Online Appendix

for

Education, Decision-Making, and Economic Rationality

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Appendix A
This Appendix shows screenshots of the survey, which can be taken at: https://survey.usc.edu/playground/yougov_full/survey/start/

1. Introduction

Welcome to this survey!

This study is about how people make decisions. You will play a fun game and answer a short survey. It will take you approximately 30 minutes. Your YouGov account will be credited with 300 points for completing the survey.

In addition to the compensation you typically receive for completing a survey, you will have a 1-in-10 chance to earn up to £90!

When you click the forward button, you will be taken to a website outside of YouGov. Rest assured, no confidential information will be collected or shared if you participate in this survey.

Thank you for your participation! We greatly value your input and hope that you will find this survey interesting.
2. Date of Birth

What is your date of birth? (By providing this information, you are consenting to share it with the researcher).

Day

Month

Year
3. Country of Residence at Age 14

In which country did you go to school when you were 14?

- England
- Scotland
- Wales
- Northern Ireland
- Republic of Ireland
- Elsewhere outside of UK
4. School Leaving Age

At what age did you finish continuous full-time education at school or college?

- [ ] 10 and under
- [ ] 11
- [ ] 12
- [ ] 13
- [ ] 14
- [ ] 15
- [ ] 16
- [ ] 17
- [ ] 18
- [ ] 19 and over
This study, which is funded by the U.S. National Science Foundation, is being conducted by YouGov on behalf of Dr. Leandro Carvalho at the University of Southern California. More details shown below.

### Purpose of the Study
To study education and decision-making.

### What you will do in this study
If you agree to participate, you will play an investment game and answer a short online survey. It will take you approximately 30 minutes.

### Risks and Benefits
There are no risks associated with this study. There are no benefits beyond the compensation described below.

### Compensation
10% of respondents will be randomly selected to be paid based on their choices in the investment game. If you are selected, you will be paid via an Amazon Gift Card; the exact amount of the Gift Card will depend partly on your choices and partly on chance. The survey instructions give further details. You can win up to £90. In addition, you will get 300 points for sure.

### Confidentiality
You will not be individually identified and your responses will be used for analyses only.
6. Introduction to Experimental Task

The study starts with the investment game. Two short videos will explain how to play the game. It is important that you can hear the audio of these videos loud and clear so before moving on to the next screen make sure that your audio is working. Please switch on the speakers and turn up the volume.
7. Audio & Video Test

First we will ask you to play the video below and to tell us what you see and what you hear. Click on the video when you are ready to start.

![Test Video]

What did you see?
- I did not see anything
- Dogs Running
- A Football Game
- People Ice Skating
- A boxing match

What did you hear?
- I did not hear anything
- Baby Crying
- Music
- Car Horn
- Birds chirping

The video below explains how to play the investment game. A considerable amount of money is at stake so pay careful attention to the instructions. Click on the video when you are ready to start.
9. Practice trial #1
10. Practice trial #2

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How much do you want to invest on each asset?

£15.00  £10.00

YouGov

You have a 1-in-10 chance to be selected to be paid according to your choices in the investment game. The video below explains how your earnings will be determined *if you are selected*. Click on the video when you are ready to start.
12. Anchoring

Half of the respondents were assigned to the anchoring “20 and 50” while the other half was assigned to “13 and 12.”
Before you start making your choices, we would like to ask you to memorize the two numbers shown below. We will ask you later to recall these numbers.

13   12

<< Back   Next >>
11-20. Ten risk choices with 2 assets
21. Third tutorial: [http://youtu.be/OomiMbVHLhA](http://youtu.be/OomiMbVHLhA)

In the next 15 choices you will still have £25 to invest but now you will have 5 investment options: asset A, asset B, asset C, asset D, and asset E. The video below explains how to use the interface to make your investment choices when there are 5 investment options.

Click on the video when you are ready to start.
22-36. Fifteen risk choices with 5 assets
44. Introduction to questions assessing understanding of experimental task

Now we would like to ask you about your understanding of the investment game. In the next 5 screens we will show you a screenshot with an example of an investment decision and ask you questions about the example shown.

You will get 100 additional points if you answer all 5 questions correctly.

