loss from the purchase of company A) and 60 (profit from the purchase of company B) and you are left with a total loss of -30 for the transaction overall. I would submit no more than 20 for an offer and only purchase company A which would represent a profit of 10."

- Computes one payoff explicitly: *"To buy you offer 120 for each. Making the profit of A: $30 - 120 = -90$. And The profit of B: $180 - 120 = 60$. The combined profit of A: $-90 + B: 60 = -30$. Creating a loss of -30 on the total deal. It is better to only purchase A. The 120 cost of A when purchasing both creates a loss."* Comment: Outcomes corresponding to $v = v_H$ are explicitly mentioned and computed. Consider the phrase: *'It is better to only purchase A.'* With this phrase the subject implicitly mentions that there is no gain if the company is that of high value ('only purchase A'). At the same time, by mentioning that it is better to purchase A the subject is implicitly recognizing that there is a positive payoff from buying just the low value company (A). We code this as the subject qualitatively (or implicitly) mentioning outcomes related to $v = v_L$.
- Payoffs mentioned qualitatively: *"Only Bid 20. This way you will purchase company A and make a small profit in the end. When there is a large difference between the values of company A and company B, only buy company A. If you spend 120 and buy company B as well, then the amount you will lose from the purchase from company A having spent 120 for it, will offset any profits that you make from the purchase of company B, putting you in a negative profit which means you lose money."* Comment: Outcomes related to $p = v_L$ are implicitly mentioned in this sentence: *'This way you will purchase company A and make a small profit in the end.'* The subject implicitly recognizes that bidding 20 will not buy both companies and qualitatively mentions that there is a profit from buying the low value company. Outcomes related to $p = v_H$ are also qualitatively mentioned in the last sentence of the advice.
- Advice mentions large gains: *"Buy company B profit will be 180."*
- Advice mentions large losses: *"Only buy A, you will lose money if buy both."*
- Advice mentions $p = v_L$ outcomes: *"buy the first one at 20 for a profit of 10."*
- Mentions no outcome: *"Do the math for your equations to ensure to get a good result."*
- Makes some mistake: *"I would submit a price of 120. With this price, there is a direct profit since the value will increase by 50%. If you own both, the sum of $140 \times 1.5 - 120$ would result in a net profit of 90 and makes this a profitable purchase. Even if you only purchase B you would still make a profit of 60 ($120 \times 1.5 - 120 = 60$)."* Comment: We do not code an advice as including a mistake if the subject is conceptually correct, but he/she makes a mistake in

arithmetic. One mistake in this advice is in the last sentence. It is not possible to offer a price that only purchases the high-value company.

H Protocol for Coding Advice

The purpose of this section is to explain how to do the coding. The coding produces a spreadsheet. The first column is the ID of the participant who submitted the advice. The second column contains the advice itself. The third column identifies the treatment (Probabilistic, Deterministic). The columns to fill in are:

- Recommendation: This column contains the price that the adviser recommends. To do this place yourself in the shoes of the advisee and consider: “what price is this recommendation indicating that I should submit?”
 - If the advice directly recommends a price (e.g. “pick 20”), then simply write down this price.
 - If the advice recommends a range (e.g. “pick a price between 20 and 120”), then write down the midpoint of the range.
 - If the advice recommends two prices, then write:
 - * -99 if the prices are 20 and 120 and there is a justified correct reason for this selection. [See Example 1]
 - * -98 if the prices are 20 and 120 and there is a justification that is correct but incomplete. [See Example 2.]
 - * -97 if the prices are 20 and 120 and there is a justification that is incorrect. [See Example 3.]
 - * -96 if the prices are not 20 and 120.
 - * Leave blank if there is no recommendation on what to submit.
- Payoff_vLpL: This variable should record the information that the subject conveys with respect to the payoff if the value of the company is low (20) and the price submitted is also low (20).
 1. Enter -1: The subject explicitly describes the event and explicitly discusses the profit, but the logic of the computation is incorrect. For example, consider a subject who claims that buying a company of value 20 for a price of 20 leads to losses. This logic incorrect. [Comment: If the computation is incorrect quantitatively, but the advice is qualitatively correct (e.g. when there is a computation error) DO NOT include in this category.]
 2. Enter 0: If what happens in this case is not discussed implicitly or explicitly.
 3. Enter 1: If what happens in this case is implicitly discussed. An implicit discussion means that the case is not directly mentioned, but it is clearly implied by the advice that this case exists and what would happen here. See Example 4 for an illustration.

