

Appendix A: Additional Analysis

Stochastic Choice and Expected Values (Utilities)

We start by investigating whether the differences in expected utilities (expected values) of the presented lotteries can account for the variation of stochastic choice within the category of HARD questions in Part I and III of the experiment. We use a Linear Probability model and run Random-effects GLS regressions in which the dichotomous variable that indicates whether subject reported stochastic choice in a particular question in Part I or III is regressed on the absolute difference in expected values (or expected utilities) of the presented lotteries. Just like in the regressions reported in Table 3 of the main body of the paper, we consider three specifications of the utility functions: Linear, CRRA and CARA. In all regressions, standard errors are clustered by subject. Regressions 1, 3, 5, 7, 9 and 11 consider all subjects who reported a positive investment in the risk elicitation task (Part II, question 1), while Regressions 2, 4, 6, 8, 10 and 12 focus on the subset of subjects who are risk-averse according to this task and do not violate Expected Utility as measure in Part IV.

The results are summarized in Table A1 below. They indicate that the variation in the stochasticity of choice observed *within* the category of HARD questions in both Part I and III cannot be fully attributed to the differences in expected utilities of the presented lotteries. Only in a few regression specifications (regressions 3, 5 and 9) the coefficient of the differences in expected utility is significant, and this effect disappears when we focus on the subset of subjects for whom we have reasonable measures of the utility curvature (those who are risk-averse and do not violate principles of expected utility). At the same time, the constant term is large and significant in all regression specifications.

TABLE A1 Determinants of Stochastic Choice in HARD questions

| Stochastic Choice with Distant Repetitions (Part I) | | | | | | |
|--|---------------|-------------------|-----------------|-------------------|----------------|-------------------|
| Utility specification | Risk Neutral | | CRRA | | CARA | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Diff in EU | -0.01 (0.009) | 0.008 (0.001) | -0.024** (0.01) | 0.0006 (0.05) | -3.46** (1.58) | -7.62 (7.40) |
| Const | 0.51** (0.05) | 0.43** (0.08) | 0.52** (0.04) | 0.47** (0.06) | 0.51** (0.04) | 0.52** (0.07) |
| # of obs | 312 | 140 | 312 | 140 | 312 | 140 |
| # of subjects | 78 | 35 | 78 | 35 | 78 | 35 |
| Overall R-sq | 0.0047 | 0.0023 | 0.0163 | 0.0001 | 0.0155 | 0.0078 |
| Set of subjects | All | Risk A&Not Allais | All | Risk A&Not Allais | All | Risk A&Not Allais |
| Sample of questions | HARD | HARD | HARD | HARD | HARD | HARD |
| Stochastic Choice with Repetitions in a row (Part III) | | | | | | |
| Utility specification | Risk Neutral | | CRRA | | CARA | |
| | (7) | (8) | (9) | (10) | (11) | (12) |
| Diff in EU | 0.004 (0.007) | 0.02 (0.01) | -0.024** (0.01) | 0.04 (0.05) | -1.43 (1.51) | 10.9 (5.90) |
| Const | 0.39** (0.06) | 0.40** (0.08) | 0.47** (0.05) | 0.45** (0.07) | 0.44 ** (0.04) | 0.40** (0.07) |
| # of obs | 312 | 140 | 312 | 140 | 312 | 140 |
| # of subjects | 78 | 35 | 78 | 35 | 78 | 35 |
| Overall R-sq | 0.0006 | 0.0088 | 0.03 | 0.0005 | 0.0137 | 0.0083 |
| Set of subjects | All | Risk A&Not Allais | All | Risk A&Not Allais | All | Risk A&Not Allais |
| Sample of questions | HARD | HARD | HARD | HARD | HARD | HARD |

Notes: Random-effects GLS regressions with standard errors clustered at the subject level. Each observation corresponds to the behavior of one subject in one of the ten (seven) questions subjects faced repeatedly in Part I with Distant Repetitions (in Part III with Repetitions in a Row). ** indicates significance at 5% level. For Risk Neutral utilities, we used the identity function. For CRRA, we estimated the parameter $\rho > 0$ of the utility function $u(x) = \frac{x^{1-\rho}}{1-\rho}$. For CARA, we estimated the parameter $\beta > 0$ of the utility function $u(x) = 1 - e^{-\beta x}$. These estimates are based on the subject-specific answer to the risky investment task in Part II (question 1). (Two subjects are not considered because they reported zero investment and thus, the parameters cannot be estimated.) The variable Diff in EU is the absolute difference in expected utilities of lotteries. Risk A & Not Allais indicates the subset of subjects who are risk-averse according to the risky investment task in Part II (question 1) and do not violate principles of Expected Utility given their answers in Part IV.

Table A2 below presents regressions that focus on the behavior of subjects who invested the full budget in the risky investment in Part II (these subjects were treated as risk-neutral in Section 4.3 of the main body of the paper). For this subset of subjects, we evaluate whether the stochasticity of choice in each part relates to the differences in expected values of the presented lotteries. In Regression 1 we consider all question types, while in Regressions 2 and 3 only the EASY and HARD ones. The estimation strategy is the same as before: we use Linear Probability model and run Random-Effects GLS regressions, in which the indicator for stochastic choice reported in a particular question is regressed on the absolute difference in expected values of the available lotteries. The standard errors are clustered by subject. Regression results indicate that the “difficulty” of the question plays a big part in predicting stochasticity of choice even when we control for expected value differences.

