A Culture of Cheating: The Role of Worldviews in Preferences for Honesty

Johan Birkelund[a], Todd L. Cherry[b,c,*] and David M. McEvoy[d]

Abstract

We explore the interaction of cultural worldviews and cheating behavior using a coin-flipping task in an online experiment. Two treatments are conducted, one in which cheating has only private benefits and one in which cheating benefits the public. While we find no differences in behavior across treatments, we find significant differences in dishonest behavior between genders which are largely explained by cultural worldviews.

JEL Classification: C91; C11; J16

Keywords: Honesty; Cultural Worldviews; Gender; Behavioral Economics; Experiments

Acknowledgements: The authors appreciate the helpful comments from Øystein Myrland, Eirik E. Heen, Stein Østbye, Sverre T. Braathen and participants at the 2019 ESA North American conference.

[*]corresponding author

[a]School of Business and Economics, UiT - The Arctic University of Norway, NO-9037 Tromsø, NORWAY; johanbirkelund@gmail.com

[b]Department of Economics, University of Wyoming, Laramie WY 82071 USA; tcherry@uwyo.edu

[c]CICERO Center for International Climate Research, Oslo, P.O. Box 1129 Blindern, 0318 NORWAY

[d]Department of Economics, Appalachian State University, Boone NC 28608 USA; mcevoydm@appstate.edu

A Culture of Cheating: The Role of Worldviews in Preferences for Honesty

1. Introduction

A large literature within economics and social psychology over the past few decades has provided mounting evidence that preferences for honesty vary within the population. Ongoing research seeks to identify which characteristics affect individual preferences for honesty, with an emerging line of work considering the role of culture.

When considering cultural differences, researchers often compare behavior across geographical locations, using location as a proxy for culture. Results from studies that compare across locations have found inconsistent evidence for differences. While some find that honesty levels differ (e.g., Cohn et al., 2019; Dieckmann et al., 2016), others fail to detect any significant difference (e.g., Mann et al., 2016; Pascual-Ezama et al., 2015). In contrast to geographical location as a proxy, Ariely et al. (2019) uses family background from East Germany as a proxy for exposure for socialism and finds that people brought up under socialism are less honest.

This study provides new evidence by measuring culture at the individual level rather than using geographical location or family background as a proxy for culture. Cultural worldviews, defined as a socially constructed orientation that dictates how one interprets and interacts with society, has previously shown to be a strong predictor of individual preferences on various social issues such as gun control, climate change and free-riding (Kahan et al., 2011; Cherry et al., 2017a). The cultural cognition literature postulates that adherents of hierarchical and individualistic worldviews are less tolerant towards social deviance (Kahan, 2008), which suggests that these individuals will have higher preferences for honesty.

We extend this line of inquiry to consider dishonesty when it only benefits the actor (selfish) and when it benefits the actor and others (Pareto). From the literature, people appear to be more dishonest when the benefits are shared with others (e.g., Wiltermuth, 2011; Ploner and Regner, 2013). Given that people with hierarchical and individualistic worldviews tend to be more self-serving (Cherry et al., 2017b), we consider whether any difference between selfish and Pareto dishonesty is worldview-specific.

This study draws from two literatures to combine a variant of a coin-flip task commonly used in the dishonesty literature (e.g. Bucciol and Piovesan, 2011) and an established instrument used to measure individual cultural worldviews (e.g., Kahan et al., 2011). This allows us to investigate the possible interplay between cultural worldviews and preferences for honesty.