Notice that you won't have to make new investment decisions. You also won't be able to move the bars up and down.
45. Question #1 assessing understanding of experimental task

What is the return of each £1 put into asset B if the coin comes up heads?

£ ____ 00
46. Question #2 assessing understanding of experimental task

In this investment game how much money do you have to invest?

£  .00

Return per £1 invested

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£1.00 £2.00 £10.00 £10.00

£25 £20 £15 £10 £5 £0

47. Question #3 assessing understanding of experimental task
48. Question #4 assessing understanding of experimental task

If £10 are put into asset C, how much is paid if the coin comes up tails?

£ 0.00
49. Question #5 assessing understanding of experimental task

How much does the entire portfolio – that is, the amount put into all 5 assets – pay if the coin comes up tails?

£ 0.00

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£1.00 £2.00 £2.00 £10.00 £10.00

£25 £20 £15 £10 £5 £0

This is a screenshot
If the participant answered incorrectly at least one of the five questions, s/he was routed to screen 43A. If the participated answered all 5 questions correctly, s/he was routed to screen 43B.

43A.

![Screen 43A](image.png)
43B.

YouGov

Good job! You correctly answered the 5 questions. You will get 100 additional points in the next 2 weeks.

Next >>
44. Memorization of anchors

YouGov

Now please tell me the two numbers we asked you earlier on to memorize.

First number

Second number

<< Back  Next >>
45. Number of bedrooms at age 10

YouGov

We would like to find out more about where you lived when you were 10 years old.

How many bedrooms did your household occupy in the residence you lived in when you were 10 years old? (Please include only bedrooms. Do not count bathrooms, kitchens, living rooms, dining rooms or any rooms your household sublet)

[Input field]

<< Back  Next >>
46. Number of household members at age 10

Including yourself, how many people lived in your household at this residence when you were 10?
47. Number of books at home at age 10

YouGov

About how many books were there in the place you lived in when you were 10? Do not count magazines, newspapers, or your school books.

- None or very few (0-10 books)
- Enough to fill one shelf (11-25 books)
- Enough to fill one bookcase (26-100 books)
- Enough to fill two bookcases (101-200 books)
- Enough to fill three or more bookcases (more than 200 books)

<< Back  Next >>
48. Upbringing

Who did you live with for most of your childhood?

- Both natural parents
- Natural mother and step-father
- Natural father and step-mother
- Natural mother
- Natural father
- Step-parents
- Foster parents
- Adoptive parents
- Children’s home
- Other, please specify:
49. Caregiver’s occupation at age 14 (asked about different people depending on answer to previous question)
50. Parents’ long term unemployed before age 14

When you were aged under 14, were either of your parents unemployed for more than 6 months when they wanted to be working?

- Yes
- No
The numeracy questions are from the English Longitudinal Survey of Ageing (ELSA):

51. Numeracy #1

Next I would like to ask you some questions which assess how people use numbers in everyday life.

In a sale, a shop is selling all items at half price. Before the sale, a sofa costs £300. How much will it cost in the sale?

£ ___ .00

☐ I don’t know the answer
52. Numeracy #2

If the chance of getting a disease is 10 percent, how many people out of 1,000 (one thousand) would be expected to get the disease?

[Input field for number of people]

☐ I don't know the answer

[Buttons: << Back, Next >>]
53. Numeracy #3

YouGov

A second hand car dealer is selling a car for £6,000. This is two-thirds of what it cost new. How much did the car cost new?

£ 00

☐ I don’t know the answer

<< Back  Next >>
If participant answered incorrectly on all three previous questions, then s/he was asked question Numeracy #4. Otherwise s/he was asked question Numeracy #5.

54. Numeracy #4

If you buy a drink for 85 pence and pay with a one pound coin, how much change should you get back?

☐ I don't know the answer

<< Back  Next >>
55. Numeracy #5

If 5 people all have the winning numbers in the lottery and the prize is £2 million, how much will each of them get?

Manchester U.K. 1.3.2010

[Radio button] I don’t know the answer

[Buttons] << Back Next >>
If the participant correctly answered question Numeracy #2, Numeracy #3, OR Numeracy #5, then s/he was asked question Numeracy #6.

56. Numeracy #6

Let's say you have £200 in a savings account. The account earns ten per cent interest each year. How much would you have in the account at the end of two years?