TABLE A2 DETERMINANTS OF STOCHASTIC CHOICE FOR RISK-NEUTRAL SUBJECTS

| | Stochastic Choice in Part I | | Stochastic Choice in Part III |
|---------------------|-------------------------------|------------------------------|-------------------------------|
| | (1) | (2) | (3) |
| Dummy for EASY | -4.3e ⁻¹⁵ (0.08) | | |
| Dummy for HARD | 0.56** (0.07) | 0.56** (0.11) | 0.44** (0.11) |
| Diff in EV for FOSD | -4.11e ⁻¹⁷ (0.001) | | |
| Diff in EV for EASY | 1.15e ⁻¹⁷ (0.001) | 1.66e ⁻¹⁶ (0.002) | 0.002 (0.002) |
| Diff in EV for HARD | -0.03** (0.009) | -0.03** (0.01) | -0.02** (0.01) |
| Constant | 4.18e ⁻¹⁵ (0.04) | -8.82e ⁻¹⁵ (0.09) | -0.03 (0.10) |
| # of obs | 300 | 210 | 180 |
| # of subjects | 30 | 30 | 30 |
| Overall R-sq | 0.3167 | 0.2543 | 0.1175 |
| Set of subjects | Risk-neutral | Risk-neutral | Risk-neutral |
| Sample of questions | All | EASY and HARD | EASY and HARD |

Notes: Random-effects GLS regressions with standard errors clustered at the subject level. Each observation corresponds to the behavior of one subject in one of the ten (seven) questions subjects faced repeatedly in Part I with Distant Repetitions (in Part III with Repetitions in a Row). The variable Diff in EV for FOSD (EASY, HARD) is the interaction between the absolute difference in expected values of lotteries and the dummy for FOSD (EASY, HARD). We focus here on the subset of subjects who invested the full budget in the risky investment question in Part II (question 1). ** indicates significance at 5% level.

Response Times

Table A3 summarizes the mean and the median reaction times in each repetition of each question for Parts I and III separately. All reported statistics are in seconds, as

our software recorded response times rounded up to the nearest second.

TABLE A3 MEAN (MEDIAN) RESPONSE TIMES, IN SECONDS

| | FOSD1 | | FOSD2 | | FOSD3 | | | |
|-------------------|----------|----------|------------|----------|-----------|----------|-----------|----------|
| <i>Repetition</i> | Part I | Part III | Part I | Part III | Part I | Part III | | |
| First | 6.6 (6) | 2.9 (3) | 4.8 (4) | | 8.0 (7) | | | |
| Second | 5.5 (4) | 1.7 (1) | 3.1 (3) | | 4.4 (4) | | | |
| Third | 3.0 (3) | 1.7 (1) | 3.4 (3) | | 3.8 (3) | | | |
| | EASY1 | | EASY2 | | EASY3 | | | |
| <i>Repetition</i> | Part I | Part III | Part I | Part III | Part I | Part III | | |
| First | 6.1 (5) | 3.5 (3) | 3.4 (4) | 3.7 (3) | 4.6 (5) | | | |
| Second | 4.1 (3) | 2.0 (2) | 4.0 (3) | 1.8 (1) | 3.7 (3) | | | |
| Third | 3.9 (3) | 1.6 (2) | 3.4 (3) | 1.7 (1) | 2.9 (3) | | | |
| | HARD1 | | HARD2 | | HARD3 | | HARD4 | |
| <i>Repetition</i> | Part I | Part III | Part I | Part III | Part I | Part III | Part I | Part III |
| First | 13.1 (9) | 10.4 (6) | 12.0 (8.5) | 8.6 (5) | 14.4 (10) | 11.5 (8) | 17.6 (12) | 9.4 (7) |
| Second | 8.0 (6) | 2.9 (2) | 8.5 (6) | 2.0 (2) | 12.0 (7) | 2.7 (2) | 10.0 (8) | 2.7 (2) |
| Third | 7.5 (5) | 2.3 (2) | 6.2 (5) | 2.0 (2) | 7.0 (6) | 2.1 (2) | 8.1 (6) | 3.3 (2) |

Notes: In each part, we report response times in each of the three repetitions of a question. See Appendix D for the exact order of questions in each part of the experiment.

To conduct a statistical analysis of the response times data, we use the estimation strategy described in Footnote 18 (Section 4.5) in the main body of the paper. In particular, to compare the distributions of decision times between any two groups we run a Random-effects GLS regression in which the decision times are regressed on the dummy indicating one of the two groups under consideration, while robust standard errors are clustered by subject. We say that decision times between two groups are significantly different if the estimated coefficient on the dummy variable is significantly different from zero. Table A4 reports the estimated dummy coefficient as well as the corresponding p-values for a series of pairwise comparisons, in which the dummy variable indicates the first group (the one listed in column "Group 1"). Table A5 presents summary statistics of the reaction times of subjects who reported consistent answers and those who reported inconsistent answers in HARD questions in Part I and Part III, separately.