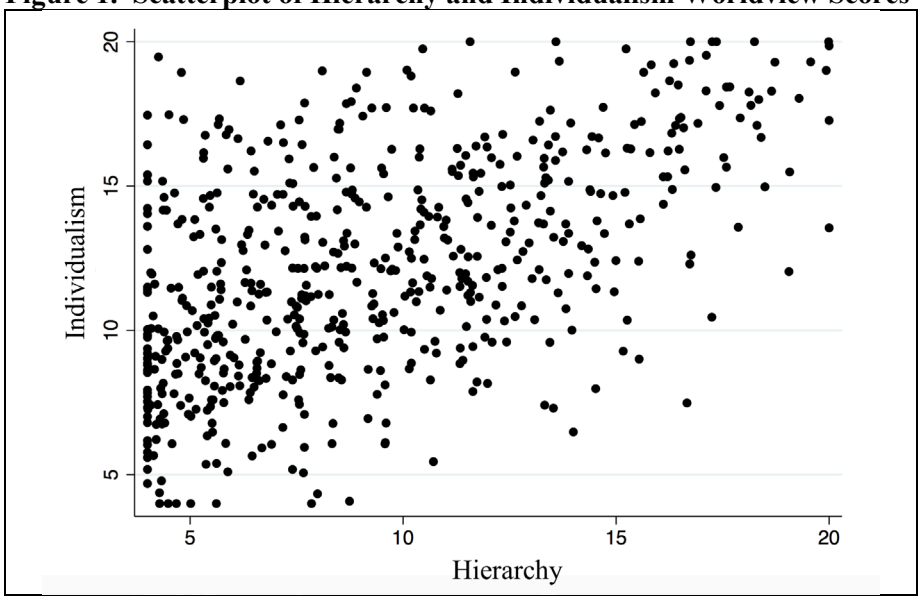
2. Experimental Design and Hypotheses

This paper utilizes a variation of the commonly used coin-flip task from the literature, where subjects are asked to report the outcome of ten coin-flips each paying $0.25 per "heads".[1] Actual outcomes were not observed, which allowed subjects to over-report with impunity.[2] We employ a between-subject design that randomly assigned subjects to one of two decision environment treatments. A *private-return treatment* follows the literature by paying subjects $0.25 for each self-reported head. A *public-return treatment* directs subject earnings to a group account akin to a public good game. Specifically, subjects are randomly assigned to groups of four and each subject's earnings from self-reported heads ($0.25 per head) is placed in a public good account. The sum of the group members' earnings is multiplied by 1.6 and shared equally among the four members. Therefore, the marginal per capital return is 0.40.[3]

Following the coin-flip task, subjects completed a set of worldview questions drawn from the cultural cognition literature (Kahan et al., 2008). Following the literature (e.g., Cherry et al., 2017a), responses to the questions were used to organize an individual's worldviews along two dimensions: hierarchy-egalitarianism and individualism-communitarian. For each dimension, worldview scores range from 4 to 20, with a higher score indicating a more hierarchical (less egalitarian) worldview and a more individualistic (less communitarian) worldview. Figure 1 presents a scatterplot of the two worldview measures.[4] We assign subjects to worldview categories based on their scores with participants scoring above the median defined as hierarchists and individualists and those scoring at or below the median defined as egalitarians and communitarians. Subjects concluded by providing basic non-identifiable characteristics, which we use to explore possible heterogeneous treatment effects.

[1] For subjects that did not have a coin nearby, we provided a link to a virtual coin-flip (https://justflipacoin.com/).
[2] Following prior studies (e.g., Houser et al. 2012; Dickinson and McEvoy 2021), we observe aggregate behavior and conduct tests at group levels.
[3] Characterizing the return to reporting heads as a public good introduces uncertainty that does not exist in the private return treatment. This did not lead to significant differences in self-reporting.
[4] The hierarchy measure has a mean, median and standard deviation of 9.30, 8.00 and 4.14, while the individualism measure has a mean, median and standard deviation of 12.17, 12.00 and 3.74.

Figure 1. Scatterplot of Hierarchy and Individualism Worldview Scores



Note: plots are slightly jittered to better illustrate the distribution of data

We recruited 702 subjects through Amazon's online workforce, Mechanical Turk (MTurk). We targeted experienced MTurk participants residing in the United States that had over 95% approval rankings. We employed "rIP" (Kennedy et al., 2020) to remove duplicate and suspicious addresses, which left 590 observations for the analysis.[5] Including a $0.75 participation payment, the average hourly pay rate equaled $10.50.