4. Enter 2: If what happens in the case is explicitly discussed, but only qualitatively. The subject does not provide an explicit computation. For example, this could be when the subject mentions that there is a gain if the bid is low and the value is low.
 5. Enter 3: If what happens in the case is quantified. This is the case in which the subject explicitly computes the payoff in this outcome. The computation need not be correct (there can be an algebraic mistake), but if there is a computation and the qualitative result is sound, then classify it as 3.
- Payoff_vHpL: This variable should record the information that the subject conveys with respect to the payoff if the value of the company is high (120) and the price submitted is low (20). Use the same classification as for Payoff_vLpL. [Note #1: Particularly in the deterministic treatment this payoff can be implicitly computed by subjects saying: that you just “don’t buy” the high-value company. Any subject who implicitly or explicitly recognizes that should be classified as if they had explicitly computed the payoff for the outcome.] [Note #2: In the Deterministic treatment it is possible that subjects compute this payoff in conjunction with the payoff for the vL pL case. Subjects may just say: if you bid pL the profit is X and in the computation of X they have implicitly recognized that they are not buying the high-value company. This should be noted as if subjects are explicitly computing both the payoff of vLpL and the payoff of vHpL.]
 - Payoff_vLpH: This variable should record the information that the subject conveys with respect to the payoff if the value of the company is low (20) and the price submitted is high (120). Use the same classification as for Payoff_vLpL.
 - Payoff_vHpH: This variable should record the information that the subject conveys with respect to the payoff if the value of the company is high (120) and the price submitted is also high (120). Use the same classification as for Payoff_vLpL. [Note #3: In the Deterministic treatment it is possible that subjects compute this payoff in conjunction with the payoff for the vL pH case. This should be noted as if subjects are explicitly computing both the payoff of vLpH and the payoff of vHpH.]
 - Probabilities [Only for the probabilistic treatment.]:
 - Enter 0 if the subject does not mention anything about probabilities.
 - Enter 1 if the subject mentions probabilities (e.g. 50-50).
 - Enter 2 if the subject describes the probabilities as frequencies (e.g. 50% of the times).
 - Payoffs: In the case of the probabilistic treatments this variable should report on what subjects say with respect to the expected payoff of offering some prices. For example, what is the expected payoff of submitting a price equal to the low bid and what is the expected payoff of a price equal to the high value. In the case of the deterministic treatment this variable reports on what subjects say with respect to payoffs.

1. Enter -1 if the subject computes the payoffs in a manner that is qualitatively incorrect. (e.g. the subject reports that there are losses in the deterministic treatment if the price equals the low value.) Do not include in this category if the subject makes a computation error that does not affect the qualitative logic.
 2. Enter 0 if the subject does not discuss payoffs implicitly or explicitly.
 3. Enter 1 if the subject discusses at least one of the payoffs implicitly. In the Probabilistic treatment this should involve the following: (i) An explicit or implicit discussion of all outcomes or a discussion of an explicit or implicit discussion of what happens for a pair of outcomes; and (ii) some statement that weighs these outcomes. For example: a discussion of the outcomes followed by “bidding 120 is not worth the risk” is an implicit statement that can be interpreted in the following way. Taking overall into account the expected utility of bidding 20 and the expected utility of bidding 120, the latter is not higher than the former. A case in which the choice is based only on avoiding losses (e.g. don’t bid high because you could lose money) or a case in which the choice is based only on gains (e.g. bid high because you could gain a lot of money) should not be classified as in this category. For the deterministic treatment an example is provided in Example 5.
 4. Enter 2 if the subject explicitly computes at least one of the payoffs. The computation does not need to be numerically correct, but if it is qualitatively correct and there is at least one of the payoffs computed, it should be reported as in this category.
 5. Enter 3 if the subject explicitly computes both the payoff of submitting a low price and the payoff of submitting a high price. The computation does not need to be numerically correct, but if it is qualitatively correct and there is at least one of the payoffs computed, it should be reported as in this category.
- NoDominated: Enter 1 if the subject explains why it is dominated to submit prices lower than 20, or between 20 and 120, or higher than 120. Enter 0 if this is not explicitly discussed.
 - Safe [Probabilistic treatment only]: Enter 1 if the subject recommends a certain price using the word/idea that this is the “safe” option. Enter 0 if there is no mention of “safe” as a concern for the choice.
 - Gains [Probabilistic treatment only]: Enter 1 if the subject recommends a certain price using the word/idea that the perspective of “gains” should drive the choice.
 - Explanation: Enter 1 if there is an explicit justification provided for the recommendation. The justification may be incorrect (e.g. Bid 120 because it guarantees profits), but there is some justification for the recommendation. Enter 0 if there is no justification. [Comment: For example, if the subject recommends bidding 120 because that’s what my gut recommended, this should not be classified as an explanation. The explanation should have some connection to the problem.]

