

Supplement to:

Tsvetkova, Milena, and Michael W. Macy. 2015. "The Social Contagion of Antisocial Behavior." *Sociological Science* 2: 36-49.

1. Game instructions

Participate in the Bonus Game

You are invited to participate in a research study on decision making called the "Bonus Game." You will receive a guaranteed \$0.25 base rate if you answer a short demographic survey, read the game instructions, and complete a five-question quiz on the instructions. **If you correctly answer the quiz within three attempts, you will proceed to play the game.**

Playing the game will pay you an additional \$0.50 for participation and give you the chance to earn an extra bonus of up to \$0.75. The extra amount you earn depends on your own and other participants' decisions. Reading the instructions and playing the game takes about 10 minutes.

Taking part in the study is completely voluntary. If you decide to take part now, you are free to withdraw at any time.

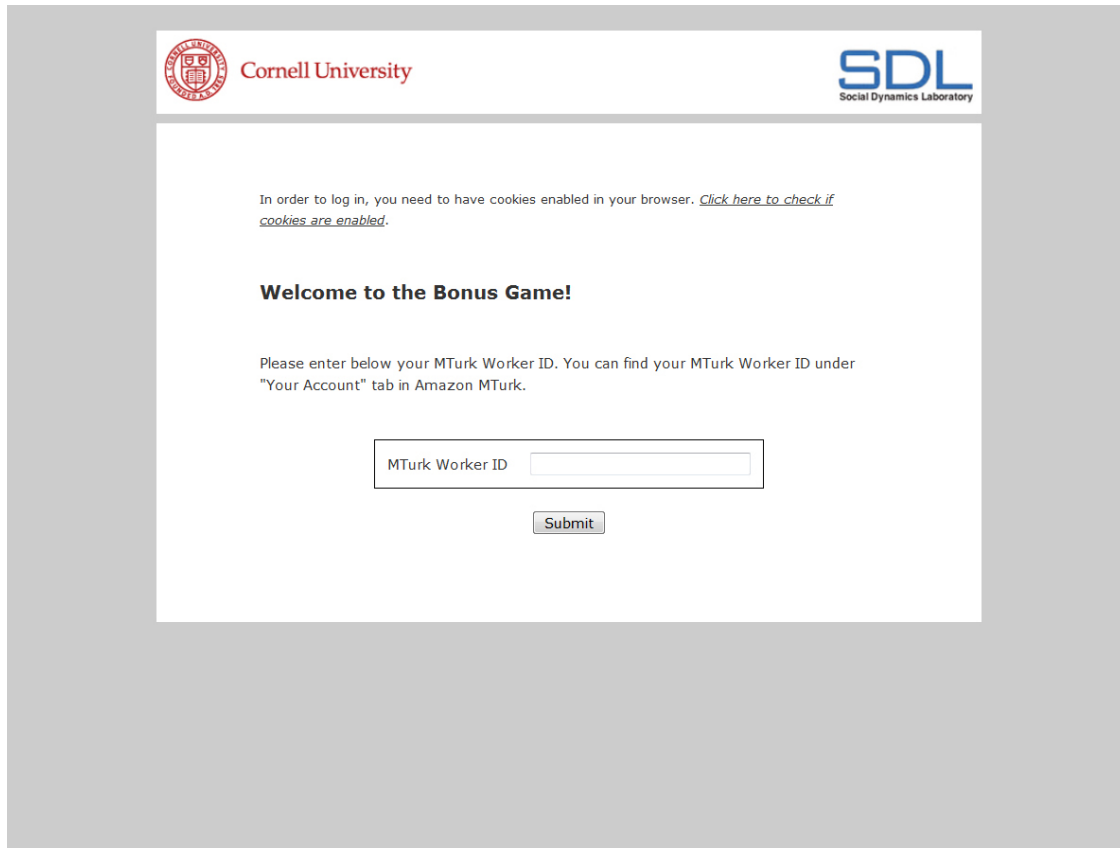
We do not anticipate any risks to you participating in the study other than those encountered in everyday use of the Internet. Your answers will be confidential. The records of this study will be kept private; only the researchers will have access to the records. In any sort of report we make public we will not include any information that will make it possible to identify you.