We consider three research questions. First, we investigate the potential influence of cultural worldviews on preferences for honesty by testing the null that reported heads is equivalent across worldviews. From the literature (Kahan, 2008), we expect to find that individuals holding hierarchical and individualistic worldviews will self-report fewer heads. Second, we investigate possible differences in self-reporting behavior across the private and public benefit treatments by testing the null across the two decision environments. Previous work shows that people are more likely to engage in dishonest behavior when the benefits are shared with others (Wiltermuth, 2011), so we anticipate higher self-reporting of heads in the public decision environment, relative to the private setting. We also consider the potential interplay between worldviews and decision environments (private or public). Third, given the existing literature on gender differences in dishonest behavior (e.g., Abeler et al., 2014; Conrads et al., 2014), we take advantage of soliciting personal characteristics to consider

[5] Findings were similar with the full sample.

possible gender-specific effects of cultural worldviews on preferences for dishonesty. Previous work reports greater dishonesty among men, so we consider whether this finding is independent of individual cultural worldviews by testing the null that self-reporting is equivalent across gender by worldview.[6]

3. Results

Figure 1 provides the predicted and self-reported frequency distributions for the outcomes of 10 coin flips. It shows that self-reported heads skew higher than predicted with a spike at the maximum of 10, which indicates some subjects partially lied and some maximally lied. This finding is consistent with prior studies that report many subjects lying, but not to extremes (e.g., Birkelund and Cherry, 2020; Abeler et al., 2019).

Figure 1. Frequency of predicted and self-reported number of heads

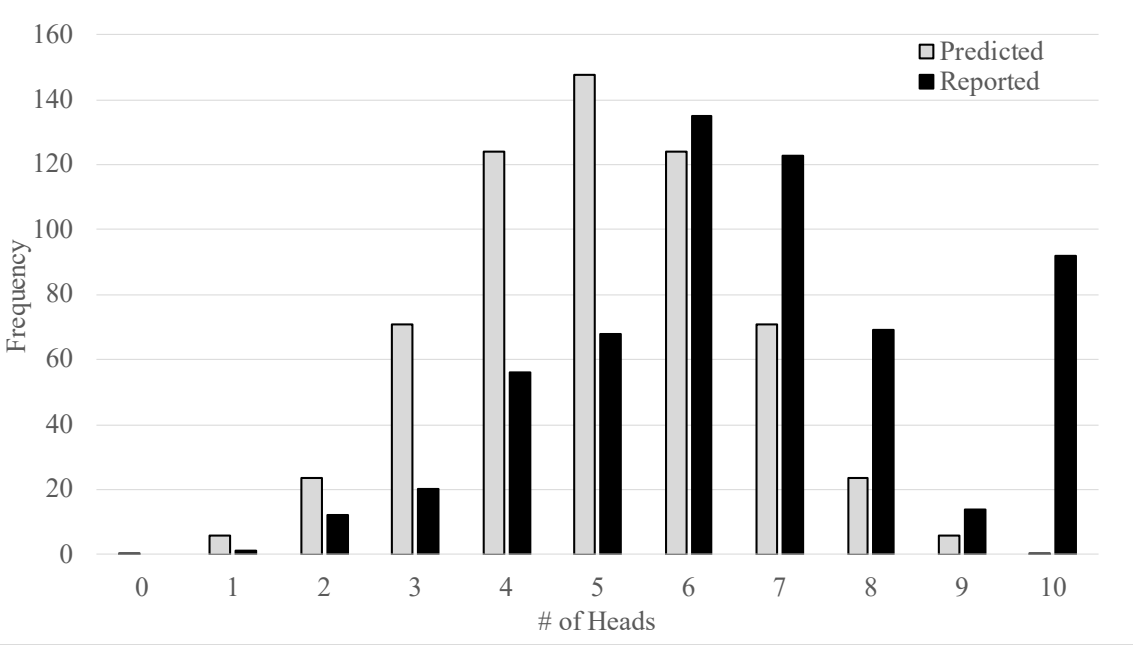


Table 1 provides the average number of self-reported heads by treatment and worldview. Overall, subjects reported an average of 6.64 heads out of 10 coin-flips. We consider the first research question that worldviews may influence preferences for honesty by comparing self-reports across the spectrum of each worldview dimension. For the hierarchy dimension, the average number of self-reported heads was similar across subjects that hold hierarchical and

[6] Evidence on gender differences in honesty when subjects do not interact is mixed, see Muehlheusser et al. (2015), Ezquerra et al. (2018), Ariely et al. (2019).

egalitarian views (6.54 vs 6.74; p=0.186).[7] A null result also emerges in the individualism dimension, with self-reports being similar across subjects with individualist and communitarian views (6.57 vs 6.69; p=0.306). Worldviews often carry considerable sway in preferences, but research shows the influence can be nuanced (e.g., Kahan et al., 2011; Cherry et al., 2017a). We therefore examine heterogeneous effects from worldviews.