Examples:

Example 1: “Since you know the value of the company will be either exactly 20 or 120, I would choose between those 2 numbers to maximize your profit, as anything going over that would take away from your profit. If you offer 20 as a price and the value ends up being 20, the value to you would be 1.5 times = 30. The 30 value to you minus the 20 price you paid = 10, and $10 \times 2 = 20$ in profit points for you. You have the potential to earn either 20 cents if per your instructions you earn 1 cent per point, or 60 cents if per your instructions you earn 3 cents per point. So in recap, if your offering price is 20, you have the potential to make a bonus of either 20 cents, 60 cents, or zero if B ends up being the company value. If you offer 120 as your price and the value ends up being 120, the value to you would be 1.5 times = 180. The 180 value to you minus the 120 price you paid = 60, and $60 \times 2 = 120$ in profit points for you. You have the potential to earn either \$1.20 if per your instructions you earn 1 cent per point, or \$3.60 if per your instructions you earn 3 cents per point. However, if the value ends up being 20, the value to you would be 1.5 times = 30. The 30 value to you minus the 120 price you paid = -90, and $-90 \times 2 = -180$ negative profit points for you. In this case you have the risk of losing either \$1.80 if each point equals 1 cent, or losing \$5.40 if each point equals 3 cents. So in recap, if your offering price is 120, you have the potential to make a bonus of either \$1.20, \$3.60, or losing \$1.80 or \$5.40. If you want bigger bonuses but are willing to risk losses, I’d offer the higher value of A or B, but if you want no risk of loss with moderate gains, I’d offer the lower value of A or B.” [Comment: completely explains the problem and the options. Should be deemed as -99 even if the computations are incorrect. If the advice is qualitatively complete and qualitatively correct, then should be classified as -99.]

Example 2: “Choosing 20 has the chance of purchasing Company A without a loss in profits if A is selected. If you choose 120, and A is selected, then you will purchase A at a loss.” [Comment: Describes only part of the lottery. The part that is described is correct, but the information is incomplete for a decision-maker to decide which price to submit. The advice is incomplete, so classified as -98]

Example 3: “You will make a lot more money if B is chosen but there is still a chance A will be chosen. If you choose 20 you will definitely make some money. But if you choose a number higher than 20 is A is chosen then you cannot buy the property and your profit is zero. If you are a risk taker, choose a value higher to or equal to 120. I hope that helps you.” [Comment: It is not true that if the bid is higher than 20 it is not possible to buy A. This is a case in which the advice is classified as -97.]

