

Online Appendix:  
“Sources of Bias in Retrospective Decision Making:  
Experimental Evidence on Voters’ Limitations in  
Controlling Incumbents.”  
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## Appendix A.

### Replication of experiment 2 (the Lottery Experiment)

To confirm our original findings and address potential concerns, we replicated experiment 2 (the lottery experiment). Our replication closely followed the original, but with three innovations. First, we assessed participants’ understanding of the rules of the game after our instructions but before the game began. Second, we specifically asked participants if the lottery payment was related to their allocator’s type. Third, we varied the stakes of the game, with one in four participants assigned at random to be paid twice as much per token (and informed of this increase). In our replication, we only included two conditions, winning 5000 tokens and losing 5000 tokens (we excluded the third condition of the original experiment, where participants won zero tokens).<sup>1</sup>

In Table A7, we show that the original results replicate. Winning the lottery (rather than losing) corresponded with an 11 to 12 percentage-point increase in the probability of retaining one’s allocator. The table also shows that the lottery effect persisted among those who understood that the lottery outcomes were unrelated to their allocator’s type (“understood game”), though the effect is somewhat smaller (but not statistically distinguishable from the original effect). As we discuss in the main text, participants generally understood the instructions, with between 75% and 80% answering the questions about the instructions correctly.

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<sup>1</sup> In a fourth innovation, we filtered payments in the final four rounds so that they were always at least 200 tokens above or 200 tokens below the average in rounds 1 to 16. This design increases our statistical power to detect end bias, but we do not use this innovation here.

In Table A8, we examine the effect of doubling the stakes (the amount paid per token). We find that increasing the stakes modestly increases the lottery effect, even among people who understood the lottery and understood other questions about the game, although the differences in behavior of those assigned to the higher stakes are not statistically significant.

Finally, Figure A1 shows that the lottery effects persist across average payments in rounds 1 to 16 (top) and does so among the subset who understood the lottery (bottom).

### **Description of NAES analysis**

We created a scale based on responses to the question about campaign interest with “Very interested” coded 1, “Somewhat interested” coded 0.5, and “Not much interested” coded 0. The averages in these two periods are 0.40 and 0.59, respectively. In addition to this simple cross tabulation, OLS regression results also show a strong positive relationship between the proximity of the election and campaign interest. If we instead use the NAES panel data, we find that the same respondents interviewed twice during the election cycle also report increases in interest as the election approaches.

### **Additional evidence of MTurk attentiveness**

In the paper, we discuss evidence that MTurk participants are generally attentive. We also describe the steps that we took to ensure attentiveness in our experiments. We included questions requiring attention in all our studies. Here is an example:

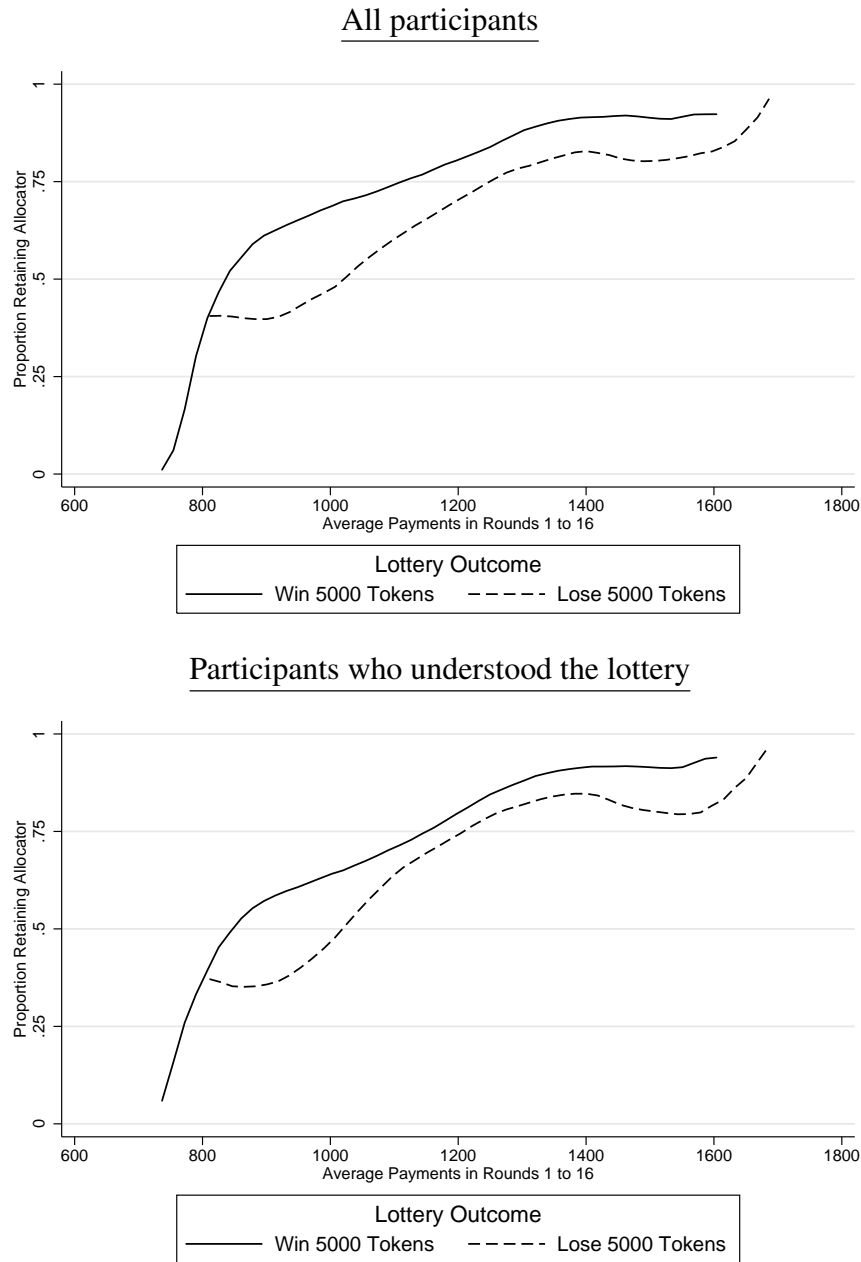
We are interested in learning about your preferences on a variety of topics, including colors. To demonstrate that you’ve read this much, just go ahead and select both green and yellow among the alternatives below, no matter what your favorite color is. Yes, ignore the question below and select both of those options.

What is your favorite color?

- pink
- red
- green
- white
- yellow
- blue

MTurk participants pass these tests at substantially higher rates than participants in other samples. In an MTurk experiment run by one of the authors, the proportion passing this color test was  $(1229/1327=)$  0.926. When the same questions were included on a Survey Sampling International (SSI) survey, however, the proportion passing was more than 20 percentage points lower: only  $(479/691=)$  0.693 passed the color test.