We first extend the analysis by exploring whether any influence of worldviews may be specific to the private versus public return treatments. Generally, tests indicate no difference in the number of self-reported heads between the private and public treatments (6.60 vs. 6.69; p=0.649). Worldview-specific comparisons across private and public treatments also reveal no significant differences in self-reporting behavior. Results therefore find no nuance in the interplay between worldviews and whether dishonesty yields individual or shared benefits. This finding may be due to the experimental design creating a setting in which subjects are anonymous, have no group-identity and do not know others' decisions—all factors that have been shown to close the gap between self- and other-regarding dishonesty (e.g., Gino and Galinsky, 2012; Pascual-Ezama et al., 2015).

Table 1. Mean Self-reported Heads by Treatment and Worldview

		Hierarchy		Individualism	
	Pooled	Hierarchical	Egalitarian	Individualistic	Communitarian
Pooled	6.64	6.54	6.74	6.57	6.69
	(2.04)	(2.16)	(1.91)	(2.11)	(1.98)
	[590]	[288]	[302]	[264]	[326]
Private	6.60	6.47	6.71	6.59	6.60
	(2.09)	(2.21)	(1.98)	(2.15)	(2.05)
	[300]	[143]	[157]	[123]	[177]
Public	6.69	6.61	6.77	6.56	6.81
	(1.98)	(2.12)	(1.84)	(2.07)	(1.89)
	[290]	[145]	[145]	[141]	[149]

Notes: Standard deviations reported in parentheses; number of observations reported in brackets.

Next, motivated by the literature on gender differences in preferences for honesty, we utilize responses to an ex-post questionnaire that asked subjects their gender. Research suggests that men tend to cheat more than women, though many studies have uncovered potential factors to alter this conclusion. For our purposes, Erat and Gneezy (2012) report that women are more dishonest than men when others benefit. So, in addition to examining gender-specific effects from worldviews, we consider if gender differences in self-reporting

[7] Tests are Mann Whitney U unless otherwise noted.

exist across private and public treatments. Table 2 reports the average number of self-reported heads by gender and worldview (combined private and public treatments). The numbers follow previous studies that find a significant gender difference. In our study, men self-report more heads than women on average (p=0.009), and this result persists when segmenting by treatment (private: p=0.091; public: p=0.039).

We extend this line of inquiry by examining the interplay of gender and worldviews. From Table 2, comparing the mean self-reported heads by gender reveals that gender differences may be worldview-specific. While tests find that no significant gender differences exist between communitarian and egalitarian types (p=0.365 and p=0.394), they do indicate significant gender differences among subjects that have individualist versus hierarchical views (p=0.004 and p=0.003). Further, when comparing men and women across worldviews, we find differences across worldview types for women but not men. Specifically, women with individualist views reported fewer heads than women with communitarian views (p=0.036), and women with hierarchical views reported significantly fewer heads than women with egalitarian worldviews (p=0.016). In contrast, men report statistically equivalent numbers of heads across each worldview dimension (individualism: p=0.853; hierarchy: p=0.913). These findings offer evidence that cultural worldviews may underlie observed gender differences, and that much of the influence from worldviews occurs among women.