Example 4: “So If you want to play it safe, you could always choose the smaller amount. There’s not going to be much of a reward compared to the other option but if you’re worried about your overall bonus, it might be the way to go. Still, it’s flipping a coin so if you have the attitude of "go big or go home" you should go for the larger option. If the bonus is 4 times larger than the option, then it would be worth the risk I would think.” [Comment: In this case the subject discusses the payoff if bidding low: “There’s not going to be much of a reward...” Here the subject

is implicitly mentioning that that there can be a reward if the price is equal to the low value. They are not explicitly discussing this alternative, however. Notice also that the subject is also implicitly discussing the payoffs in the outcomes when the price is high. The subject writes: "... go big or go home you should go for the larger option. If the bonus (...), then it would be worth the risk (...)" If the subject mentions "risk" she is implicitly recognizing the possibility of a loss by bidding high and by suggesting to go for it also implicitly recognizing the possibility of a reward.]

Example 5: "If there is a large discrepancy between the numbers enter the smaller number. If you don't enter the smaller number you are going to wind up losing all your profit by the price you're paying for the smaller company. If the numbers are close together enter the number for the higher company so you make money off both companies. " [Comment: In this case that corresponds to the deterministic treatment, the subject discusses that there are profits if you enter the high price that would be lost by paying the high price for the smaller company. This is an implicit discussion of the payoff of submitting a high price in the deterministic treatment. Notice that when the subject says "if you don't enter the smaller number" it is implicit that entering the smaller number does not result in losing all the profit. Hence the subject is implicitly saying that the profit of entering the smaller value is larger than the profit of entering the higher number.]

I Extra Tables for Probability-Matching Experiments

Table 37 shows the classification of types by treatment. The first two rows use all subjects. In addition to the types described in the text (OT and PMT) the classification includes five additional types. QuasiOptimal and QuasiPM are two types that capture subjects who were close to OT or PMT, respectively. QuasiOptimal includes subjects who select more than 90 tickets for the correct color in the last 5 problems and are not classified as OT, and QuasiPM includes subjects who select tickets within a ± 10 interval of the exact PM choice and are not classified as PMT. The type identified as 50:50 are selecting an equal number of tickets of each color in each of the last five problems. The type referred to as AntiO for anti-optimal captures subjects who are allocating less tickets to the majority color than the fraction with which that color is represented. Specifically, if the most-represented color captures $x\%$ of the boxes, then a subject who is classified as AntiO allocates less than $x\%$ of the tickets to the most-represented color in each of the last five problems. In all classifications, subjects already classified as a type are not classified again, where the ordering is given by the ordering of the columns in Table 37.

	Types	OT	QuasiOptimal	PMT	QuasiPM	50:50	AntiO	Res	Participants
All	PROB ^{PM}	27.0	1.5	24.3	17.2	2.6	6.0	21.4	267
Subjects	DET ^{PM}	32.0	3.0	20.7	15.8	3.0	5.3	20.3	266
No Errors	PROB ^{PM}	27.5	2.4	24.6	16.2	1.2	7.2	21.0	167
in Instruc.	DET ^{PM}	39.1	3.6	16.2	14.6	2.6	5.7	18.2	192

Table 37: Type Classification [as % of participants]

Notes: All types classified based on choices in the last 5 problems. A subject is classified as a type if all choices correspond to that type. OT: made optimal choice. QuasiOptimal: more than 90 tickets for correct color and not classified as Optimal. PMT (Probability-Matching Type): tickets allocated match the proportion of green and red boxes. QuasiPM: tickets within a ± 10 interval of the exact probability matching number and not classified as PM. 50:50: selects an even split of tickets. Anti Optimal (AntiO): If the most-represented color captures $x\%$ of boxes, then anti-optimal allocates less than $x\%$ of the tickets to the most-represented color (and not already classified earlier). The rows titled “No Errors in Instruc.” only contain subjects who made no errors in the instructions.

The treatment effect in terms of subjects classified as OT or as PMT is substantially larger when we condition on subjects who made no errors in the questions on the instructions. The questions on the instructions are straight-forward so that not answering the questions correctly on the first try can be thought of as a signal of how much attention the subject is paying. Notice that there are relatively more subjects in deterministic (192) than in probabilistic (167) who made no mistake in the instructions, so that if anything the population of subjects in probabilistic is more selected.