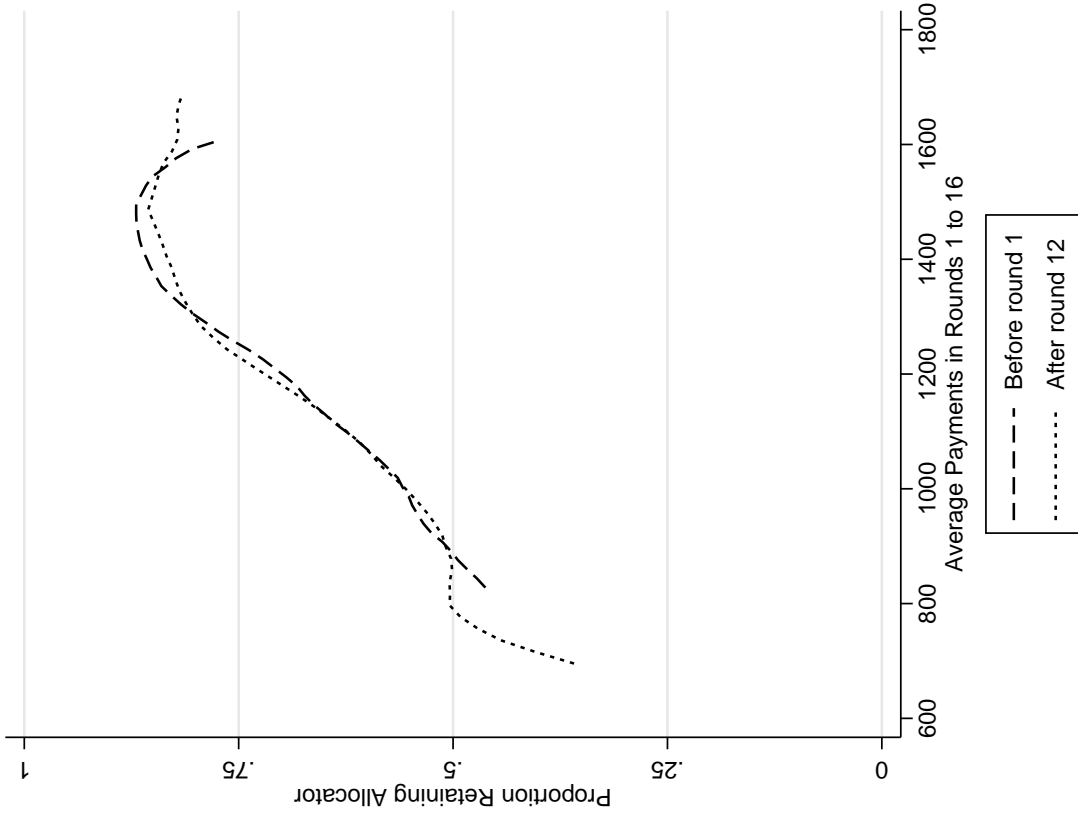
Figure A1: Replication of Experiment 2 (Lottery Experiment), Effect of Lottery Winnings and Losses on Retention Rate by Average Payments in Rounds 1-16



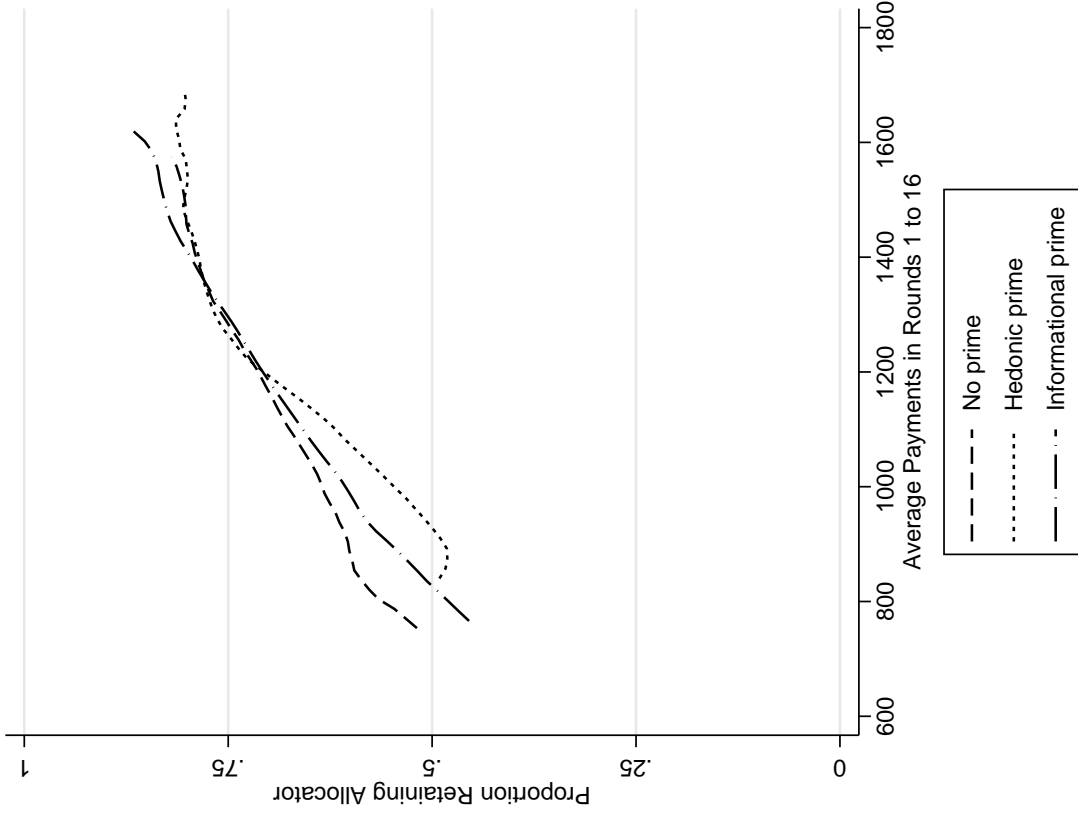
Note: Using local polynomial fits like those shown in Figure 2, this figure presents the proportion of respondents retaining their allocators (vertical axis) by average allocator payments in rounds 1 to 16 (horizontal axis). The relationship between average payments and the retention decision is plotted separately for those who received positive lottery payments (solid line) or negative lottery payments (dashed line). The top frame presents this plot for all participants in our replication of experiment 2, the bottom frame limits the plot to those who correctly answered the lottery comprehension question. This figure shows that lottery winners retained their allocators at higher rates than did lottery losers across almost all average payment levels. N = 506 and 422 (solid, top and bottom panel) and 504 and 388 (dashed, top and bottom panel). There was no zero-token lottery in our replication of experiment 2.

Figure A2: Retention Rate by Average Payments in Rounds 1-16 and Intervention, Experiments 1 and 3

Experiment 1



Experiment 3



Note: Local polynomial fits on retention of initial allocator on average payments in rounds 1 to 16. While participants in both instructions round interventions in experiment 1 responded similarly to the average in rounds 1 to 16, the figure suggests that participants in experiment 3 who were treated to the informational prime appear to have been slightly more responsive to the average in rounds 1 to 16 than participants assigned to the no prime or the hedonic prime conditions.