Table 2. Mean Self-reported Heads by Worldview and Gender

		Gender	
	Pooled	Male	Female
Pooled	6.64 (2.04) [590]	6.82 (2.09) [367]	6.35 (1.91) [223]
Individualist	6.57 (2.11) [264]	6.84 (2.18) [168]	6.10 (1.91) [96]
Communitarian	6.69 (1.98) [326]	6.80 (2.02) [199]	6.53 (1.90) [127]
Hierarchical	6.54 (2.16) [288]	6.81 (2.21) [191]	6.00 (1.99) [97]
Egalitarian	6.74 (1.91) [302]	6.83 (1.96) [176]	6.61 (1.84) [126]

Notes: Standard deviations reported in parentheses; number of observations reported in brackets.

We corroborate the aggregate tests with a conditional analysis. Table 3 provides the estimates of regression models that define an individual's number of self-reported heads as a function of the treatment, worldview scores and gender.[8] We estimate two models using the full sample and four models that stratify the sample by worldview types.[9] Results follow the unconditional tests. In particular, estimates find a gender difference in the pooled models, and the worldview-specific estimates indicate the gender difference exists among people with hierarchical and individualist worldviews.

Table 3. OLS estimates of self-reporting behavior

	Pooled		Worldview			
	Model 1	Model 2	Hierarchical	Egalitarian	Individualist	Communitarian
Private	-0.146	-0.216	-0.220	-0.243	-0.205	-0.247
	(0.168)	(0.170)	(0.270)	(0.223)	(0.268)	(0.222)
Gender	0.510***	0.460**	0.858***	0.142	0.757***	0.189
(Male=1)	(0.173)	(0.180)	(0.304)	(0.227)	(0.285)	(0.231)
Egalitarian	0.220	0.304*	-	-	-	-
	(0.180)	(0.182)				
Communitarian	0.0688	0.0185	-	-	-	-
	(0.180)	(0.184)				
Constant	6.247***	5.742***	5.861***	6.029***	5.746***	6.377***
	(0.190)	(0.533)	(0.773)	(0.715)	(0.842)	(0.701)
Controls	No	Yes	Yes	Yes	Yes	Yes
R^2	0.018	0.080	0.098	0.139	0.140	0.121
N	590	590	288	302	264	326

Dependent variable is the number of self-reported heads. Control variables include socio-economic characteristics. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

4. Conclusion

Previous research has investigated the role of culture on preferences for honesty. This literature generally relies on proxies such as location and background to measure culture. This study draws from the cultural cognition literature to use an established instrument to measure cultural worldviews at the individual level. Combined with a variant of a coin-flip

[8] Results were robust to alternative specifications, including an ordered Probit.
[9] The controls include age, education, income, ethnicity, and regions in the U.S., which were collected in the ex-post questionnaire.

task commonly used in the dishonesty literature, we investigate the possible interplay between cultural worldviews and preferences for honesty. Results offer no evidence that worldviews matter in preferences for honesty whether the benefits from lying are private or shared.

However, an investigation of the nuances of worldviews uncovers new insights on gender differences reported in the literature. Consistent with previous studies, we find that men, on average, are more dishonest than women. This finding holds whether dishonesty benefits an individual or the entire group. The key finding however is that gender-specific preferences for honesty depend on individual cultural worldviews. Results indicate that cultural worldviews play a meaningful role in gender differences in levels of dishonest behavior, with worldviews being particularly influential among women.

References

Abeler, J., A. Becker and A. Falk. 2014. Representative evidence on lying costs. *Journal of Public Economics* 113:96-104.

Abeler, J., D. Nosenzo and C. Raymond. 2019. Preferences for truth-telling. *Econometrica* 87(4): 1115-1153.

Ariely, D., X. Garcia-Rada, K. Gödker, L. Hornuf and H. Mann. 2019. The impact of two different economic systems on dishonesty. *European Journal of Political Economy* 59: 179-195.

Birkelund, J. and T.L. Cherry. 2020. Institutional inequality and individual preferences for honesty and generosity. *Journal of Economic Behavior and Organization* 170: 355-361.

Bucciol, A. and M. Piovesan. 2011. Luck or cheating? A field experiment on honesty with children. *Journal of Economic Psychology* 32(1): 73-78.

Cherry, T.L., S. Kallbekken and S. Kroll. 2017a. Accepting market failure: Cultural worldviews and the opposition to corrective environmental policies. *Journal of Environmental Economics and Management* 85: 193-204.