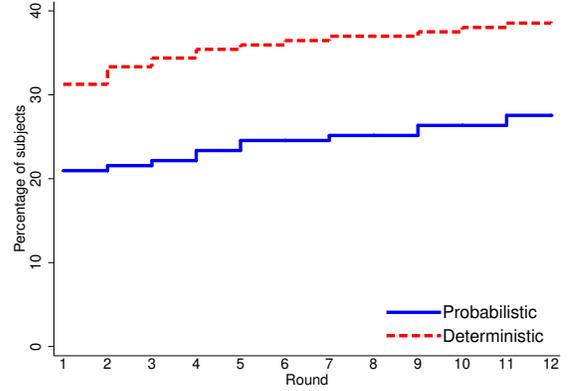
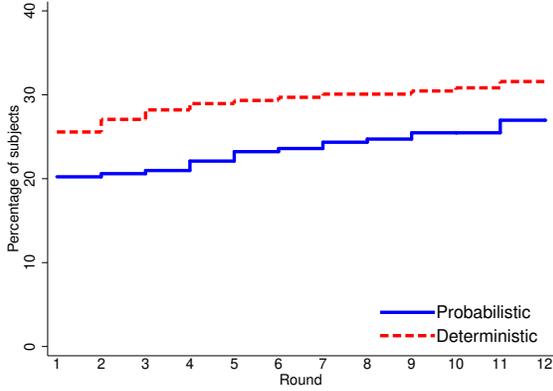
The treatment effect on optimal types OT is of about twelve percentage points among subjects who made no mistake in the instructions. The effect is of similar magnitude, but in the opposite direction for subjects classified as PMT.

Figure 9 shows the proportion of subjects that can be classified as OT from round p onwards. The

	(1) OT	(2) Optimal	(3) PMT	(4) PM
Det	0.103** (0.045)	0.087** (0.043)	-0.077* (0.043)	-0.054* (0.029)
Num Errors	-0.031 (0.038)	-0.047 (0.033)	-0.003 (0.036)	0.019 (0.027)
Num Errors × Det	-0.148*** (0.056)	-0.125*** (0.044)	0.100* (0.053)	0.075** (0.038)
Female	-0.197*** (0.038)	-0.190*** (0.036)	0.085** (0.037)	0.076*** (0.026)
White	0.108** (0.050)	0.126*** (0.042)	-0.011 (0.047)	-0.014 (0.035)
Young	-0.002 (0.039)	-0.003 (0.036)	0.012 (0.037)	0.011 (0.026)
Low Schooling	-0.002 (0.039)	-0.005 (0.036)	-0.021 (0.037)	-0.027 (0.026)
Constant	0.293*** (0.064)	0.322*** (0.057)	0.216*** (0.061)	0.208*** (0.045)
Observations	533	6396	533	6396

Table 38: Probability-Matching Treatments: Treatment Effects

Notes: Results from a linear regression. (1) The dependent variable takes value 1 if the subject is classified as Optimal Type (OT). (2) The dependent variable takes value 1 if the choice is optimal. (3) The dependent variable takes value 1 if the subject is classified as Probability-Matching Type (PMT). (4) The dependent variable takes value 1 if the choice is exactly probability matching. In columns (2) and (4) standard errors are clustered by subject. Det is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment. Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.



(a) Optimal choice from rd $n \leq 12$ onwards (All subjects).

(b) Optimal choice from rd $n \leq 12$ onwards (Subjects who made no errors in instructions)

Figure 9: Evolution of Optimal Types (OT).

treatment effect is present if we consider all subjects (Figure 9a) or subjects who made no mistakes in the instructions (Figure 9b), but the effect is larger if we focus on the latter. The full output of the regressions is provided in Table 38, which also show that the treatment effect is mostly coming from subjects who made no mistake in the instructions. This finding is also consistent with our results for the Acquiring-a-Company problem. Table 39 reproduces Table 3 from the main text and adds how the results would change if we condition on subjects who made no mistake in the instructions. The treatment effect in the $V_L V_H$ types is higher at about 30 percentage points for subjects who made no mistake in the instructions.