£ __________ .00

☐ I don't know the answer
Appendix B
I. Study Design

Appendix Figure 1: Interface
Notes: The shows a screenshot of the interface participants used to make their investment choices.
For each opportunity set, two sets of the order in which assets were displayed on the screen from left to right (one) were randomly drawn. For example, in the first row of Appendix Table 1 the asset shown in column A paid £0 if heads and £0.80 if tails, while the asset in column B paid £2.40 if heads and £0 if tails. Half of the sample saw this presentation. For the other half, the asset shown in column A paid £2.40 if heads and £0 if tails and the asset shown in column B paid £0 if heads and £0.80 if tails (see Table 1 in the paper).

Participants were randomly assigned to one of these two sets. One of these sets is shown in Table 1 in the body of the paper. The other set is shown below in Appendix Table 1.

### Appendix Table 1: Opportunity Sets

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Notes: The table shows the return per pound invested (depending on the outcome of the coin toss) for the different assets.

Fifteen opportunity sets were presented in a more complex frame where participants could divide the investment amount across five assets (henceforth, the “complex frame”). In five of these, the opportunity sets were identical to some presented in the simple frame but with
the addition of three superfluous assets produced from convex combinations of assets $h$ and $t$.

The complex frame versions of these five sets included – besides assets $h$ and $t$ – three assets that were convex combinations of assets $h$ and $t$. One asset was composed of 25% of $h$ and 75% of $t$, such that it paid $0.25x$ per £1 invested if the coin came up heads and $0.75y$ per £1 invested if it came up tails. A second asset was a 50-50 combination of $h$ and $t$ while a third one was a 75-25 combination of $h$ and $t$. 
Section II. Decision-Making Variables

This section describes how the decision-making measures were constructed.

When presented with opportunity set $j$, individual $i$ had £25 to invest on 2 or 5 options of assets. Let $a_{i,j,k}$ be the amount invested on asset $k$, such that:

$$\sum_k a_{i,j,k} = £25$$

Let $h_{j,k}$ be the return per pound invested on asset $k$ if the coin comes up heads and let $t_{j,k}$ be the return per pound invested on asset $k$ if the coin comes up tails.

The portfolio return for individual $i$ in opportunity set $j$ is:

$$H_{i,j} = \sum_k a_{i,j,k} \cdot h_{j,k}$$

if the coin comes up heads and

$$T_{i,j} = \sum_k a_{i,j,k} \cdot t_{j,k}$$

if the coin comes up tails.

Define the portfolio of individual $i$ in opportunity set $j$ as:

$$x_{i,j} = (H_{i,j}, T_{i,j})$$

**Expected return**: The expected return of individual $i$’s portfolio in opportunity set $j$ is:

$$ER_{i,j} = \frac{H_{i,j} + T_{i,j}}{2}.$$  

The average expected return for individual $i$ is:

$$ER_i = \frac{1}{23} \sum_{j=1}^{23} ER_{i,j}$$

where we exclude two opportunity sets in which all portfolios yielded the same expected return.
**Portfolio risk:** The portfolio risk is defined as the standard deviation of individual $i$’s portfolio in opportunity set $j$, and is calculated as follows:

$$SD_{i,j} = \sqrt{\frac{(H_{i,j})^2 + (T_{i,j})^2}{2} - \left(\frac{H_{i,j} + T_{i,j}}{2}\right)^2}$$

The average portfolio risk for individual $i$ is:

$$SD_i = \frac{1}{25} \sum_{j=1}^{25} SD_{i,j}$$

**GARP:** The General Axiom of Revealed Preference (GARP) requires that if a portfolio $\mathbf{x}$ is revealed preferred to $\mathbf{x}'$, then $\mathbf{x}'$ is not strictly preferred to $\mathbf{x}$. Appendix Figure 2 illustrates a violation of GARP where $\mathbf{x}$ is revealed preferred to $\mathbf{x}'$ at the prices at which $\mathbf{x}$ is chosen (call it $\mathbf{p}$) and $\mathbf{x}'$ is revealed preferred to $\mathbf{x}$ at the prices at which $\mathbf{x}'$ is picked (call it $\mathbf{p}'$).