Cherry, T.L., D.M. McEvoy and H. Sælen. 2017b. Conditional cooperation and cultural worldviews. *Economics Letters* 158: 51-53.

Cohn, A., M.A. Maréchal, D. Tannenbaum and C.L. Zünd. 2019. Civic honesty around the globe. *Science* 365(6448): 70-73.

Conrads, J., B. Irlenbusch, R.M. Rilke and G. Walkowitz. 2014. Honesty in tournaments. *Economics Letters* 123(1):90-93.

Dickinson, D.L. and D.M. McEvoy. 2021. Further from the truth: The impact of moving from in-person to online settings on dishonest behavior. *Journal of Behavioral and Experimental Economics* 90

Dieckmann, A., V. Grimm, M. Unfried, V. Utikal and L. Valmasoni.2016. On trust in honesty and volunteering among Europeans: Cross-country evidence on perceptions and behavior. *European Economic Review* 90: 225-253.

Dreber, A. and M. Johannesson. 2008. Gender differences in deception. *Economics Letters* 99: 197-199.

Ezquerra, L., Kolev, G. I., & Rodriguez-Lara, I. (2018). Gender differences in cheating: Loss vs. gain framing. *Economics Letters*, 163, 46-49.

Gino, F. and Galinsky, A.D. (2012) Vicarious dishonesty: When psychological closeness creates distance from one's moral compass. *Organizational Behavior and Human Decision Processes* 119(1): 15–26.

Houser, D., S. Vetter and J. Winter. 2012. Fairness and Cheating *European Economic Review* 56(8): 1645-1655.

Kahan, D.M., 2008. Cultural cognition as a conception of the cultural theory of risk. *Handbook of Risk Theory*. Roeser S., Hillerbrand R., Sandin P., Peterson M. (eds). Springer, Dordrecht. https://doi.org/10.1007/978-94-007-1433-5_28

Kahan, D.M., H. Jenkins-Smith and D. Braman. 2011. Cultural cognition of scientific consensus. *Journal of Risk Research* 14(2): 147-174.

Kennedy, R., S. Clifford, T. Burleigh, R. Jewell and P. Waggoner. 2020. The shape of and solutions to the MTurk quality crisis. *Political Science Research and Methods* 8(4): 614-629.

Mann, H., X. Garcia-Rada, L. Hornuf, J. Tafurt and D. Ariely. 2016. Cut from the same cloth: Similarly dishonest individuals across countries. *Journal of Cross-Cultural Psychology* 47(6): 858-874.

Muehlheusser, G., Roider, A., & Wallmeier, N. (2015). Gender differences in honesty: Groups versus individuals. Economics Letters, 128, 25-29.

Pascual-Ezama, D., Dunfield, D., Gil-Gomez de Lia ´ no, B. and Prelec, D. 2015. Peer effects in unethical behavior: Standing or reputation? *PLoS ONE* 10(4), 1–14:e0122305. doi:10.1371/journal.pone.0122305.

Pascual-Ezama, D., T.R. Fosgaard, J.C. Cardenas, P. Kujal, R. Veszteg, B.G.-G. de Liaño, B. Gunia, D. Weichselbaumer, K. Hilken and A. Antinyan. 2015. Context-dependent cheating: Experimental evidence from 16 countries. *Journal of Economic Behavior & Organization* 116: 379-386.

Wiltermuth, S.S. 2011. Cheating more when the spoils are split. *Organizational Behavior and Human Decision Processes* 115(2):157-168.

Supporting Materials

1A. Worldview Instrument (Kahan et al., 2011)

Individualism Dimension

1. Government interferes too much in our everyday lives.
2. Sometimes government needs to make laws that keep people from hurting themselves.*
3. The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals.*
4. It's not the government's business to try to protect people from themselves.

Hierarchy Dimension

1. Our society would be better off if the distribution of wealth was more equal.*
2. We have gone too far in pushing equal rights in this country.
3. Discrimination against minorities is still a very serious problem in our society.*
4. Society as a whole has become too soft.