TABLE A4 REACTION TIMES REGRESSIONS

| Group 1 | Group 2 | Beta (Robust st err) | p-value | H_0 |
|--|--|-------------------------|---------|---------------|
| SC HARD1, Part I | Cons. HARD1, Part I | 2.34 (1.37) | 0.087 | cannot reject |
| SC HARD2, Part I | Cons. HARD2, Part I | 1.81 (1.04) | 0.087 | cannot reject |
| SC HARD3, Part I | Cons. HARD3, Part I | -2.07 (1.86) | 0.264 | cannot reject |
| SC HARD4, Part I | Cons. HARD4, Part I | 0.29 (1.85) | 0.876 | cannot reject |
| SC HARD1, Part III | Cons. HARD1, Part III | 1.09 (1.00) | 0.274 | cannot reject |
| SC HARD2, Part III | Cons. HARD2, Part III | 0.20 (0.95) | 0.834 | cannot reject |
| SC HARD3, Part III | Cons. HARD3, Part III | 0.22 (0.99) | 0.826 | cannot reject |
| SC HARD4, Part III | Cons. HARD4, Part III | 1.24 (0.92) | 0.179 | cannot reject |
| 1st rep HARD Part I | 1st rep EASY Part I | 9.42** (0.78) | <0.001 | reject |
| 1st rep HARD Part I | 1st rep FOSD Part I | 7.82** (0.80) | <0.001 | reject |
| 1st rep HARD Part III | 1st rep EASY Part III | 6.35** (0.70) | <0.001 | reject |
| 1st rep HARD Part III | 1st rep FOSD Part III | 7.06** (0.97) | <0.001 | reject |
| 1st rep HARD Part I | 2nd rep HARD Part I | 4.65** (0.74) | <0.001 | reject |
| 2nd rep HARD Part I | 3rd rep HARD Part I | 2.41** (0.54) | <0.001 | reject |
| 1st rep EASY Part I | 2nd rep EASY Part I | 0.95** (0.24) | <0.001 | reject |
| 2nd rep EASY Part I | 3rd rep EASY Part I | 0.48** (0.21) | 0.0118 | reject |
| 1st rep FOSD Part I | 2nd rep FOSD Part I | 2.12** (0.31) | <0.001 | reject |
| 2nd rep FOSD Part I | 3rd rep FOSD Part I | 0.95** (0.26) | <0.001 | reject |
| 1st rep HARD Part III | 2nd rep HARD Part III | 7.41** (0.57) | <0.001 | reject |
| 2nd rep HARD Part III | 3rd rep HARD Part III | 0.14 (0.20) | 0.488 | cannot reject |
| 1st rep EASY Part III | 2nd rep EASY Part III | 1.76** (0.18) | <0.001 | reject |
| 2nd rep EASY Part III | 3rd rep EASY Part III | 0.24** (0.12) | 0.048 | reject |
| 1st rep FOSD Part III | 2nd rep FOSD Part III | 1.24** (0.12) | <0.001 | reject |
| 2nd rep FOSD Part III | 3rd rep FOSD Part III | -0.05 (0.13) | 0.691 | cannot reject |
| 2nd rep HARD Part I | 2nd rep HARD Part III | 7.06** (0.53) | <0.001 | reject |
| 3rd rep HARD Part I | 3rd rep HARD Part III | 4.79** (0.36) | <0.001 | reject |
| Median in 2nd and 3rd rep HARD Part III | Median in 2nd and 3rd rep FOSD Part III | 0.24 (0.13) | 0.063 | cannot reject |

Notes: Random-effects GLS regressions, clustering standard errors by subject. Dependent variable: recorded decision time. Right-hand side variables include a constant and a dummy variable that indicate membership to Group 1. SC denotes Stochastic Choice, Cons. denotes Consistent answers. ** indicates significance at 5% level. H_0 : the decision times of the two groups is drawn from the same distribution.

TABLE A5 REACTION TIMES OF SUBJECTS WITH STOCHASTIC CHOICE AND THOSE WITH CONSISTENT CHOICE, MEAN (MEDIAN) IN SECONDS

| Reaction Times in HARD questions in Part I | SC Part I | Consistent Part I | SC Part III | Consistent Part III |
|--|------------|-------------------|-------------|---------------------|
| 1st repetition | 13.7 (10) | 19.4 (11) | 12.3 (9) | 18.9 (12.5) |
| 2nd repetition | 9.5 (7) | 10.4 (5) | 8.7 (7) | 11.7 (7) |
| 3rd repetition | 7.5 (6) | 4.6 (4) | 7.0 (6) | 7.7 (6) |
| Reaction Times in HARD questions in Part III | | | | |
| 1st repetition | 10.2 (6.5) | 8.1 (7) | 8.7 (6) | 13.0 (8) |
| 2nd repetition | 2.7 (2) | 1.8 (2) | 2.8 (2) | 2.1 (2) |
| 3rd repetition | 2.5 (2) | 1.9 (2) | 2.6 (2) | 1.9 (2) |

Notes: SC denotes Stochastic Choice.

Appendix B: Experimental Instructions

Main Experiment

This is an experiment in the economics of decision-making. The instructions are simple, and if you follow them carefully and make good decisions you may earn a CONSIDERABLE AMOUNT OF MONEY that will be PAID TO YOU IN CASH at the end of the experiment. The currency in this experiment is called tokens. All payoffs are denominated in this currency.

There are four parts in this experiment. In Part I, III, and IV you will be asked to choose between lotteries (we will explain what they are shortly). In Part II, you will be asked to choose how much to invest in a risky investment. We will hand out specific instructions for each of the parts before the beginning of the part. You will see 40 questions in Part I, 2 questions in Part II, 21 questions in Part III, and 8 questions in Part IV.

Your payoff in the experiment will be determined as follows:

- The computer will choose one of the questions in Parts I or III with equal probability, and play out the lottery that you have chosen in that question. The amount of tokens that you receive for this lottery will then be converted to US dollars using the rate 20 Tokens = \$1.
- In addition, we will sum up all the tokens you earned in all the questions in Part II and IV, and convert them to US dollars using the rate 100 Tokens = \$1.
- Your total earning will consist of the amounts above plus a \$10 participation fee if you complete the experiment.

Part I

There are 40 questions in this part. In each question you will see either two or three options on the screen, depending on the question. Your task is to choose one of the available options. In every question, the first two options are two lotteries that pay a certain amount of tokens depending on chance. In particular, the computer will simulate the roll a four-faced die with faces named A, B, C, and D. Notice that each face is equally likely to occur. Depending on which face occurs, the lottery will pay a certain amount of tokens. Here is the example of such a lottery:

| | A | B | C | D |
|------------------|----|-----|-----|-----|
| Option 2: | 95 | 120 | 170 | 185 |

That is: if we obtain face A then you will get 95 tokens; if we obtain face B then you will get 120 tokens; if we obtain face C then you will get 170 tokens; and if we obtain face D then you will get 185 tokens. Because each face is equally likely, and because there are only four faces, then this lottery pays: 95 tokens with probability $1/4$, 120 tokens with probability $1/4$, 170 tokens with probability $1/4$, 185 tokens with probability $1/4$.