Finally, Table 40 presents the regression output for each probability parameterization. In the paper, where we present a summary of the regressions of Table 38, we decided not to decompose between the different probabilities for the following reason. When we classify subjects into types we want to see if subjects are consistently using a certain rule for all questions. Types are used as dependent variables in regressions (1) and (3) of Table 38, and in these cases we can only test if there is a difference amongst types across probabilistic and deterministic treatments. In other words, in regressions (1) and (3) of Table 38 the unit of observation is a subject. In regressions (2) and (4) the unit of observation is the choice a subject makes in a specific question. And in these two regressions we can control for the specific probabilities used in each question. To make the comparison easier between regressions (1)-(4) in the paper we did not distinguish among state probabilities in regressions (2) and (4).

Finally, while the experiment was not specifically designed for this question, we can assess how the effect of PoC changes as the probability of the majority color changes. Specifically, it could be that the effect of PoC is largest when the uncertainty is highest, accounting for the large effects we found in the Acquiring-a-Company problem. We find, if anything, that the opposite is the case: When moving from the probabilistic to the deterministic problem, the change in the chance of optimal guesses increases and the change in the chance of probability matching guesses decreases as the

	Types	$V_L V_H$	$\{MixV_H, V_H V_H\}$	Focal	Dom	Residual	Participants
All	PROB	19.7	24.5	18.7	21.8	15.4	188
Subjects	DET	41.5	15.9	8.2	15.9	18.5	183
No Errors	PROB	23.9	26.2	18.5	18.5	13.1	130
in Instruc.	DET	53.5	17.2	11.1	7.1	11.1	99

Table 39: Part 1 and Part 2 Type Classification [as % of participants]

Notes: Types are defined based on the prices p_1 submitted in the last five rounds of part 1 and p_2 submitted in all five rounds of part 2. Type $V_L V_H$: $p_1 = v_L$ and $p_2 = v_H$. Type $\{MixV_H, V_H V_H\}$: $p_1 \in \{v_L, v_H\}$ and at least one $p_1 = v_H$ and $p_2 = v_H$. Type ‘Focal’: $p_1, p_2 \in \{v_L, v_H\}$ and at least one $p_2 = v_L$ (corresponds to $V_L V_L, V_L Mix, MixV_L, MixMix, V_H V_L$, or $V_H Mix$). Type ‘Dom’: $p_1, p_2 \notin \{v_L, v_H\}$. Residual: All remaining subjects. The rows titled “No Errors in Instruc.” only contain subjects who made no errors in the instructions.

chance of the majority color increases from 60, to 70 and 80 percent. For details see Table 40 which decomposes the treatment effect depending on whether the question was one with a 60:40, 70:30 or 80:20 parameterization. Note, however, that as the fraction of boxes of the majority color increases, so does the loss incurred by a probability matching guess compared to the optimal guess which could account for the observed correlation.

	(1) Optimal	(2) PM
Det × 60:40	0.054 (0.043)	0.014 (0.032)
Det × 70:30	0.077* (0.044)	-0.033 (0.032)
Det × 80:20	0.129*** (0.044)	-0.143*** (0.027)
Errors	-0.047 (0.033)	0.019 (0.027)
Det × Errors	-0.125*** (0.044)	0.075** (0.038)
Female	-0.190*** (0.036)	0.076*** (0.026)
White	0.126*** (0.042)	-0.014 (0.035)
Young	-0.003 (0.036)	0.011 (0.026)
Low Schooling	-0.005 (0.036)	-0.027 (0.026)
Constant	0.322*** (0.057)	0.208*** (0.045)
Observations	6396	6396

Table 40: Probability-Matching Treatments: Treatment Effects

Notes: Results from a linear regression. (1) The dependent variable takes value 1 if the choice is optimal. (2) The dependent variable takes value 1 if the choice is exactly probability matching. Standard errors are clustered by subject. Det × Q is a dummy variable that takes value 1 if the observation corresponds to the deterministic treatment and a question in which the probability of states is given by $Q \in \{60 : 40, 70 : 30, 80 : 20\}$. Female, White, Young and Low Schooling are dummies that take value 1, respectively, if the subject's gender is female, the reported ethnicity is white, their age is below the median age of 32, and their schooling if their education level is 'Some College' or lower.