If you agree to the above conditions, please accept the HIT and go to <https://sdlab.soc.cornell.edu/study14/bgame/>. You will need your MTurk worker ID so please copy it now (you can find it under "Your Account" tab). Once you have finished the game, you will be given a confirmation code. **In order to get paid, you need to enter the confirmation code here and then submit the HIT.**

CONFIRMATION CODE:

If you have questions, you may contact us at mvt9@cornell.edu. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Cornell Institutional Review Board (IRB) at 607-255-5138 or access their website at <http://www.irb.cornell.edu>. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

Figure A1. Recruitment HIT for the Bonus Game.



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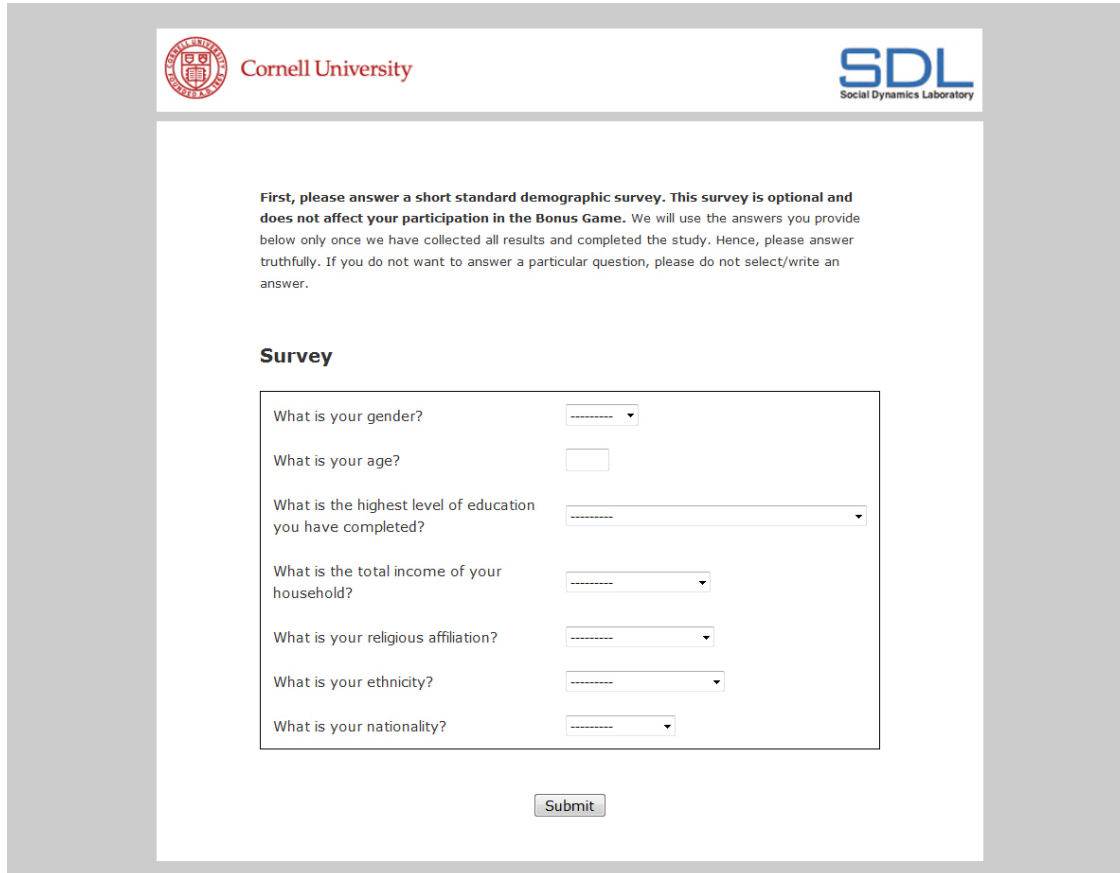
In order to log in, you need to have cookies enabled in your browser. [Click here to check if cookies are enabled.](#)

Welcome to the Bonus Game!

Please enter below your MTurk Worker ID. You can find your MTurk Worker ID under "Your Account" tab in Amazon MTurk.

MTurk Worker ID

Figure A2. Login page for the Bonus Game.



The image shows a web-based survey form. At the top left is the Cornell University logo and name. At the top right is the logo for the Social Dynamics Laboratory (SDL). The main text of the survey reads: "First, please answer a short standard demographic survey. This survey is optional and does not affect your participation in the Bonus Game. We will use the answers you provide below only once we have collected all results and completed the study. Hence, please answer truthfully. If you do not want to answer a particular question, please do not select/write an answer." Below this is a section titled "Survey" containing a form with seven questions, each with a corresponding input field: "What is your gender?" (dropdown), "What is your age?" (text box), "What is the highest level of education you have completed?" (dropdown), "What is the total income of your household?" (dropdown), "What is your religious affiliation?" (dropdown), "What is your ethnicity?" (dropdown), and "What is your nationality?" (dropdown). A "Submit" button is located at the bottom of the form.