Appendix Figure 2—Violation of General Axiom of Revealed Preference (GARP)

We assess how closely individual choice behavior complies with GARP by using the Money Pump Index (Echenique et al. 2011). This measure of the severity of a GARP violation is motivated by the idea that a violation of GARP exposes a consumer to being manipulated as a “money pump.” An arbitrager could profit by reselling to this consumer

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1 The relative price of £1 paid if the coin comes up heads is determined by the relative return $h/t$. 

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\( \mathbf{x} \) at prices \( \mathbf{p} \) and \( \mathbf{x}' \) at prices \( \mathbf{p}' \). The “money pump cost” is the total profit the arbitrager could make:

\[
p \cdot (x - x') + p' \cdot (x' - x)
\]

The MPI is measured for each violation of GARP. Following Echenique et al. (2011), we compute the mean MPI across the different violations of GARP for a given individual. See Echenique et al. (2011) for more details.

**FOSD:**

Suppose that a participant picks the portfolio \( \mathbf{x} = (H, T) \) shown in Appendix Figure 3. Portfolio \( \mathbf{x} \) pays \( H \) with 50% chance and \( T \) with 50% chance. Appendix Figure 3 also shows an alternative portfolio \( \mathbf{x}' = (H', H) \) that pays \( H \) with 50% chance and \( H' \) with 50% chance and. Portfolio \( \mathbf{x}' \) first order stochastically dominates portfolio \( \mathbf{x} \) because with 50% chance it pays \( H' \), which is greater than \( T \).

Appendix Figure 3—Violation of Monotonicity with Respect to First Order Stochastic Dominance

We use the difference between the maximal expected return \((H + H')/2 \) in our example) and the expected return of the selected allocation \((H + T)/2 \) in our example) to assess
how closely individual choice behavior complies with the dominance principle (Hadar and Russell 1969).

Given a selected portfolio \( x = (H, T) \), we calculated the maximal expected return as follows (for ease of exposition we drop the subscripts \( i \) and \( j \)). Let \( h^* \) be the highest return across all assets (which is paid by the asset that pays \( h_k \) if the coin comes up heads and 0 otherwise):

\[
h^* = \max_k h_k
\]

Define \( t^* \) in a similar way:

\[
t^* = \max_k t_k
\]

The portfolio that maximizes expected return and still guarantees a minimum payoff of \( \min \{H, T\} \) entails investing \( \min \{H, T\} / \min \{h^*, t^*\} \) on the asset that pays \( \min \{h^*, t^*\} \) in the lowest-paying state of the world (and 0 otherwise). The rest of the endowment, \( 25 - (\min \{H, T\} / \min \{h^*, t^*\}) \), is invested on the asset that pays \( \max \{h^*, t^*\} \) in the highest-paying state of the world (and 0 otherwise).

The expected return of this portfolio, the maximal expected return (MER), is:

\[
MER = \left[ \left( 25 - \frac{\min \{H, T\}}{\min \{h^*, t^*\}} \right) \max \{h^*, t^*\} \right] + \frac{\min \{H, T\}}{2}
\]

The measure of FOSD violations is:

\[
MER - \frac{H + T}{2}
\]

The measure is equal to $0 if there is no violation of monotonicity. We average the measure (for a given participant) over 23 opportunity sets, excluding two opportunity sets in which all portfolios yielded the same expected return.

**GARP and FOSD:** Following Choi et al. (2014), we calculate a unified measure of violations of GARP and violations of FOSD by combining the 25 choices for a given subject with the mirror image of these data obtained by reversing the returns for heads and tails and the actual portfolio returns.

In practice we create for each participant 25 artificial opportunity sets \( j' = j + 25 \), where:

\[
\begin{align*}
h_{i,j',k} &= t_{i,j,k} \\
t_{i,j',k} &= h_{i,j,k} \\
H_{i,j'} &= T_{i,j} \\
T_{i,j'} &= H_{i,j}
\end{align*}
\]
We then compute the Money Pump Index for this combined dataset with 50 choices.

**Financial competence:** There were 4 opportunity sets that were presented in both the simple frame and in the complex frame. Let \( a_{i,j}^* \) be the amount invested by individual \( i \) on the highest-paying state when presented with opportunity set \( j \). Let \( j_s \) denote the circumstance in which opportunity set \( j \) is presented in the simple frame and let \( j_c \) the circumstance in which opportunity set \( j \) is presented in the complex frame.