Table A1: Experiment 1, Predicting Incumbent Allocator Retention by Instructions Round Before Round 1 and After Round 8 Intervention

	(1) Allocator Retention, Cutpoint payments, OLS	(2) Allocator Retention, Continuous payments, OLS	(3) Allocator Retention, Binned payments, OLS	(4) Allocator Retention, Cutpoint payments, Probit	(5) Allocator Retention, Continuous payments, Probit	(6) Allocator Retention, Binned payments, Probit
Average > 1200 in Rounds 1-16	0.251 [0.079]***	0.072 [0.017]***	0.072 [0.017]***	0.754 [0.257]***	0.217 [0.055]***	0.217 [0.055]***
Average > 1200 in Rounds 9-12	-0.023 [0.069]	-0.023 [0.022]	-0.023 [0.022]	-0.081 [0.227]	-0.053 [0.072]	-0.056 [0.072]
Average > 1200 in Rounds 13-16	0.067 [0.072]	0.018 [0.019]	0.018 [0.019]	0.195 [0.235]	0.052 [0.060]	0.052 [0.060]
Average > 1200 in Rounds 1-16 * Informed later (after round 8)	-0.261 [0.102]***	0.026 [0.023]	0.026 [0.023]	-0.805 [0.337]***	0.103 [0.078]*	0.103 [0.078]*
Average > 1200 in Rounds 9-12 * Informed later (after round 8)	0.146 [0.090]*	0.012 [0.018]	0.012 [0.018]	0.500 [0.298]**	0.028 [0.057]	0.028 [0.057]
Average > 1200 in Rounds 13-16 * Informed later (after round 8)	0.027 [0.091]	0.005 [0.023]	0.005 [0.023]	0.121 [0.297]	0.026 [0.075]	0.026 [0.075]
Average Payment in Rounds 1-16 (in 100s of tokens)						
Average Payment in Rounds 1-16 * Informed later (after round 8)						
Average payment deviations in Rounds 9-12						
Average payment deviations in Rounds 9-12*Informed later (after round 8)						
Average payment deviations in Rounds 13-16						
Average payment deviations in Rounds 13-16*Informed later (after round 8)						
Terciles of round 9-12 deviations from average (-1, 0, 1)						
Terciles of round 13-16 deviations from average (-1, 0, 1)						
Terciles of round 9-12 deviations*Informed later (after round 8)						
Terciles of round 13-16 deviations*Informed later (after round 8)						
Informed later (after round 8)	0.114 [0.061]**	0.338 [0.264]	0.341 [0.264]**	0.286 [0.186]**	0.835 [0.866]	0.873 [0.861]
Constant	0.545 [0.048]***	-0.161 [0.203]	0.113 [0.203]	0.113 [0.145]	-2.043 [0.660]***	0.254 [0.158]*
Observations	547	547	547	547	547	547
R-squared	0.067	0.078	0.077			
Standard errors in brackets						

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%  
All coefficient significance tests are one-tailed.

Note: Variables labeled average payment deviations in subset of rounds measure the average deviation in these rounds from the average payments in rounds 1 to 16.

Table A2: Experiment 2, Predicting Incumbent Allocator Retention by Lottery Outcome

	(1)	(2)	(3)	(4)
	Allocator Retention, All	Allocator Retention, All	Allocator Retention, All	Allocator Retention, All
	Participants, OLS	Participants, OLS	Participants, Probit	Participants, Probit
Lottery Payment 5000, Either Round	0.089 [0.033]***	0.086 [0.033]***	0.298 [0.106]***	0.299 [0.107]***
Lottery Payment -5000, Either Round	-0.030 [0.034]	-0.035 [0.033]	-0.086 [0.102]	-0.102 [0.103]
Average > 1200 in Rounds 1-16	0.208 [0.028]***		0.637 [0.087]***	
Average Payment in Rounds 1-16 (in 100s of tokens)		0.068 [0.008]***		0.211 [0.026]***
Constant	0.589 [0.026]***	-0.126 [0.097]*	0.211 [0.078]***	-2.001 [0.311]***
Observations	1003	1003	1003	1003
R-squared	0.066	0.082		

Standard errors in brackets

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

All coefficient significance tests are one-tailed.

Table A3: Experiment 3, Predicting Incumbent Allocator Retention by Prime, Koyck Model of Decay

	(1)	(2)	(3)
	Allocator Retention, Koyck Decay, No Prime	Allocator Retention, Koyck Decay, Informational Prime	Allocator Retention, Koyck Decay, Hedonic Prime
Decay weighted payment > 1200 in 1-16	0.073 [0.016]***	0.082 [0.013]***	0.082 [0.016]***
Constant	0.430 [0.065]***	0.293 [0.069]***	0.360 [0.068]***
Observations	345	335	344
R-squared	0.057	0.106	0.068
R-Squared maximizing decay (on [0,1])	0.89	0.93	0.89

Standard errors in brackets  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Note: Models presented are those that maximize R-squared with a grid search over values of the decay parameter in a Koyck model. The Koyck regression model is specified as

$$\text{Retention} = \sum_{i=1}^{16} \delta^{16-i} \beta I(x_i > 1200) \quad (A1)$$

where  $x_i$  is the number of tokens received in round  $i$ , and  $I(\cdot)$  is an indicator function returning one if its arguments are true, and zero otherwise. The parameters estimated are  $\delta$ , the decay parameter constrained to (0, 1], and  $\beta$ , the impact coefficient, unconstrained. Values searched over  $\delta$  are .01 to 1 in increments of .01. The decay parameter is smaller for more rapid decay, and larger for less rapid decay.

Table A4: Experiment 2, Effect of Lottery Outcome on Allocator Retention by Proxies for Respondent Attentiveness

	(1) Allocator Retention	(2) Allocator Retention	(3) Allocator Retention, Time to Retain in Truncated	(4) Allocator Retention, Time to Retain in lower third	(5) Allocator Retention, Time to Retain in middle third	(6) Allocator Retention, Time to Retain in upper third
Average Payment in Rounds 1-16 (in 100s of tokens)	0.068 [0.008]***	0.069 [0.008]***	0.066 [0.008]***	0.075 [0.014]***	0.080 [0.013]***	0.057 [0.013]***
Lottery Payment 5000, Either Round	0.086 [0.033]***	0.086 [0.033]***	0.095 [0.033]***	0.110 [0.058]**	-0.036 [0.057]	0.182 [0.055]***
Lottery Payment -5000, Either Round	-0.035 [0.033]	-0.033 [0.033]	-0.033 [0.034]	0.064 [0.059]	-0.133 [0.058]**	-0.037 [0.055]
Lottery 5000*Time to retention		0.032 [0.012]***	0.030 [0.021]*			
Lottery -5000*Time to retention		0.020 [0.011]**	0.001 [0.022]			
Time from start to retention in minutes (mean-deviated)		0.023 [0.033]	0.123 [0.064]**			
Average Payments Rounds 1-16*Time to retention		-0.003 [0.003]	-0.009 [0.005]**			
Constant	-0.126 [0.097]*	-0.132 [0.098]*	-0.099 [0.100]	-0.266 [0.173]*	-0.229 [0.167]*	0.017 [0.166]
Observations	1003	1003	1003	334	329	340
R-squared	0.082	0.092	0.093	0.094	0.112	0.083

Standard errors in brackets

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

All coefficient significance tests are one-tailed.