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SDL
Social Dynamics Laboratory

First, please answer a short standard demographic survey. This survey is optional and does not affect your participation in the Bonus Game. We will use the answers you provide below only once we have collected all results and completed the study. Hence, please answer truthfully. If you do not want to answer a particular question, please do not select/write an answer.

Survey

What is your gender?

What is your age?

What is the highest level of education you have completed?

What is the total income of your household?

What is your religious affiliation?

What is your ethnicity?

What is your nationality?

Submit

Figure A3. Survey for the Bonus Game.

The next five screens explain the rules of the Bonus Game. Please read the game rules carefully. At the end, you will need to answer five questions that test your understanding. You will earn a bonus and play the game only if you do not take more than three attempts to answer all five questions correctly.

How the Bonus Game Works (1/5)



Each turker who successfully completes the quiz at the end of the instructions earns a bonus of \$0.50. The turker then joins a chain of participants.

previous participant you next participant

earned bonus + \$0.50 + \$0.50 + \$0.50

Next

Figure A4. Page 1 of instructions for the Bonus Game.







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How the Bonus Game Works (2/5)

Each participant on the chain can choose to transfer the next participant's earned bonus to himself/herself or not. If the current participant decides to transfer the next participant's earned bonus, the earned bonus amount is subtracted from the next participant's payment, divided by 2, and added towards the current participant's payment.






Thus, if the previous participant decided to transfer your earned bonus to himself/herself, you would receive $\$0.50 \div 2 = \0.25 more.

previous participant you next participant

 earned bonus	+ \$0.50	+ \$0.50	+ \$0.50
 transfer		 - \$0.50	 - \$0.50
 generated bonus	+ \$0.25	+ \$0.25	



If you too decide to transfer the next participant's earned bonus to yourself, the next participant will receive $\$0.50$ less and you will receive $\$0.50 \div 2 = \0.25 more.

previous participant you next participant

 earned bonus	+ \$0.50	+ \$0.50	+ \$0.50
 transfer		 - \$0.50	 - \$0.50
 generated bonus	+ \$0.25	+ \$0.25	

Previous
Next


Figure A5. Page 2 of instructions for the Bonus Game.





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How the Bonus Game Works (3/5)

If the previous participant decided not to transfer your earned bonus, nothing would be subtracted from your payment and nothing would be added to the previous participant's payment.


previous participant
you
next participant






		earned bonus					
			+	\$0.50		+	\$0.50
		transfer			$\div 2$	-	\$0.00
		generated bonus					
			+	\$0.00			

If you too decide not to transfer the next participant's earned bonus, nothing will be subtracted from the next participant's payment and nothing will be added to your payment.



previous participant
you
next participant



		earned bonus					
			+	\$0.50		+	\$0.50
		transfer			$\div 2$	-	\$0.00
		generated bonus					
			+	\$0.00			

Previous
Next

Figure A6. Page 3 of instructions for the Bonus Game.



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How the Bonus Game Works (4/5)

The total payment that each participant X on the chain receives at the end is estimated according to the following formula:

total payment = HIT base rate and participation fee of \$1.00 + earned bonus of \$0.50 - \$0.50 if previous participant transferred from participant X + \$0.50 ÷ 2 if participant X transfers from next participant



previous participant
you
next participant



 earned bonus	+ \$0.50	+ \$0.50	+ \$0.50
 transfer		 - \$0.50	 - \$0.50
 generated bonus	+ \$0.25	+ \$0.25	
	HIT base rate + participation fee		+ \$1.00
	total payment		\$1.25

Previous
Next


Figure A7. Page 4 of instructions for the Bonus Game.


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How the Bonus Game Works (5/5)

The next participant also faces the same choice: he/she needs to decide whether to transfer the earned bonus of the participant after to himself/herself or not.


previous participant






you





next participant



	●	●	●
<p> earned bonus</p> <p> transfer</p> <p> generated bonus</p>	<p>+ \$0.50</p> <p>+ \$0.50</p> <p>+ \$0.25</p>	<p>+ \$0.50</p> <p>- \$0.50</p> <p>+ \$0.25</p>	<p>+ \$0.50</p> <p>- \$0.50</p> <p>?</p>

Previous
Next

Figure A8. Page 5 of instructions for the Bonus Game.