The financial competence of individual \( i \) in opportunity set \( j \) is the absolute difference in the amount invested in the highest-paying state across the two frames:

\[
FC_{i,j} = |a_{i,j_s}^* - a_{i,j_c}^*|
\]

which is then averaged over the four opportunity sets:

\[
FC_i = \frac{1}{4} \sum_{j=1}^{4} FC_{i,j}
\]

**Failure to minimize risk:** In two opportunity sets the return per £1 invested was the same for all assets, which implies that all portfolios yielded the same expected return. The failure to minimize risk of individual \( i \) in opportunity set \( j \) is the portfolio risk in opportunity set \( j \):

\[
FMR_{i,j} = SD_{i,j}
\]

which is then averaged over these two opportunity sets:

\[
FMR_i = \frac{1}{2} \sum_{j=1}^{2} SD_{i,j}
\]

**Decision-making quality:** It is the simple average of four measures: violations of GARP, violations of FOSD, financial competence, and failure to minimize risk:

\[
DMQ_i = \frac{GARP_i + FOSD_i + FC_i + FMR_i}{4}
\]

**Small-scale risk aversion:** The small-scale risk aversion for individual \( i \) in opportunity set \( j \) is the payoff in the lowest-paying state of the world:
\[ RA_{i,j} = \begin{cases} 
H_{i,j} & \text{if } \max_k h_{j,k} < \max_k t_{j,k} \\
T_{i,j} & \text{if } \max_k h_{j,k} > \max_k t_{j,k} 
\end{cases} \]

When computing the average measure of small-scale risk aversion we excluded four opportunity sets for which \( \max_k h_{j,k} = \max_k t_{j,k} \):

\[ RA_i = \frac{1}{21} \sum_{j=1}^{21} RA_{i,j} \]

1/n heuristic
The use of a 1/n heuristic is characterized as dividing the £25 evenly among the 2 or 5 investment options available:

\[ H_{1N_{i,j}} = \begin{cases} 
1 & \text{if 2 options of assets and } a_{i,j,k} = £12.50 \forall k \\
1 & \text{if 5 options of assets and } a_{i,j,k} = £5 \forall k \\
0 & \text{if otherwise} 
\end{cases} \]

The individual-level measure of use of 1/n heuristic is the fraction of times that individual \( i \) divided the £25 evenly among the investment options available:

\[ H_{1N_i} = \frac{1}{25} \sum_{j=1}^{25} H_{1N_{i,j}} \]

**Default stickiness:** Let \( d_{i,j,k} \) be the default investment on asset \( k \) for individual \( i \) in opportunity set \( j \). Default stickiness in opportunity set \( j \) is defined as:

\[ DS_{i,j} = \mathbb{I}\{a_{i,j,k} = d_{i,j,k} \forall k\} \]

The individual-level measure of default stickiness is the fraction of times that individual \( i \) remained at the default portfolio allocation:

\[ DS_i = \frac{1}{25} \sum_{j=1}^{25} DS_{i,j} \]
### Appendix Table 2—Correlation between Decision-Making Quality Measures

<table>
<thead>
<tr>
<th></th>
<th>GARP</th>
<th>FOSD</th>
<th>GARP + FOSD</th>
<th>Financial Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOSD</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GARP + FOSD</td>
<td>0.93</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial competence</td>
<td>0.39</td>
<td>0.33</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>Failure to minimize risk</td>
<td>0.44</td>
<td>0.37</td>
<td>0.49</td>
<td>0.26</td>
</tr>
</tbody>
</table>

*Notes: This table shows the correlation between the different measures of decision-making quality. N = 2,698.*
Appendix Figure 4: Fraction Stayed in School until Age 16 by Quarter of Birth

Notes: This figure reproduces Figure 1 in the paper when instead of using school leaving age collected in our survey we use school leaving age previously collected by YouGov. The points show the fraction of study participants in each quarter-year of birth cell that stayed in school until age 16. The vertical dashed line is the cutoff indicating the first cohort subject to the change in the compulsory schooling law. The balls’ circumferences correspond to the number of study participants born in the quarter-year of birth cell. N = 2,698.
### Appendix Table 3—Understanding of Experimental Task and Numeracy