Note: Time to retention is the number of minutes from the time the participant started the survey to the time they submitted the page where they kept or discarded their initial allocator after round 16. Column 3 truncates this variable due to outliers on the upper bound, setting times above the 90th percentile at the 90th percentile.



Table A5: Summary Statistics by Experiment and Intervention

	Experiment 1		Experiment 2				Experiment 3			
	Instructions before round 1	Informed later (after round 8)	Informed later (after round 12)	Lottery Payment -5000 Round 8	Lottery Payment -5000 Round 16	Lottery Payment 5000 Round 8	Lottery Payment 5000 Round 16	Hedonic Prime	Informational Prime	No Prime
Average > 1200 in Rounds 1-16	0.55 [0.50]	0.51 [0.50]	0.51 [0.50]	0.51 [0.50]	0.51 [0.50]	0.51 [0.50]	0.57 [0.50]	0.47 [0.50]	0.5 [0.50]	0.47 [0.50]
Average > 1200 in Rounds 1-4	0.51 [0.50]	0.45 [0.50]	0.52 [0.50]	0.47 [0.50]	0.54 [0.50]	0.51 [0.50]	0.53 [0.50]	0.52 [0.50]	0.52 [0.50]	0.46 [0.50]
Average > 1200 in Rounds 5-8	0.58 [0.50]	0.52 [0.50]	0.48 [0.50]	0.54 [0.50]	0.54 [0.50]	0.52 [0.50]	0.59 [0.49]	0.47 [0.50]	0.56 [0.50]	0.43 [0.50]
Average > 1200 in Rounds 9-12	0.47 [0.50]	0.51 [0.50]	0.5 [0.50]	0.55 [0.50]	0.55 [0.50]	0.5 [0.50]	0.54 [0.50]	0.5 [0.50]	0.49 [0.50]	0.5 [0.50]
Average > 1200 in Rounds 13-16	0.52 [0.50]	0.54 [0.50]	0.5 [0.50]	0.56 [0.50]	0.53 [0.50]	0.48 [0.50]	0.51 [0.50]	0.51 [0.50]	0.51 [0.50]	0.51 [0.50]
Average Payment in Rounds 1-16 (in 100s of tokens)	12.12 [1.80]	12.04 [1.66]	12.03 [1.79]	12.16 [1.73]	12.05 [1.90]	12.12 [1.70]	12.38 [1.82]	12.03 [1.79]	12.04 [1.71]	11.83 [1.74]
Average Payment in Rounds 1-4 (in 100s of tokens)	12.18 [2.41]	11.88 [2.38]	12.12 [2.50]	12.26 [2.16]	11.83 [2.56]	12.12 [2.45]	12.27 [2.27]	12.08 [2.48]	12.14 [2.38]	11.87 [2.38]
Average Payment in Rounds 5-8	12.03 [2.56]	12.1 [2.38]	11.94 [2.50]	12.22 [2.40]	11.99 [2.68]	12.02 [2.35]	12.48 [2.47]	11.85 [2.52]	12.05 [2.27]	11.69 [2.47]
Average Payment in Rounds 9-12 (in 100s of tokens)	12.1 [2.37]	12.02 [2.43]	11.99 [2.55]	12.19 [2.52]	12.08 [2.58]	12.12 [2.35]	12.37 [2.24]	12.08 [2.47]	11.9 [2.51]	11.72 [2.47]
Average Payment in Rounds 13-16 (in 100s of tokens)	12.17 [2.66]	12.14 [2.25]	12.06 [2.54]	12.21 [2.49]	12.07 [2.49]	12.04 [2.39]	12.4 [2.57]	12.11 [2.49]	12.09 [2.42]	12.04 [2.59]
Average payment deviations in Rounds 13-16	0.05 [1.72]	0.1 [1.65]	0.03 [1.81]	0.05 [1.58]	0.02 [1.70]	-0.02 [1.72]	0.02 [1.82]	0.08 [1.72]	0.05 [1.73]	0.21 [1.76]
Observations	205	342	418	150	139	194	164	344	335	345

Note: Cell entries are means, standard deviations in brackets.



Table A7: Replication of Experiment 2 (Lottery Experiment), Predicting Incumbent Allocator Retention

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Allocator Retention, All Participants	Allocator Retention, All Participants	Allocator Retention, All Participants	Allocator Retention, All Participants	Allocator Retention, All Participants	Allocator Retention, understood game	Allocator Retention, understood game
Lottery Payment 5000 (rather than -5000)	0.114 [0.028]***	0.118 [0.027]***	0.123 [0.026]***	0.118 [0.027]***	0.123 [0.026]***	0.066 [0.034]**	0.078 [0.034]**
Average > 1200 in Rounds 1-16		0.217 [0.027]***		0.207 [0.027]***		0.255 [0.035]***	
Average Payment in Rounds 1-16 (in 100s of tokens)			0.074 [0.007]***		0.075 [0.007]***		0.090 [0.009]***
Average > 1200 in Rounds 13-16				0.068 [0.027]***		0.101 [0.035]***	
Average payment deviations in Rounds 13-16					0.009 [0.005]**		0.015 [0.006]***
Constant	0.677 [0.020]***	0.565 [0.023]***	-0.225 [0.092]***	0.536 [0.026]***	-0.226 [0.092]***	0.496 [0.034]***	-0.416 [0.115]***
Observations	1010	1010	1010	1010	1010	624	624
R-squared	0.017	0.077	0.106	0.082	0.109	0.105	0.144

Standard errors in brackets  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%  
 All coefficient significance tests are one-tailed.

Note: All models are OLS. Variables labeled average payment deviations in subset of rounds measure the average deviation in these rounds from the average payments in rounds 1 to 16. The specifications in columns 6 and 7 limit analysis to those participants who “understood the game,” meaning that they correctly answered the two comprehension questions asked in this replication experiment following the presentation of the instructions. See the text for question wording.