In some of the questions, the following third option will also be available:

Option 3: FLIP A COIN BETWEEN OPTIONS 1 and 2

If you choose this option, the computer will simulate the flip of a coin to determine which of the two lotteries above you will be assigned. If HEADS come up, you will receive Option 1; if TAILS come up, you will receive Option 2. If you choose this third option, 1 token will be subtracted from number of tokens that are paid by the selected lottery. For example, if the lottery above is selected by the coin flip, and the die-roll selected D, then you get 184 tokens: the 185 tokens paid by the lottery minus 1 token.

In each screen you will see either two or three options, as described, and you will be asked to choose one of them. To choose an option click on the button next to the option and then click the SUBMIT button on the bottom of the screen. Once you clicked the SUBMIT button, your decision is recorded and you cannot change it. The computer will play out the option that you have selected right after you made your choice in every screen.

Notice:

- There is no right or wrong answer for any of these questions. We are interested in studying your preferences.
- Some of the questions might be repeated over the course of the experiment.
- After you click the submit button, there might be a short delay before the next question appears, due to the software. Please be patient.

Part II (*Displayed on the computer screen*)

Risk Question

You are endowed with 100 tokens and asked to choose the portion of this amount (between 0 and 100 tokens, inclusive) that you wish to invest in a risky option. Those tokens not invested are yours to keep.

If the risk investment is successful, you receive 2.5 times the amount you chose to invest; if the investment is unsuccessful, you lose the amount invested.

To determine if the investment is successful or not, we will roll a four-faced die, with faces marked A, B, C, D. If we obtain face A or D the investment is successful. If we obtain faces B or C the investment is unsuccessful.

We now ask you to indicate the number of points that you wish to invest:

I wish to invest tokens

Compound Lottery Question

You are endowed with 100 tokens and asked to choose the portion of this amount (between 0 and 100 tokens, inclusive) that you wish to invest in a risky option. Those tokens not invested are yours to keep.

If the risk investment is successful, you receive 2.5 times the amount you chose to invest; if the investment is unsuccessful, you lose the amount invested.

To determine if the investment is successful or not, we will first of all roll a four-faced die, with faces marked A, B, C, D. If we obtain face A the investment is successful. If we obtain face D the investment is unsuccessful. If we obtain faces B or C, then roll the die again. If we obtain face A or B, the investment is successful. Otherwise, if we obtain face C or D, the investment is unsuccessful.

We now ask you to indicate the number of points that you wish to invest:

I wish to invest tokens

Part III (*Handed out after subjects finish Part II*)

In this part of the experiment you are asked again to choose between two lotteries, just like you did in Part I. The difference between this Part and Part I is that in this

part you will see the same question three times, one after the other. That is: you will be asked one question; once you click the submit button, you will be asked the same question again; and once you click the submit button, the same question will appear for the third time. Once you click the submit button, then a new question will appear, which will also be asked three times. There are a total of 7 questions, each asked three times, for a total of 21 decisions to be made.

Please remember that there is no right or wrong answer.

Part IV (*Displayed on the computer screen*)

Screen 1

Please choose one of the options below:

- Option 1: 100 tokens with certainty
- Option 2: 10% chance of 500 tokens, 89% chance of 100 tokens and 1% chance of 0 tokens

Screen 2

Please choose one of the options below:

- Option 1: 11% chance of 100 tokens and 89% chance of 0 tokens
- Option 2: 10% chance of 500 tokens and 90% chance of 0 tokens

Screen 3

Please choose one of the options below:

- Option 1: 100 tokens with certainty
- Option 2: 98% chance of 500 tokens and 2% chance of 0 tokens

Screen 4

Please choose one of the options below:

- Option 1: 1% chance of 100 tokens and 99% chance of 0 tokens
- Option 2: 0.98% chance of 500 tokens and 99.02% chance of 0 tokens

Questionnaire (*Handed out at the very end of the experiment*)

1. Did you have the impression that there were some questions that were ‘easier’ than others, i.e., for which there was one option that was clearly better? (Yes or no is enough)
2. In Part III of the experiment each question was asked to you three times. If you choose different options, could you please tell us why did you do it? (Please elaborate)
3. Did you ever choose the ‘flip a coin’ option? If so, why did you do it? If not, why didn’t you choose it?
4. Would you have chosen to flip a coin if there were no ‘cost’ to chose it, i.e., if it simply choose one of lotteries without imposing a cost?
5. If you did not chose the ‘flip a coin’ option in the experiment but you would have chosen it if it didn’t have a cost, why is it the case?
6. In Part I of the experiment, some questions were asked multiple times. Did you notice? Do you think you gave the same answer? If you gave different answers, why did you choose different answers? (Feel free to say ‘same as above’)

Instructions for Short Experiment 1

This is an experiment in the economics of decision-making. You may earn a CONSIDERABLE AMOUNT OF MONEY that will be PAID TO YOU IN CASH at the end of the experiment.

The currency in this experiment is called tokens. All payoffs are denominated in this currency.

In this experiment you will be asked to choose between two options, which are two lotteries that pay a certain amount of tokens depending on chance. In particular, at the end of the experiment, one of the participants will roll a four-faced die with faces named A, B, C, and D. Notice that each face is equally likely to occur. Depending on which face occurs, the lottery will pay a certain amount of tokens. Here is the example of such a lottery:

| | A | B | C | D |
|------------------|----|-----|-----|-----|
| Option 2: | 95 | 120 | 170 | 185 |

That is: if we obtain face A then you will get 95 tokens; if we obtain face B then you will get 120 tokens; if we obtain face C then you will get 170 tokens; and if we obtain face D then you will get 185 tokens.