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Now, please answer the following questions about the game rules. **You are allowed three attempts to answer the five questions correctly.** If you answer the questions correctly within three attempts, you will earn a bonus of \$0.50 on top of the \$0.50 HIT base rate and the \$0.50 participation fee and participate in the game. If you fail to do so, you will not be allowed to proceed to play the game and you will only be paid the \$0.50 HIT base rate.

Quiz

1. What are the two possible amounts that the previous participant can transfer from your earned bonus?

2. What are the two possible amounts that can be added to your payment as a result of your transferring decision?



3. If the previous participant did not transfer your earned bonus and you decide not to transfer the next participant's earned bonus, what is the total payment that you will receive?

4. If the previous participant did not transfer your earned bonus but you decide to transfer the next participant's earned bonus, what is the total payment that you will receive?

5. If the previous participant transferred your earned bonus but you decide not to transfer the next participant's earned bonus, what is the total payment that you will receive?


PreviousSubmit

Figure A9. Quiz for the Bonus Game.



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Congratulations! You completed the quiz successfully. It is now your turn to play the Bonus Game.

Your Turn




You just earned \$0.50 for successfully completing the quiz.




Did the previous participant transfer from you? (Click to find out)

The previous participant on your chain, turker *D7*D**D9*DW*, elected to transfer your earned bonus to himself/herself.** As a result, you will be paid $\$1.00 + \$0.50 - \$0.50 = \1.00 .



What did other participants do? (Click to find out)

50% of the turkers who participated in four other chains chose to transfer the next participants' earned bonus to themselves and 50% chose NOT to transfer the next participants' earned bonus.



What are your options? (Click to find out)

Would you like to transfer the earned bonus of the participant after you or not? If you choose not to transfer the next participant's earned bonus, your current payment will not change and the next participant will receive his/her earned bonus. If you choose to transfer the next participant's earned bonus, \$0.50 will be subtracted from the next participant's payment, divided by 2, and you will receive \$0.25 as an additional bonus.

First, to make sure that you have clicked on, read, and understood the information above, please summarize it in 1-2 sentences:

Now, please make your decision.

I TRANSFER the next participant's earned bonus to myself.

I DO NOT TRANSFER the next participant's earned bonus to myself.

Submit

Figure A10. Decision page for a link in the observation condition in the Bonus Game.