Table A8: Replication of Experiment 2 (Lottery Experiment), Predicting Incumbent Allocator Retention by Understanding and Stakes

	(1) Allocator Retention	(2) Allocator Retention, by stakes	(3) Allocator Retention, understood lottery	(4) Allocator Retention, understood lottery, by stakes	(5) Allocator Retention, understood lottery and game	(6) Allocator Retention, understood lottery and game, by stakes
Average Payment in Rounds 1-16 (in 100s of tokens)	0.074 [0.007]***	0.071 [0.009]***	0.082 [0.008]***	0.081 [0.010]***	0.098 [0.010]***	0.101 [0.011]***
Lottery Payment 5000 (rather than -5000)	0.123 [0.026]***	0.109 [0.031]***	0.087 [0.029]***	0.077 [0.034]**	0.061 [0.035]**	0.056 [0.041]*
Lottery 5000*Higher stakes		0.057 [0.060]		0.042 [0.067]		0.018 [0.080]
Participant had higher stakes		-0.212 [0.205]		-0.106 [0.231]		0.131 [0.271]
Average Payments Rounds 1-16*Higher stakes		0.013 [0.016]		0.006 [0.019]		-0.012 [0.022]
Constant	-0.225 [0.092]***	-0.168 [0.108]*	-0.300 [0.101]***	-0.275 [0.118]***	-0.496 [0.119]***	-0.532 [0.138]***
Observations	1010	1010	810	810	563	563
R-squared	0.106	0.108	0.119	0.119	0.160	0.161
P-value on joint significance of higher stakes terms (two-tailed)		0.501585		0.886855		0.935722
Standard errors in brackets						

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%  
All coefficient significance tests are one-tailed.

Note: All models are OLS. Column labels specify subsets of our participant population based upon responses to comprehension survey questions. Those who understood the lottery correctly answered the lottery comprehension question, and those who understood the game correctly answered the two game comprehension questions. See the text for question wording. Alternating columns include interaction with stakes of the experiment.

Table A9: Effects of Interventions with Controls for Covariates

	(1) Allocator Retention, Experiment 1	(2) Allocator Retention, Experiment 1	(3) Allocator Retention, Experiment 2	(4) Allocator Retention, Experiment 2	(5) Allocator Retention, Experiment 3	(6) Allocator Retention, Experiment 3
Average Payment in Rounds 1-16 (in 100s of tokens)	0.064 [0.027]***	0.065 [0.027]***	0.053 [0.011]***	0.053 [0.011]***	0.078 [0.020]***	0.073 [0.020]***
Average Payment in Rounds 13-16 (in 100s of tokens)	0.007 [0.018]	0.008 [0.018]	0.015 [0.008]**	0.014 [0.008]**	0.008 [0.014]	0.011 [0.014]
Average Payment in Rounds 1-16 * Informed later (after round 12)	0.005 [0.021]	0.003 [0.021]				
Informed later (after round 12)*Average deviation rounds 13-16	0.028 [0.021]*	0.027 [0.022]				
Average Payment in Rounds 1-16 * Hedonic Prime						
Hedonic Prime*Average deviation rounds 13-16					-0.024 [0.020]	-0.019 [0.020]
Age in years		0.002 [0.002]		0.001 [0.001]		0.011 [0.020]
Education is FourYear		-0.155 [0.122]		-0.084 [0.133]		0.032 [0.139]
Education is HS		-0.117 [0.128]		-0.106 [0.137]		0.140 [0.145]
Education is PostGrad		-0.179 [0.130]*		-0.070 [0.136]		0.005 [0.144]
Education is SomeColl		-0.141 [0.121]		-0.061 [0.133]		0.060 [0.139]
Education is TwoYear		-0.217 [0.131]**		-0.141 [0.139]		0.041 [0.150]
Gender is male		-0.002 [0.036]		-0.016 [0.028]		-0.072 [0.036]**
Informed later (after round 12)	-0.055 [0.255]	-0.042 [0.259]				
Lottery Payment 5000, Either Round			0.102 [0.030]***	0.106 [0.030]***		
Hedonic Prime					0.263 [0.238]	0.213 [0.239]
Constant	-0.157 [0.210]	-0.085 [0.250]	-0.134 [0.096]*	-0.091 [0.167]	-0.336 [0.173]**	-0.311 [0.231]*
Observations	623	620	1003	1001	679	678
R-squared	0.098	0.105	0.084	0.090	0.083	0.095

Standard errors in brackets  
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%  
All coefficient significance tests are one-tailed.

Note: All models are OLS. For brevity of presentation, experiment 1 models compare participants assigned to receive instructions before round 1 to participants assigned to receive instructions after round 12. Experiment 2 models include all experiment 2 participants. Experiment 3 models compare participants assigned to receive the hedonic prime to participants assigned to receive the informational prime. Controlling for covariates has no substantive effect on treatment estimates.

## **Appendix B: Example survey pages**

**These are complete instructions and example pages for Experiment 1**

You are being asked to complete an online research survey and game that will take approximately 6-8 minutes. The survey and game are part of a research study conducted by Yale University. The goal is to learn about how people make decisions in light of events.

Findings from this study may be reported in scholarly journals, at academic seminars, and at research association meetings. The data will be stored at a secured location and retained indefinitely. No identifying information about you will be made public and all of your choices will be kept completely confidential. Your participation is voluntary. You are free to stop the survey at any time without penalty.

There are no known risks associated with this study beyond those associated with everyday life. Although this study will not benefit you personally, we hope that our results will add to the knowledge about how people make decisions. You will receive \$0.25 for completing survey, plus an average of \$0.80 depending upon the choices you make during the survey, paid through Amazon Mechanical Turk.

To participate in the study, you must be at least 18 years old and a United States resident.

If you have any questions about the research, you can contact Seth Hill at [seth.hill@yale.edu](mailto:seth.hill@yale.edu). If you have any questions about your rights as a research participant or concerns about the conduct of this study, you may contact the Yale University Human Subjects Committee, Box 208010, New Haven, CT 06520-8010, 203-785-4688, [human.subjects@yale.edu](mailto:human.subjects@yale.edu).

Note: Please do not close your browser or attempt to re-start the game. If you do so you will be deemed ineligible and will not be paid.

When you are ready to begin, please elect to participate and press the Submit button. You will then be presented with the instructions for the game.

- I agree to participate.
- I do not agree to participate.

Submit

We are interested in learning about your preferences on a variety of topics, including colors. To demonstrate that you've read this much, just go ahead and select both green and yellow among the alternatives below, no matter what your favorite color is. Yes, ignore the question below and select both of those options.

What is your favorite color?

- pink
- red
- green
- white
- yellow
- blue

We are also interested in your ability to make simple judgments about numbers, such as in the test below. To demonstrate that you've read this much, just go ahead and select both one and two among the alternatives below, no matter what the question asks. Yes, ignore the question below and select both of those options.

Which number is the largest?

- 1
- 2
- 3

Next



You are about to play a game in which you will have the opportunity to earn tokens. Tokens are converted into dollars at the end of the game. The conversion rate is 50000 tokens = 1 dollar. The amount you earn will be paid to you as a bonus through Mechanical Turk.

Here are some details about that game:

The game has 32 rounds. In each round an Allocator will give you a number of tokens. The number of tokens the Allocator gives you will vary from round to round, but are related to the Allocator's type.