Because each face is equally likely, and because there are only four faces, then this lottery pays:

- 95 tokens with probability $1/4$
- 120 tokens with probability $1/4$
- 170 tokens with probability $1/4$
- 185 tokens with probability $1/4$

In each question you will see two lotteries, as described above, and you will be asked to choose one of them. To choose a lottery please circle it. Once you made your choice, you can turn the page and move on to the next question.

Importantly, in this experiment you will be asked to choose between two lotteries three times in a row. The three questions will be identical, one after the other. That is: you will be asked to choose between two lotteries; you will then proceed to the next sheet, in which you will be asked again to choose between the same two lotteries; and then, the same question will appear for the third time.

After you answer these three questions, the experiment will end. Your payoff in the experiment will be determined as follows:

- At the end of the experiment, one participant will roll a six-sided die to determine which of the three questions will be paid. If we obtain 1 or 2, then the first question will be selected for payment. If we obtain 3 or 4, then the second question will be selected for payment. If we obtain 5 or 6 then the third question will be selected for payment. In other words, each of the three questions that you answer are equally likely to be selected for payment.
- Once a question is selected for payment, we will play out the lottery that you have chosen in that question. That is, each participant will roll a four-faced die to determine the amount of tokens that you win. The amount of tokens that you receive for this lottery will then be converted to US dollars using the rate $2 \text{ Tokens} = \$1$.

Notice: There is no right or wrong answer for any of these questions. We are interested in studying your preferences

Are there any questions?

Questionnaire (*Handed out at the end of the experiment*)

Did you choose different options in Questions 1 - 3?

If you did, could you please tell us why did you do it? Please elaborate.

Instructions for Short Experiment 2

In this experiment you will be asked to choose between two options. These options will involve payments at different dates. Here is an example of an option:

\$5 paid today and \$9 paid in two weeks

This option pays \$5 today and another \$9 in two weeks time. We will explain later how and where the future payments can be collected.

In each question you will be asked to choose one of the two options, each of the kind described above. To choose one option please circle it. Once you have made your choice, you can turn the page and move on to the next question.

Importantly, in this experiment you will be asked to choose between two options three times in a row. The three questions will be identical, one after the other. That is: you will be asked to choose between two options; you will then proceed to the next sheet, in which you will be asked to choose between the same two options; and then, the same question will appear for the third time.

After you answer these three questions, the experiment will end. At that point, we will determine who will be paid and how much. We will proceed as follows:

- The computer will randomly select one of the three questions for payment. Each of the three questions is equally likely to be selected for payment.
- The computer will randomly select three people in this room whose choices will be implemented. Each person is equally likely to be selected by the computer.

- The three selected subjects will receive payments corresponding to the option that they chose in the question selected by the computer for payment. To collect future payments, selected subjects will be asked to come back to this lab in two weeks time (on May 13th) between 12pm and 1:30pm. Please make sure you come back to pick up your payment at this date and time (you will not be able to receive your payments at any different date or time).

Please note: In this experiment, there are no right and wrong answers. We are interested in studying your preferences.

Are there any questions?

Instructions for Short Experiment 3

In this experiment you will be asked to choose between two options. These options will involve payments to you and to other students in this room. Here is example of an option:

You \$6

Person 1 \$8

Person 2 \$9

This option pays \$6 to you, \$8 to another person in this room, and \$9 to yet another person in this room. We will explain later how these people will be determined.

In each question you will be asked to choose one of the two options, each of the kind described above. To choose one option please circle it. Once you have made your choice, you can turn the page and move on to the next question.

Importantly, in this experiment you will be asked to choose between two options three times in a row. The three questions will be identical, one after the other. That is: you will be asked to choose between two options; you will then proceed to the next sheet, in which you will be asked to choose between the same two options; and then, the same question will appear for the third time.

After you answer these three questions, the experiment will end. At that point, we will determine who will be paid and how much. We will proceed as follows:

- The computer will randomly select one of the three questions for payment. Each of the three questions is equally likely to be selected for payment.

- The computer will randomly select two people in this room whose choices will be implemented. Each person is equally likely to be selected by the computer.
- Third, for each person whose choice is implemented, the computer will randomly select two other subjects and randomly assign to them the roles of Person 1 and 2.
- These six subjects will then receive the payment corresponding to the option chosen by the person whose choices are implemented, in the question selected for payment.

Notice your choices matter only if you are the person whose choices are implemented.

Please note: In this experiment, there are no right and wrong answers. We are interested in studying your preferences.

Are there any questions?

Appendix C: Screenshots for Main Experiment

Please choose one of the options below

Option 1:

| A | B | C | D |
|----|----|----|----|
| 30 | 30 | 30 | 30 |

Option 2:

| A | B | C | D |
|---|---|---|----|
| 2 | 3 | 3 | 31 |

FIGURE 1 Screenshot of a typical question

Please choose one of the options below

Option 1:

| A | B | C | D |
|---|---|---|----|
| 2 | 2 | 2 | 15 |

Option 2:

| A | B | C | D |
|---|----|----|----|
| 8 | 11 | 11 | 14 |

Option 3:

| |
|-------------------------------------|
| FLIP A COIN BETWEEN OPTIONS 1 and 2 |
|-------------------------------------|

FIGURE 2 Screenshot of a typical question with the 'Flip a coin' option

Appendix D: Order of Screens in the Main Experiment

In Tables A6 and A7, we present the two different orders of questions that were used in the experiment. Each subject was randomly assigned to one of the orders.

In Part I of the experiment, there were two types of screens. The first type contained the choice between two lotteries (see Table 1 in the main text of the paper for the specification of the lotteries in each questions). The second type contained the choice between three alternatives: the two lotteries and the computerized coin. These are denoted below by the name of the question “+ coin” (e.g., FOSD1 + coin.)