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Reduced Form</th>
<th>2SLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean born before Sep 1, 1957</td>
<td>Born after Sep 1, 1957</td>
</tr>
<tr>
<td>Understanding #1</td>
<td>0.77</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Understanding #2</td>
<td>0.93</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Understanding #3</td>
<td>0.95</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Understanding #4</td>
<td>0.64</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Understanding #5</td>
<td>0.50</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Average Understanding</td>
<td>0.77</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Numeracy #1</td>
<td>0.97</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Numeracy #2</td>
<td>0.95</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Numeracy #3</td>
<td>0.80</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Average Numeracy</td>
<td>0.91</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.02)</td>
</tr>
</tbody>
</table>

**Notes:** This table shows estimates of the effects on understanding of the experimental task and on numeracy. The first column shows the mean of the dependent variable among those born before September 1, 1957. For the next two columns, each cell corresponds to a separate regression. Column (2) shows reduced-form estimates, where the independent variable is a dummy for being born after September 1, 1957. Column (3) shows 2SLS estimates, where we use the dummy for being born after September 1, 1957 to instrument for staying in school until age 16. The last column shows the number of observations. “Average Understanding” is the average of Understanding #1, Understanding #2, Understanding #3, Understanding #4, and Understanding #5. “Average Numeracy” is the average of Numeracy #1, Numeracy #2, and Numeracy #3. Robust standard errors in parentheses.
Appendix Figure 5: Cumulative Distributions of Gross Household Income

Notes: The figure shows cumulative distributions of annual Gross Household Income. The red dashed line shows the cumulative distribution for those born before September 1, 1957. The black solid line shows the cumulative distribution for those born after September 1, 1957. $N = 2,090$. The p-value of a Wilcoxon rank-sum test is 0.0028.
### Table 4—Controlling for Response Time

#### 2SLS Estimate of the Effect of Staying in School until Age 16 on Decision-Making

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Portfolio Performance</th>
<th>Decision-making Quality</th>
<th>Behavioral anomalies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in $ Controls</td>
<td>in SD Controls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>Time</td>
<td>Ln(Time)</td>
</tr>
<tr>
<td>Expected return</td>
<td>-$0.10</td>
<td>-$0.12</td>
<td>-$0.14</td>
</tr>
<tr>
<td></td>
<td>(0.29)</td>
<td>(0.29)</td>
<td>(0.29)</td>
</tr>
<tr>
<td>Portfolio risk</td>
<td>$0.00</td>
<td>$0.04</td>
<td>$0.03</td>
</tr>
<tr>
<td></td>
<td>(0.62)</td>
<td>(0.62)</td>
<td>(0.63)</td>
</tr>
<tr>
<td>GARP</td>
<td>-$0.05</td>
<td>-$0.13</td>
<td>-$0.18</td>
</tr>
<tr>
<td></td>
<td>(0.43)</td>
<td>(0.43)</td>
<td>(0.42)</td>
</tr>
<tr>
<td>FOSD</td>
<td>-$0.36</td>
<td>-$0.41</td>
<td>-$0.43</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.232)*</td>
<td>(0.227)*</td>
</tr>
<tr>
<td>GARP and FOSD</td>
<td>$0.10</td>
<td>-$0.02</td>
<td>-$0.09</td>
</tr>
<tr>
<td></td>
<td>(0.54)</td>
<td>(0.53)</td>
<td>(0.51)</td>
</tr>
<tr>
<td>Financial competence</td>
<td>-$0.60</td>
<td>-$0.63</td>
<td>-$0.66</td>
</tr>
<tr>
<td></td>
<td>(0.41)</td>
<td>(0.41)</td>
<td>(0.41)</td>
</tr>
<tr>
<td>Failure to minimize risk</td>
<td>$0.24</td>
<td>$0.11</td>
<td>$0.04</td>
</tr>
<tr>
<td></td>
<td>(0.56)</td>
<td>(0.54)</td>
<td>(0.52)</td>
</tr>
<tr>
<td>Decision-making quality</td>
<td>-$0.19</td>
<td>-$0.26</td>
<td>-$0.31</td>
</tr>
<tr>
<td>index</td>
<td>(0.31)</td>
<td>(0.30)</td>
<td>(0.29)</td>
</tr>
<tr>
<td>Small-scale risk aversion</td>
<td>$0.07</td>
<td>$0.08</td>
<td>$0.12</td>
</tr>
<tr>
<td></td>
<td>(0.45)</td>
<td>(0.45)</td>
<td>(0.45)</td>
</tr>
<tr>
<td>1/n heuristic</td>
<td>-0.015</td>
<td>-0.014</td>
<td>-0.014</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.015)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Default stickiness</td>
<td>-0.020</td>
<td>-0.014</td>
<td>-0.011</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
<td>(0.017)</td>
<td>(0.015)</td>
</tr>
</tbody>
</table>