When the game begins, the computer will randomly choose an Allocator for you. Your Allocator's type is a number that ranges from 950 to 1450 with equal probability. The computer chooses the type at random. You will not be told your Allocator's type.

When the computer is choosing your Allocator's type, each value on the darkened portion of this line (from 950 to 1450) is selected with equal probability.



In each round, the number of tokens given to you will be drawn at random from a distribution with a bell shaped curve centered on the Allocator's type. This means that although the amount given in each round will vary, the amount you are given will tend to be close to the Allocator's type. For example, if your Allocator is of type 1000, in any given round it is more likely that you will be given 900 or 1100 than 800 or 1200. The most common amount you will receive from an Allocator of type 1000 will be 1000 tokens.

Next

When you are ready to begin, please press the Next button. You will then be taken to a screen that will present the first round, and continue to other rounds from there.

Next

Randomization here: In the instructions before round 1 condition, the screen of instructions would have appeared before this screen.

This is round 1.

**Your Allocator has given you 1489 tokens.**

Next

This is round 2.

**Your Allocator has given you 1468 tokens.**

Next

You have just completed round 8. There are 32 rounds in this game. There are therefore 24 rounds remaining.  
Please click next to continue.

Next

Randomization here: In the instructions after round 8 condition, the screen of instructions would have appeared instead of this screen after round 8. This screen is presented after round 8 in the instructions before round 1 and instructions after round 12 conditions. A similar screen is presented after round 12 for the instructions before round 1 and instructions after round 8 condition so that the total number of screens, and the potential distraction of the instructions at this point in the game is mimicked.

## Here are some additional details about this game:

After round 16, after you have received tokens from your Allocator you will have the opportunity to choose to keep your current Allocator or instead have the computer assign you a new Allocator for the final 16 rounds of the game.

If you choose a new Allocator, a new Allocator will be randomly selected by the computer and will have a type that ranges from 950 to 1450, the same range from which your initial allocator was selected. That new Allocator will then give you tokens for the final 16 rounds. If you instead keep your current Allocator, that Allocator will continue to give you tokens for the final 16 rounds.

Next

Randomization here: This is the instructions screen, presented either before round 1, after round 8, or, as here, after round 12. This, along with the corresponding distractor screens, is the only variation across the three interventions described as "instructions before round 1," "instructions after round 8," and "instructions after round 12."

This is round 16.  
Your Allocator has given you 1283 tokens.

Next

You may now choose whether to keep your current Allocator who has been giving you tokens during the first 16 rounds or to have the computer replace your Allocator with a new one. What would you like to do?

- Keep current Allocator.
- Replace current Allocator.

Next



You have chosen to keep the current Allocator. The current Allocator will give you tokens for the next 16 rounds.

How much, on average, do you think your Allocator gave you over each of the first 16 rounds? While you may not remember exactly how much you were given, we would like your best guess. (Please enter numbers only.)

Looking back over the first 16 rounds, how satisfied were you with your Allocator?

- Very satisfied.
- Somewhat satisfied.
- Neither satisfied nor unsatisfied.
- Somewhat unsatisfied.
- Very unsatisfied.

How much, on average, do you think you will be given in each of the remaining 16 rounds? Once again, we'd like your best guess. (Please enter numbers only.)

Next

This is round 17.  
Your Allocator has given you 2165 tokens.

Next

This is round 32.  
Your Allocator has given you 1786 tokens.

Next

Thank you for your participation. Please answer the following two pages of questions, after which we will reveal your earnings to you and give you the code to use on Mechanical Turk for payment.

How much, on average, do you think your Allocator gave you in each of the most recent 16 rounds? While you may not remember exactly how much you were given, we would like your best guess. (Please enter numbers only.)

If the current game were to continue, would you keep your current Allocator or choose to have the computer replace your current Allocator with a new one?

- Keep current Allocator.
- Replace current Allocator.

How did you decide whether to keep or replace your Allocator after the first 16 rounds?

How did you keep track of how much your Allocator gave you in each of the first 16 rounds?

- By memory.
- I wrote it down or recorded it in some other way.
- I did not keep track.

In what round did you start to keep track of how much your Allocator gave you?

Have you ever participated in any economics, psychology or political science experimental studies before?

- Yes.
- No.

Have you ever participated in any economics, psychology or political science experimental studies before on Mechanical Turk?

- Yes.
- No.

Next

Please continue to answer the following questions. This is the last page of questions, after which you will be given the code to use on Mechanical Turk for payment.

What is the year of your birth?

What is your gender?

- Female.
- Male.

What is the highest level of education that you have achieved?

- No high school diploma.
- High school diploma or equivalent.
- Some college.
- Two year degree.
- Four year college graduate.
- Post-graduate.

If you would like to leave any comments or feedback, please do so here (up to 500 characters):

Next

Thank you for your participation!

You have now completed the game. Your total payment from Allocators is **95 cents**.

If you have any questions, please contact [seth.hill@yale.edu](mailto:seth.hill@yale.edu). If you have any questions about your rights as a research participant or concerns about the conduct of this study, you may contact the Yale University Human Subjects Committee at [human.subjects@yale.edu](mailto:human.subjects@yale.edu).

For the purposes of getting paid on Mechanical Turk, please enter the following code into the box on the survey's Mechanical Turk HIT page:

**ibrslhejpk**

**These are selected instructions and example pages for Experiment 2, showing mostly differences between this experiment and experiment 1.**

You are being asked to complete an online research survey and game that will take approximately 6-8 minutes. The survey and game are part of a research study conducted by Yale University. The goal is to learn about how people make decisions in light of events.

Findings from this study may be reported in scholarly journals, at academic seminars, and at research association meetings. The data will be stored at a secured location and retained indefinitely. No identifying information about you will be made public and all of your choices will be kept completely confidential. Your participation is voluntary. You are free to stop the survey at any time without penalty.

There are no known risks associated with this study beyond those associated with everyday life. Although this study will not benefit you personally, we hope that our results will add to the knowledge about how people make decisions. You will receive \$0.50 for completing survey, plus an average of \$0.80 depending upon the choices you make during the survey, paid through Amazon Mechanical Turk.

To participate in the study, you must be at least 18 years old and a United States resident.

If you have any questions about the research, you can contact Seth Hill at [seth.hill@yale.edu](mailto:seth.hill@yale.edu). If you have any questions about your rights as a research participant or concerns about the conduct of this study, you may contact the Yale University Human Subjects Committee, Box 208010, New Haven, CT 06520-8010, 203-785-4688, [human.subjects@yale.edu](mailto:human.subjects@yale.edu).

Note: Please do not close your browser or attempt to re-start the game. If you do so you will be deemed ineligible and will not be paid.

When you are ready to begin, please elect to participate and press the Submit button. You will then be presented with the instructions for the game.

- I agree to participate.
- I do not agree to participate.