TABLE A6 Orders of screens in Part I

| Screen | Order 1 | Order 2 | Screen | Order 1 | Order 2 |
|--------|--------------|--------------|--------|--------------|--------------|
| 1 | FOSD1 | FOSD3 | 21 | HARD1 | EASY3 + coin |
| 2 | EASY2 + coin | EASY1 | 22 | HARD3 + coin | FOSD3 |
| 3 | EASY3 | HARD3 | 23 | FOSD1 | HARD2 + coin |
| 4 | HARD4 | FOSD1 + coin | 24 | HARD2 | EASY2 |
| 5 | EASY1 + coin | FOSD2 | 25 | EASY3 | HARD3 |
| 6 | HARD1 | HARD4 | 26 | FOSD2 | EASY1 |
| 7 | FOSD3 | EASY3 | 27 | HARD4 | HARD4 + coin |
| 8 | HARD3 | HARD2 | 28 | FOSD3 + coin | HARD1 |
| 9 | FOSD2 + coin | EASY2 + coin | 29 | EASY2 | FOSD2 |
| 10 | HARD2 | HARD1 | 30 | EASY1 | FOSD1 |
| 11 | EASY2 | EASY1 | 31 | HARD3 | EASY1 + coin |
| 12 | EASY1 | FOSD2 + coin | 32 | EASY3 + coin | HARD2 |
| 13 | HARD3 | FOSD1 | 33 | HARD4 | EASY2 |
| 14 | FOSD1 + coin | HARD3 | 34 | FOSD2 | FOSD3 |
| 15 | HARD1 | EASY2 | 35 | EASY2 | HARD3 + coin |
| 16 | EASY3 | FOSD3 + coin | 36 | HARD1 + coin | EASY3 |
| 17 | FOSD2 | EASY3 | 37 | EASY1 | HARD4 |
| 18 | HARD4 + coin | HARD2 | 38 | FOSD3 | FOSD1 |
| 19 | FOSD3 | HARD4 | 39 | HARD2 + coin | FOSD2 |
| 20 | HARD2 | HARD1 | 40 | FOSD1 | HARD1 + coin |

TABLE A7 Order of screens in Part III

| Screen | Order 1 | Order 2 | Screen | Order 1 | Order 2 |
|--------|---------|---------|--------|---------|---------|
| 1 | HARD3 | HARD1 | 13 | EASY2 | FOSD1 |
| 2 | HARD3 | HARD1 | 14 | EASY2 | FOSD1 |
| 3 | HARD3 | HARD1 | 15 | EASY2 | FOSD1 |
| 4 | FOSD1 | EASY1 | 16 | HARD2 | HARD4 |
| 5 | FOSD1 | EASY1 | 17 | HARD2 | HARD4 |
| 6 | FOSD1 | EASY1 | 18 | HARD2 | HARD4 |
| 7 | HARD4 | HARD2 | 19 | EASY1 | HARD3 |
| 8 | HARD4 | HARD2 | 20 | EASY1 | HARD3 |
| 9 | HARD4 | HARD2 | 21 | EASY1 | HARD3 |
| 10 | HARD1 | EASY2 | | | |
| 11 | HARD1 | EASY2 | | | |
| 12 | HARD1 | EASY2 | | | |

We now turn to show that our results hold for each of the two orders separately. To this end, we analyze of our data for each of the two orders separately. Table A8 summarizes frequencies of inconsistent answers in Parts I and III; Tables A9 and A10 report the results of the regression analysis that documents the correlation between stochastic choice behavior in Parts I and III as well as the tendency to flip a coin, question-by-question; Table A11 documents the classification of subjects based on their tendency to report stochastic choice in Parts I and III.

TABLE A8 Frequency of Stochastic Choice in Parts I and III, by Order

| Question | Order 1 | | Order 2 | |
|---------------|---------|----------|---------|----------|
| | Part I | Part III | Part I | Part III |
| FOSD1 | 0% | 0% | 0% | 0% |
| FOSD2 | 3% | | 10% | |
| FOSD3 | 0% | | 3% | |
| EASY1 | 0% | 0% | 5% | 3% |
| EASY2 | 0% | 5% | 3% | 8% |
| EASY3 | 0% | | 0% | |
| HARD1 | 50% | 58% | 28% | 38% |
| HARD2 | 43% | 48% | 48% | 43% |
| HARD3 | 43% | 33% | 53% | 33% |
| HARD4 | 58% | 48% | 45% | 28% |
| FOSD | 3% | 0% | 10% | 0% |
| EASY | 0% | 5% | 5% | 8% |
| HARD | 95% | 78% | 85% | 63% |
| ALL | 95% | 80% | 85% | 63% |
| # of subjects | 40 | 40 | 40 | 40 |

Notes In row FOSD/EASY/HARD, we list the fraction of subjects who reported stochastic choice in at least one of the FOSD/EASY/HARD questions.

TABLE A9 Regression Analysis of Stochastic Choice in Part I, by Order

| | Stochastic Choice in Part I | |
|-------------------------------|-----------------------------|---------------|
| | Order 1 | Order 2 |
| Stochastic Choice in Part III | 0.40** (0.05) | 0.28** (0.06) |
| Constant | 0.17** (0.03) | 0.20** (0.03) |
| # of obs | 280 | 280 |
| # of sub. | 40 | 40 |
| overall R-square | 0.158 | 0.073 |

Notes: Random-effects GLS regressions with standard errors clustered at the subject level. Each observation corresponds to an individual behavior in one of the ten (seven) questions subjects faced repeatedly in Part I with Distant Repetitions (Part III with Repetitions in a Row). The dependent variable is an indicator of Stochastic Choice with Distant Repetitions (Part I). ** indicates significance at 5% level.