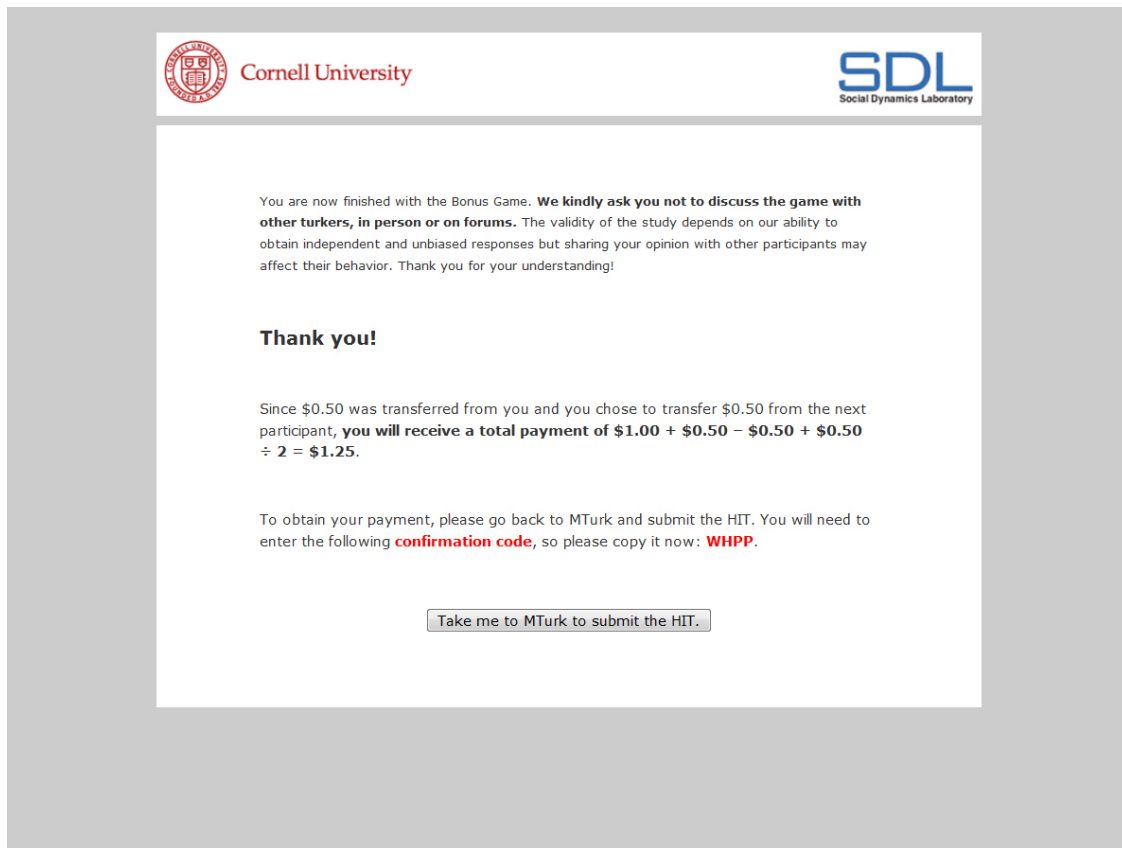


Figure A11. Final page in the Bonus Game.

2. Additional information and analyses

To improve the internal validity of the study, we required participants to answer correctly five multiple-choice questions that tested their comprehension of the game rules. Participants were allowed three attempts (two mistakes) to answer the quiz in order to be able to participate. The quiz required simple mathematical operations and was thus also intended to convince participants that they had earned their payment, rather than received it as a gift, with the ultimate goal of strengthening the incentives. 1,198 AMT users attempted to answer the quiz and 438 did not manage to do so within the allowed number of attempts (failure rate of 36.6 percent).

Figure A1 shows the power analysis used to determine the number of seeds (and hence, chains) in the game. The total sample size from the test represents the desired number of seeds in the no-observation condition and half of the desired number of seeds in the observation condition (since we wanted to test the effects of both low and high observation). The test suggested about 150 chains for a power level of around 0.9, assuming a transfer level of 50 percent in the no-observation condition and a relatively large effect size from observation.

Table A2 shows the distribution of participants in the observation/no-observation and seed/link treatments.

Table A3 tests for a difference in the effect of experiencing a loss between seeds and links. The difference is not statistically significant ($\chi^2 = 0.88, p = 0.349$).

Table A4 shows detailed demographics for the participant sample. Participants had a mean age of 30.4 (ranging from 18 to 67), were 37.3 percent female, and had a median household income of \$40,000–\$49,999. The sample consisted of 72.3 percent U.S. citizens and 24.2 percent Indian citizens, with the remaining participants being from other countries. The most common ethnicities were white (60.9 percent) and Asian (25.1 percent). 22.8 percent reported being non-religious and 19.3 percent atheists, while Christianity was the most common religion. 7.1 percent reported educational attainment of high school or less, 32.8 percent some college or an associate's degree, and 60.2 percent a bachelor's or graduate degree.

Table A5 uses the demographic data to predict the log-odds that the participant transfers.