Submit



We are interested in learning about your preferences on a variety of topics, including colors. To demonstrate that you've read this much, just go ahead and select both green and yellow among the alternatives below, no matter what your favorite color is. Yes, ignore the question below and select both of those options.

What is your favorite color?

- pink
- red
- green
- white
- yellow
- blue

We are also interested in your ability to make simple judgments about numbers, such as in the test below. To demonstrate that you've read this much, just go ahead and select both one and two among the alternatives below, no matter what the question asks. Yes, ignore the question below and select both of those options.

Which number is the largest?

- 1
- 2
- 3

Next

You are about to play a game in which you will have the opportunity to earn tokens. Tokens are converted into dollars at the end of the game. The conversion rate is 50000 tokens = 1 dollar. The amount you earn will be paid to you as a bonus through Mechanical Turk.

Here are some details about that game:

The game has 32 rounds. In each round an Allocator will give you a number of tokens. The number of tokens the Allocator gives you will vary from round to round, but are related to the Allocator's type.

When the game begins, the computer will randomly choose an Allocator for you. Your Allocator's type is a number that ranges from 950 to 1450 with equal probability. The computer chooses the type at random. You will not be told your Allocator's type.

When the computer is choosing your Allocator's type, each value on the darkened portion of this line (from 950 to 1450) is selected with equal probability.



In each round, the number of tokens given to you will be drawn at random from a distribution with a bell shaped curve centered on the Allocator's type. This means that although the amount given in each round will vary, the amount you are given will tend to be close to the Allocator's type. For example, if your Allocator is of type 1000, in any given round it is more likely that you will be given 900 or 1100 than 800 or 1200. The most common amount you will receive from an Allocator of type 1000 will be 1000 tokens.

After the 8th round, you will also participate in a lottery. The computer will determine at random your outcome from the lottery. 30 percent of the time the computer will deduct 5000 tokens from your earnings, 30 percent of the time the computer will award you 5000 tokens, and the remaining 40 percent of the time the computer will make no award. **Your payouts from the lottery are unrelated to your Allocator's type.**

Randomization here: All participants in the lottery experiment receive this text. Half are given the lottery in round 8, indicated with the first sentence in the above paragraph, and half in round 12.

Next

## Here are some additional details about this game:

After round 16, after you have received tokens from your Allocator and any lottery payout, you will have the opportunity to choose to keep your current Allocator or instead have the computer assign you a new Allocator for the final 16 rounds of the game.

If you choose a new Allocator, a new Allocator will be randomly selected by the computer and will have a type that ranges from 950 to 1450, the same range from which your initial allocator was selected. That new Allocator will then give you tokens for the final 16 rounds. If you instead keep your current Allocator, that Allocator will continue to give you tokens for the final 16 rounds.

Next

When you are ready to begin, please press the Next button. You will then be taken to a screen that will present the first round, and continue to other rounds from there.

Next

This is round 2.

**Your Allocator has given you 824 tokens.**

Next

This is round 8.

**Your Allocator has given you 1407 tokens.**

You also participated in a lottery this round.

**Your payout from the lottery are unrelated to your Allocator's type.**

**Your lottery payout is 0 tokens.**

Next

Randomization here: the lottery payment is presented along with the round payment in this fashion. In this example, it is a round 8 lottery with a zero token payment. A round 12 lottery would look the same, but on the round 12 screen.

You have just completed round 12. There are 32 rounds in this game. There are therefore 20 rounds remaining. Please click next to continue.

Next

This is round 16.  
Your Allocator has given you 1396 tokens.

Next



You may now choose whether to keep your current Allocator who has been giving you tokens during the first 16 rounds or to have the computer replace your Allocator with a new one. What would you like to do?

- Keep current Allocator.
- Replace current Allocator.

Next

You have chosen to replace your Allocator with a new one. The computer has now randomly selected a new Allocator who will give you tokens for the next 16 rounds.

How much, on average, do you think your Allocator gave you over each of the first 16 rounds? While you may not remember exactly how much you were given, we would like your best guess. (Please enter numbers only.)

Looking back over the first 16 rounds, how satisfied were you with your Allocator?

- Very satisfied.
- Somewhat satisfied.
- Neither satisfied nor unsatisfied.
- Somewhat unsatisfied.
- Very unsatisfied.

How much, on average, do you think you will be given in each of the remaining 16 rounds? Once again, we'd like your best guess. (Please enter numbers only.)

Next

This is round 17.  
Your Allocator has given you 1649 tokens.

Next

This is round 32.  
Your Allocator has given you 1030 tokens.

Next

Thank you for your participation. Please answer the following two pages of questions, after which we will reveal your earnings to you and give you the code to use on Mechanical Turk for payment.

How much, on average, do you think your Allocator gave you in each of the most recent 16 rounds? While you may not remember exactly how much you were given, we would like your best guess. (Please enter numbers only.)

If the current game were to continue, would you keep your current Allocator or choose to have the computer replace your current Allocator with a new one?

- Keep current Allocator.
- Replace current Allocator.

How did you decide whether to keep or replace your Allocator after the first 16 rounds?

How did you keep track of how much your Allocator gave you in each of the first 16 rounds?

- By memory.
- I wrote it down or recorded it in some other way.
- I did not keep track.

In what round did you start to keep track of how much your Allocator gave you?

Have you ever participated in any economics, psychology or political science experimental studies before?

- Yes.
- No.

Have you ever participated in any economics, psychology or political science experimental studies before on Mechanical Turk?

- Yes.
- No.

Next

Please continue to answer the following questions. This is the last page of questions, after which you will be given the code to use on Mechanical Turk for payment.

What is the year of your birth?

What is your gender?

- Female.
- Male.

What is the highest level of education that you have achieved?

- No high school diploma.
- High school diploma or equivalent.
- Some college.
- Two year degree.
- Four year college graduate.
- Post-graduate.

If you would like to leave any comments or feedback, please do so here (up to 500 characters):

Next

Thank you for your participation!

You have now completed the game. Your total payment from Allocators is **92 cents**. Your total payment from the lottery is **0 cents**. Lottery payment presented here.

If you have any questions, please contact [seth.hill@yale.edu](mailto:seth.hill@yale.edu). If you have any questions about your rights as a research participant or concerns about the conduct of this study, you may contact the Yale University Human Subjects Committee at [human.subjects@yale.edu](mailto:human.subjects@yale.edu).

For the purposes of getting paid on Mechanical Turk, please enter the following code into the box on the survey's Mechanical Turk HIT page:

**ngvcslbpma**

**These are selected instructions and example pages for Experiment 3, showing mostly differences between this experiment and experiment 1.**



You are being asked to complete an online research survey and game that will take approximately 6-8 minutes. The survey and game are part of a research study conducted by Yale University. The goal is to learn about how people make decisions in light of events.

Findings from this study may be reported in scholarly journals, at academic seminars, and at research association meetings. The data will be stored at a secured location and retained indefinitely. No identifying information about you will be made public and all of your choices will be kept completely confidential. Your participation is voluntary. You are free to stop the survey at any time without penalty.