TABLE A10 Regression Analysis of Stochastic Choice in Parts I and III, by Order

| | Stochastic Choice in Part I | | Stochastic Choice in Part III | |
|------------------|-----------------------------|---------------|-------------------------------|---------------|
| | Order 1 | Order 2 | Order 1 | Order 2 |
| Flip Coin | 0.23** (0.10) | 0.24** (0.08) | 0.32** (0.10) | 0.25** (0.09) |
| Constant | 0.19** (0.02) | 0.18** (0.02) | 0.26** (0.03) | 0.19** (0.04) |
| # of obs | 400 | 400 | 280 | 280 |
| # of sub. | 40 | 40 | 40 | 40 |
| overall R-square | 0.0133 | 0.0206 | 0.024 | 0.0332 |

Notes: Random-effects GLS regressions with standard errors clustered at the subject level. Each observation corresponds to an individual behavior in one of the ten (seven) questions subjects faced repeatedly in Part I with Distant Repetitions (Part III with Repetitions in a Row). The dependent variables in the first regression is an indicator of Stochastic Choice with Distant Repetitions (Part I). The dependent variables in the first regression is an indicator of Stochastic Choice with Repetitions in a Row (Part III). The Flip Coin variable is a dummy variable that takes value one if subject chose the costly computerized coin in that question and zero otherwise. ** indicates significance at 5% level.

TABLE A11 Classification of Subjects according to Theoretical Models, by Order

| | Order 1 | | Order 2 | |
|---------------|---------|---------------|---------|---------------|
| | Frac. | # of subjects | Frac. | # of subjects |
| EU | 0% | 0 | 13% | 5 |
| REU* and DDM* | 20% | 8 | 25% | 10 |
| CSC | 73% | 29 | 50% | 20 |
| Other (1) | 3% | 1 | 10% | 4 |
| Other (2) | 5% | 2 | 3% | 1 |
| <i>Total</i> | 100% | 40 | 100% | 40 |

Appendix E: Description of the Pilot Experiment

Prior to the main experiment discussed in the text, we have conducted a pilot experiment at UCLA CASSEL laboratory in October 2012 to help us identify EASY and HARD questions.¹ In total, 36 subjects participated in this pilot experiment. No subject participated both in this pilot and in the main experiment.

Amongst other question, in the pilot experiment subjects were asked to answer 14 questions in which they had to choose one of two lotteries (Lottery 1 and Lottery 2). Each lottery had 4 equally likely outcomes; outcomes were presented in experimental points. At the end of the pilot experiment, the chosen lotteries were played out and the number of points earned in each decision round were added up. The total number of points earned was then converted into US dollars using the rate 10 points = \$1. In addition, subjects received \$7 for completing the experiment.

Table A12 below contains the lotteries used in this pilot experiment and the observed behavior. As Table A12 shows, the answers to each question differ in two dimensions: (a) the response times and (b) the distributions of choices in the population. We then used these results to design the questions for the main experiment discussed in the paper. We selected a subset of these questions, modifying the pay-offs to reflect the different conversion rates (from experimental points to US dollars) between the pilot and the main experiments, as well as the difference in the length of the experiments. For the category of EASY questions, our goal was to choose pairs of lotteries in which most subjects chose the same option and where response time was, on average, short. For HARD questions, our goal was to choose pairs of lotteries in which choice distribution was close to uniform and where the response time was, on average, high.

¹In addition, other pilot experiments were conducted at a later stage to test the interface and functionality of the software.

TABLE A12 Questions Used in the Pilot Experiment

| | Lottery 1 | | | | Lottery 2 | | | | Frequency of Choosing Lottery 1 | Mean Response Time (in seconds) |
|-------------|-----------|----|----|----|-----------|----|----|----|------------------------------------|------------------------------------|
| Question 1 | 2 | 2 | 22 | 22 | 8 | 8 | 12 | 12 | 75% | 24.5 |
| Question 2 | 2 | 6 | 10 | 30 | 1 | 4 | 8 | 36 | 72% | 15.2 |
| Question 3 | 5 | 5 | 5 | 16 | 2 | 2 | 2 | 26 | 53% | 15.9 |
| Question 4 | 8 | 11 | 11 | 14 | 6 | 10 | 10 | 22 | 36% | 12.5 |
| Question 5 | 2 | 2 | 22 | 22 | 8 | 11 | 11 | 14 | 42% | 12.1 |
| Question 6 | 6 | 10 | 10 | 22 | 5 | 5 | 5 | 16 | 100% | 7.9 |
| Question 7 | 8 | 8 | 12 | 12 | 6 | 10 | 10 | 22 | 6% | 11.7 |
| Question 8 | 2 | 2 | 2 | 26 | 8 | 8 | 12 | 12 | 25% | 10.7 |
| Question 9 | 2 | 6 | 10 | 30 | 8 | 8 | 12 | 12 | 44% | 12.5 |
| Question 10 | 2 | 4 | 6 | 36 | 2 | 2 | 2 | 26 | 78% | 11.4 |
| Question 11 | 2 | 2 | 22 | 22 | 2 | 2 | 20 | 20 | 100% | 6.0 |
| Question 12 | 2 | 2 | 2 | 22 | 5 | 5 | 5 | 16 | 0% | 5.7 |
| Question 13 | 7 | 10 | 11 | 13 | 8 | 11 | 11 | 14 | 0% | 4.4 |
| Question 14 | 2 | 6 | 10 | 30 | 2 | 4 | 10 | 28 | 94% | 7.8 |

Appendix F: Instructions for Coding the Responses to the Questionnaires in the Main Experiment

Coders were provided with this set of instructions as well as the questionnaire. They were also given the Excel sheet in which columns were labeled as described below, and each row corresponded to one subject. Subjects' questionnaires were identified by the ID number randomly assigned from 1 to 80. The coders' task was to record the columns to which subjects' verbal responses belong to.