**Notes:** This table investigates the sensitivity of the estimates of the effects of education on decision-making to including response time as controls. Each cell corresponds to a separate 2SLS regression, where we use the dummy for being born after September 1, 1957 to instrument for staying in school until age 16. In columns (1)-(3) the dependent variable is in US dollars. In columns (4)-(6) the dependent variable is in standard deviation units. In columns (2) and (5), the regressions include the response time as a control. In columns (3) and (6), the regressions include the log of response time as a control. The estimates in columns (1) and (4), which do not have any controls, correspond to the estimates in columns (4) and (5) of Table 4 in the paper. N = 2,698; Robust standard errors in parentheses. For the dependent variables “1/n heuristic” and “Default stickiness”, the variable is in percentage points.
Appendix Table 5—Comparison to English Longitudinal Study of Ageing

<table>
<thead>
<tr>
<th></th>
<th>ELSA</th>
<th>YouGov</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>SLA &lt;= 16</td>
</tr>
<tr>
<td>Male</td>
<td>45.3%</td>
<td>46.0%</td>
</tr>
<tr>
<td>British white</td>
<td>93.7%</td>
<td>95.7%</td>
</tr>
<tr>
<td># of Bedrooms in residence respondent lived at age 10</td>
<td>3.06</td>
<td>2.92</td>
</tr>
<tr>
<td># of People lived with respondent at age 10</td>
<td>5.17</td>
<td>5.30</td>
</tr>
<tr>
<td>Parents unemployed for +6 months when respondent was &lt; 14</td>
<td>1.9%</td>
<td>2.4%</td>
</tr>
<tr>
<td><strong># of books in place respondent lived at age 10</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None or very few (0-10 books)</td>
<td>23.1%</td>
<td>29.6%</td>
</tr>
<tr>
<td>Enough to fill one shelf (11-25 books)</td>
<td>21.2%</td>
<td>25.9%</td>
</tr>
<tr>
<td>Enough to fill one bookcase (26-100 books)</td>
<td>35.2%</td>
<td>34.0%</td>
</tr>
<tr>
<td>Enough to fill two or more bookcases (101 books or more)</td>
<td>20.5%</td>
<td>10.5%</td>
</tr>
<tr>
<td><strong>Respondent lived for most of his/her childhood with</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both parents</td>
<td>88.9%</td>
<td>86.6%</td>
</tr>
<tr>
<td>Mother only</td>
<td>5.1%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Father only</td>
<td>0.7%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Other</td>
<td>5.3%</td>
<td>6.7%</td>
</tr>
<tr>
<td><strong>Caregiver’s main occupation when respondent was 14</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager, run own business, professional or technical</td>
<td>28.5%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Admin., clerical, secretarial, caring, personal services, sales or customer service</td>
<td>12.2%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Skilled trade</td>
<td>27.3%</td>
<td>32.3%</td>
</tr>
<tr>
<td>Machine operator, casual jobs, other jobs</td>
<td>21.2%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Other</td>
<td>10.7%</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

Notes: This table compares averages of pre-determined characteristics of the English Longitudinal Study of Ageing (ELSA), a nationally representative survey, and of the subsample of YouGov panel members who participated in the survey. In both samples, we restrict to participants who were born between September 1, 1954 and August 31, 1957. The second and fourth columns restrict to study participants who dropped out at age 16 or younger. The third and fifth columns restrict to study participants who dropped out at age 15 or younger, which can be thought of as the compliers.