There are no known risks associated with this study beyond those associated with everyday life. Although this study will not benefit you personally, we hope that our results will add to the knowledge about how people make decisions. You will receive \$0.50 for completing survey, plus an average of \$0.80 depending upon the choices you make during the survey, paid through Amazon Mechanical Turk.

To participate in the study, you must be at least 18 years old and a United States resident.

If you have any questions about the research, you can contact Seth Hill at [seth.hill@yale.edu](mailto:seth.hill@yale.edu). If you have any questions about your rights as a research participant or concerns about the conduct of this study, you may contact the Yale University Human Subjects Committee, Box 208010, New Haven, CT 06520-8010, 203-785-4688, [human.subjects@yale.edu](mailto:human.subjects@yale.edu).

Note: Please do not close your browser or attempt to re-start the game. If you do so you will be deemed ineligible and will not be paid.

When you are ready to begin, please elect to participate and press the Submit button. You will then be presented with the instructions for the game.

- I agree to participate.
- I do not agree to participate.

Submit

We are interested in learning about your preferences on a variety of topics, including colors. To demonstrate that you've read this much, just go ahead and select both green and yellow among the alternatives below, no matter what your favorite color is. Yes, ignore the question below and select both of those options.

What is your favorite color?

- pink
- red
- green
- white
- yellow
- blue

We are also interested in your ability to make simple judgments about numbers, such as in the test below. To demonstrate that you've read this much, just go ahead and select both one and two among the alternatives below, no matter what the question asks. Yes, ignore the question below and select both of those options.

Which number is the largest?

- 1
- 2
- 3

Next

You are about to play a game in which you will have the opportunity to earn tokens. Tokens are converted into dollars at the end of the game. The conversion rate is 50000 tokens = 1 dollar. The amount you earn will be paid to you as a bonus through Mechanical Turk.

Here are some details about that game:

The game has 32 rounds. In each round an Allocator will give you a number of tokens. The number of tokens the Allocator gives you will vary from round to round, but are related to the Allocator's type.

When the game begins, the computer will randomly choose an Allocator for you. Your Allocator's type is a number that ranges from 950 to 1450 with equal probability. The computer chooses the type at random. You will not be told your Allocator's type.

When the computer is choosing your Allocator's type, each value on the darkened portion of this line (from 950 to 1450) is selected with equal probability.



In each round, the number of tokens given to you will be drawn at random from a distribution with a bell shaped curve centered on the Allocator's type. This means that although the amount given in each round will vary, the amount you are given will tend to be close to the Allocator's type. For example, if your Allocator is of type 1000, in any given round it is more likely that you will be given 900 or 1100 than 800 or 1200. The most common amount you will receive from an Allocator of type 1000 will be 1000 tokens.

Next

## Here are some additional details about this game:

After round 16, after you have received tokens from your Allocator you will have the opportunity to choose to keep your current Allocator or instead have the computer assign you a new Allocator for the final 16 rounds of the game.

If you choose a new Allocator, a new Allocator will be randomly selected by the computer and will have a type that ranges from 950 to 1450, the same range from which your initial allocator was selected. That new Allocator will then give you tokens for the final 16 rounds. If you instead keep your current Allocator, that Allocator will continue to give you tokens for the final 16 rounds.

Next

When you are ready to begin, please press the Next button. You will then be taken to a screen that will present the first round, and continue to other rounds from there.

Next

This is round 1.

**Your Allocator has given you 1728 tokens.**

Next

You have just completed round 8. There are 32 rounds in this game. There are therefore 24 rounds remaining.  
Please click next to continue.

Next

You have just completed round 12. There are 32 rounds in this game. There are therefore 20 rounds remaining. Please click next to continue.

Next



This is round 16.  
Your Allocator has given you 1875 tokens.

Next

Looking back at the tokens you received, what would you estimate was the average amount given to you by your Allocator during each of the first 16 rounds?

Randomization here: either this question (informational prime), the hedonic prime, or no question (no prime).

You may now choose whether to keep your current Allocator who has been giving you tokens during the first 16 rounds or to have the computer replace your Allocator with a new one. What would you like to do?

- Keep current Allocator.
- Replace current Allocator.

Next

You have chosen to replace your Allocator with a new one. The computer has now randomly selected a new Allocator who will give you tokens for the next 16 rounds.

How much, on average, do you think your Allocator gave you over each of the first 16 rounds? While you may not remember exactly how much you were given, we would like your best guess. (Please enter numbers only.)

Looking back over the first 16 rounds, how satisfied were you with your Allocator?

- Very satisfied.
- Somewhat satisfied.
- Neither satisfied nor unsatisfied.
- Somewhat unsatisfied.
- Very unsatisfied.

How much, on average, do you think you will be given in each of the remaining 16 rounds? Once again, we'd like your best guess. (Please enter numbers only.)

Next

This is round 17.  
Your Allocator has given you 1158 tokens.

Next

This is round 32.  
Your Allocator has given you 1035 tokens.

Next

Thank you for your participation. Please answer the following two pages of questions, after which we will reveal your earnings to you and give you the code to use on Mechanical Turk for payment.

How much, on average, do you think your Allocator gave you in each of the most recent 16 rounds? While you may not remember exactly how much you were given, we would like your best guess. (Please enter numbers only.)

If the current game were to continue, would you keep your current Allocator or choose to have the computer replace your current Allocator with a new one?

- Keep current Allocator.
- Replace current Allocator.

How did you decide whether to keep or replace your Allocator after the first 16 rounds?

How did you keep track of how much your Allocator gave you in each of the first 16 rounds?

- By memory.
- I wrote it down or recorded it in some other way.
- I did not keep track.

In what round did you start to keep track of how much your Allocator gave you?

Have you ever participated in any economics, psychology or political science experimental studies before?

- Yes.
- No.

Have you ever participated in any economics, psychology or political science experimental studies before on Mechanical Turk?

- Yes.
- No.

Next

Please continue to answer the following questions. This is the last page of questions, after which you will be given the code to use on Mechanical Turk for payment.

What is the year of your birth?

What is your gender?

- Female.
- Male.

What is the highest level of education that you have achieved?

- No high school diploma.
- High school diploma or equivalent.
- Some college.
- Two year degree.
- Four year college graduate.
- Post-graduate.

If you would like to leave any comments or feedback, please do so here (up to 500 characters):

Next

Thank you for your participation!

You have now completed the game. Your total payment from Allocators is **74 cents**.

If you have any questions, please contact [seth.hill@yale.edu](mailto:seth.hill@yale.edu). If you have any questions about your rights as a research participant or concerns about the conduct of this study, you may contact the Yale University Human Subjects Committee at [human.subjects@yale.edu](mailto:human.subjects@yale.edu).

For the purposes of getting paid on Mechanical Turk, please enter the following code into the box on the survey's Mechanical Turk HIT page:

**cxdppzqtek**