Answers to Questions 2 "In Part III of the experiment each question was asked to you three times. If you choose different options, could you please tell us why did you do it? (Please elaborate)"

Please use answer to question 2 to classify each subject into one of the following six categories:

- Group 0: Subjects who left the answer to this question BLANK
- Group 1: Subjects who reported they chose the same option in all repetitions of the same question, for instance answered N/A (not applicable)

- Group 2: Subjects who reported that they chose different options, because while answering these questions they changed their mind about which option is better one
- Group 3: Subjects who reported that they chose different options by mistake, while they intended in fact to choose the same option in all repetitions
- Group 4: Subjects who reported that they chose different options because they were indifferent between options. In other words, presented options were too similar (same).
- Group 5: Subjects who deliberately chose different options

Notice that each subject can be classified into one and only one of the above categories. To record your classification, in the excel file, you are asked to record number 1 in one of the columns:

Column B corresponds to Group 0
 Column C corresponds to Group 1
 Column D corresponds to Group 2
 Column E corresponds to Group 3
 Column F corresponds to Group 4
 Column G corresponds to Group 5

Each row corresponds to one subject that can be identified by the ID number specified at the bottom of each questionnaire. Please leave blank the remaining columns. For instance, say you want to record that subject with ID 15 belongs to Group 4. Then, you need to go to the row with ID=15, and put 1 in column F. You should leave blank cells in columns B, C, D, E and G in row with ID=15.

If you believe that the assignment to one of the 5 groups was not obvious, please mark it in column N, with an explanation.

For subjects who are classified as Group 5, we ask you to specify the reason (or reasons) why he/she deliberately chose different options. Here is the list of possible reasons and columns in which they should be recorded:

- Column H (Group 5a) explanation that has to do with hedging or diversification, any mentioning of differences in riskiness and safeness of different options
- Column I (Group 5b) explanation that mentions optimizing earnings (maximizing payoff)
- Column J (Group 5c) explanation that mentions delegation of decision to a random device, possibly to avoid regretting one's own choice

- Column K (Group 5d) explanation that mentions that the choice between options was hard
- Column L (Group 5e) other explanations (please specify which one in column M(labeled Group 5e explanation))

Just like before, please record 1 in the columns that accurately summarize the reason subjects deliberately chose different options in the repetition of the same question. Contrary to the columns B - G, which are exclusive, a subject can have several reasons for choosing different options. Therefore, a subject can have 1 in column H and in column K, for instance. PLEASE RECORD ALL THE EXPLANATIONS THAT ARE GIVEN BY SUBJECTS (and not just one).

Appendix G: Quotes from Questionnaires

The table below presents the answers to Question 2 in the final questionnaire in the main experiment for each category described in Table 5 of the main text. For categories 2 and 3, we present two randomly chosen responses, for category 5, we present the only one response that coders agreed upon and, finally, for category 6, we present 10 randomly picked responses.

- **Category 2** - Did not switch in Part III
 - "I didn't choose different ones"
 - "No. Just pick same things"
- **Category 3** - Switched b/c changed mind about which option is better one
 - "Looked at the options more closely and compared the differences"
 - "I usually chose a different option after my first answer because I thought about what the outcome would be more clearly."
- **Category 5** - Switched b/c was indifferent between two options
 - "yes. some choices seemed very similar in that the reward outcomes could be the same."
- **Category 6** - Deliberately chose to switch
 - "I wanted to increase my chances of getting more tokens with varied options"
 - "some options were not clearly better, would give each a try"
 - "It made me feel like I was able to have two secure choices and then one risky one."

- "because since there were 3 chances I choose the risky option once & safe option twice so I wouldn't get screwed over by the risky one only."
- "Took a chance on maybe i'll get the highest value. Didn't feel a big sense of loss since there was 3 choices."
- "sometimes. sometimes when making a risky decision, its comforting knowing that you have a more certain outcome, even if its of lesser value."
- "I felt like I wanted to be a little "riskier" because my other two options were more conservative. I wanted to at least have the option of a 'big pay out'."
- "both were appealing in its own way."
- "sometimes i chose the less risky option twice but the more risky and potentially more rewarding option once"
- "there was a slight chance to get a higher amount and if everything had equal chances of being selected, it didn't hurt to risk it a little"

Appendix H: Additional Analysis of the Questionnaire

As we note in the main body of the paper, there were four questionnaires that were coded differently by the two coders. In the Table A13, we show that qualitatively our results do not change if we follow each of the coder classifications separately.

TABLE A13 Categorization of the Answers to the Question: "In Part III of the experiment each question was asked to you three times. If you chose different options, could you please tell us why did you do it? (Please Elaborate)"

| Explanation | Coder 1 | | Coder 2 | |
|---|--------------|------------------------------|--------------|------------------------------|
| | All Subjects | Subjects with SC in Part III | All Subjects | Subjects with SC in Part III |
| 1 No answer | 9 (11%) | 2 (4%) | 9 (11%) | 2 (4%) |
| 2 No SC in Part III | 17 (22%) | 2 (4%) | 17 (22%) | 2 (4%) |
| 3 SC b/c they changed their mind about which option is better one | 6 (8%) | 6 (11%) | 6 (8%) | 6 (11%) |
| 4 SC unintentionally, by mistake | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 5 SC b/c they were indifferent between two options | 4 (5%) | 4 (7%) | 2 (3%) | 2 (4%) |
| 6 SC b/c they deliberately chose to do so | 43 (54%) | 42 (75%) | 45 (57%) | 44 (79%) |
| <i>Total</i> | 79 (100%) | 56 (100%) | 79 (100%) | 56 (100%) |