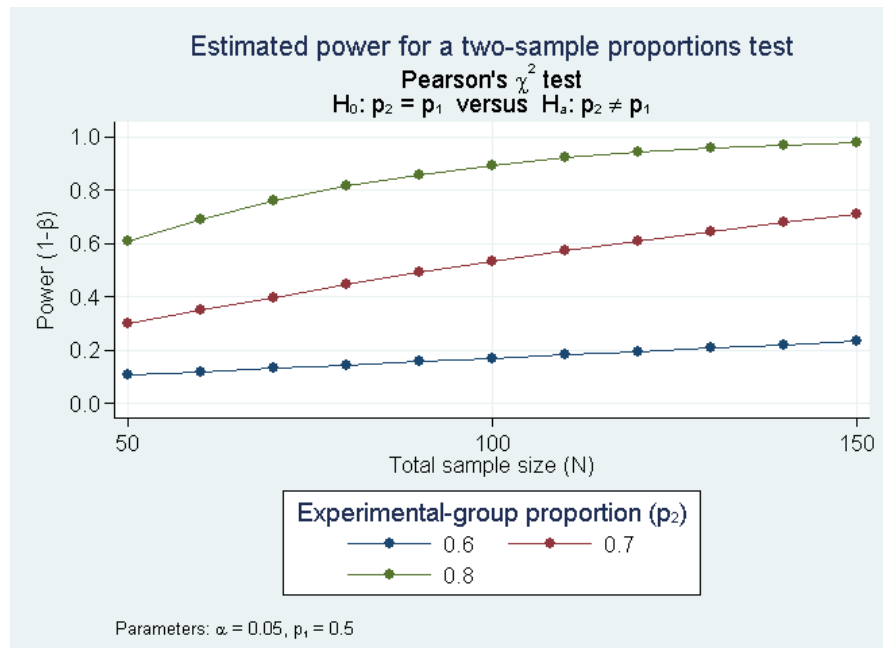


Figure A1. Power analysis for the number of seeds in the Bonus Game. The analysis is for a two-sample proportions test assuming a transfer proportion of 0.5 in the no-observation condition, and a significance level of 0.05.

Table A2. Number of participants by experimental treatment.

		Seeds	Links	Total
No observation		50	200	250
Observation	Low observation	50	200	250
	High observation	50	200	250
Total		150	600	750

Table A3. Differences between links and seeds in the log odds of transfer from the next participant.

	Coefficient (s.e.)
Loss	1.542 (0.837)
Link	- 0.518 (0.470)
Link * Loss	- 0.060 (0.909)
Constant	0.598 (0.375)
Number of observations	250
LR χ^2	3 df, 21.58**

Two-sided tests: * $p < 0.05$, ** $p < 0.01$

The table reports coefficients and standard errors (in parentheses) from logistic regression for participants in the no-observation treatment. Results do not show a statistically significant difference in the effect of experiencing a loss between seeds and links.

Table A4. Detailed demographics for the participant sample.

Characteristic	Mean/ Percent
Female	37.33
Age.....	30.42 (SD=8.80)
Income	
Less than \$10,000.....	16.69
\$10,000–\$19,999.....	12.89
\$20,000–\$29,999.....	13.84
\$30,000–\$39,999.....	13.70
\$40,000–\$49,999.....	10.31
\$50,000–\$59,999.....	6.65
\$60,000–\$69,999.....	6.65
\$70,000–\$79,999.....	4.48
\$80,000–\$89,999.....	3.53
\$90,000–\$99,999.....	3.93
\$100,000–\$149,999.....	5.29
\$150,000 or More.....	2.04
Education	
Less than High School.....	0.27
High School or GED.....	6.82
Some College.....	25.80
Associate's Degree.....	6.95
Bachelor's Degree.....	43.18
Graduate Degree (Master's, Doctorate, etc.)	16.98
Nationality	
United States.....	72.29
India.....	24.23
Other.....	3.48
Ethnicity	
White, non-Hispanic.....	60.86
Asian/Pacific Islander.....	25.07
African-American.....	3.89
Hispanic.....	3.08
Native American.....	0.67
Other.....	6.43
Religion	
Non-religious.....	22.82
Atheist.....	19.33
Hindu.....	19.06
Protestant.....	10.87
Roman Catholic.....	10.47
Other Christian.....	10.74
Muslim.....	2.28
Jewish.....	1.48
Buddhist.....	1.21
Other non-Christian.....	1.74

Table A5. Demographic differences in log odds of transfer.

	Coefficient (s.e.)
Age	- 0.009 (0.009)
Female	- 0.617** (0.167)
Income	0.000 (0.000)
Education: Associate's or some college	0.157 (0.330)
Education: Bachelor's or graduate degree	0.292 (0.321)
Religion: Hindu	0.934* (0.407)
Religion: other non-Christian	0.153 (0.356)
Religion: non-religious	- 0.280 (0.222)
Religion: atheist	- 0.267 (0.234)
Nationality: India	- 0.662 (0.442)
Nationality: other	0.222 (0.464)
Ethnicity: Asian or Pacific Islander	0.219 (0.310)
Ethnicity: other non-white	- 0.076 (0.260)
Constant	0.893** (0.327)
Number of observations	745
LR χ^2	13 df, 29.65**

Two-sided tests: * $p < 0.05$, ** $p < 0.01$

The table reports coefficients and standard errors (in parentheses) from logistic regression with a baseline of a thirty-year-old white, U.S., Christian male with a high school education or less and household income of less than \$10,000. Results show that females are less prone to antisocial behavior.