Note: Respondent indicated one of five responses (strongly agree, agree, neither agree or disagree, disagree, strongly disagree) and received five to one points for each response, respectively. Summing the points across questions within each dimension creates a spectrum between four and 20. For control purposes, the questions in each dimension were split between a positive and negative frame; those marked with * were reversed coded.

2A. Ex-post Questions

1. What region of the United States do you live in?
   - Northwest
   - Midwest
   - South
   - West

2. What is your gender?
   - Male
   - Female
   - Other

3. Please specify your ethnicity.
   - White, non-Hispanic
   - Hispanic or Latino
   - Black or African-American
   - Native American
   - Asian or Pacific Islander
   - Other

4. Generally speaking, you usually think of yourself as a
   - Strong Conservative
   - Conservative
   - Independent
   - Liberal
   - Strong Liberal
   - Other

5. What is the highest level of education that you have completed?
   - Less than High School
   - High School (or GED)
   - Some College (no degree)
   - Technical/Associates Degree
   - Bachelor's Degree
   - Graduate Degree

6. As close as you can recall, what is your household's total annual income before taxes?
   - Less than $15k
   - $15k to $24,999
   - $25k to 49,999
   - $50k to 74,999
   - $75k to 99,999
   - $100k to 124,999
   - $125k +

3A. Experimental Instructions

Common for both treatments:

This survey is being conducted by researchers at Appalachian State University in Boone, North Carolina.

The survey should take less than 10 minutes to complete.

Participation is completely voluntary, and even after you begin, you can change your mind and stop at any time. However, payment will only be made for complete surveys. Once you complete the survey, a confirmation code will be displayed. YOU MUST ENTER THE CONFIRMATION CODE IN THE DESIGNATED BOX ON THE MTURK WEBSITE.

We promise that all responses will be kept confidential, and we will not access any personally identifiable information about you that you may have put on your Amazon public profile page. We will delete your MTurk worker ID after the survey is complete, and any resulting data will not be associated with you.

If you have questions about this survey, you may contact Professor McEvoy at mcevoydm@appstate.edu

By continuing to the research procedures, I acknowledge that I am at least 18 years old, have read the above information, and agree to participate.

>>

Appalachian STATE UNIVERSITY

Thank you for participating. In addition to the $0.75 you earn just for completing this MTurk HIT, you will earn more money as a **BONUS** payment.

The amount of money you earn as a BONUS will depend partly on chance and partly on your decisions (your BONUS could range from $0.00 to $2.50)

Please pay attention to the instructions on the next page.

>>

Private Treatment:

Appalachian STATE UNIVERSITY

INSTRUCTIONS

You are not part of a group. Your earnings only depend on your decisions.

TASK: Your task is to flip a coin 10 times and report the number of HEADS you flipped.

EARNINGS: For every HEADS you flip, you will earn $0.25. Your total earnings will be $0.25 x the number of HEADS flipped out of the 10 coin flips.

INDIVIDUAL ACCOUNT: Your total earnings will be placed an individual account.

PAYMENT: **Your payment will be the earnings placed in your individual account**. You will receive your payment as a BONUS on MTurk after the experiment concludes (within three days).

>>

Public Treatment:

Appalachian STATE UNIVERSITY

INSTRUCTIONS

You will be placed in a group of four. Your earnings depend on your decisions and the decisions of the members in your group.

TASK: Your task is to flip a coin 10 times and report the number of HEADS you flipped.

EARNINGS: For every HEADS you flip, you will earn $0.25. Your total earnings will be $0.25 x the number of HEADS flipped out of the 10 coin flips.

GROUP ACCOUNT: **Your total earnings will be placed a group account**. The earnings of the other three members of your group will also be placed in the same group account. The total earnings placed in the group account from all four members will be multiplied by 1.6 and shared equally among you and the other three group members.

PAYMENT: **Your payment will be the earnings from the group account.** The research team will calculate the earnings for the group and you will receive your payment as a BONUS on MTurk after the experiment concludes (within two days).

Common for both treatments:

Appalachian STATE UNIVERSITY

START

Flip a coin 10 times. It might help to jot down the result of each flip to keep track of your 10 flips.
If you don't have a coin handy, you may visit the following website and flip a virtual coin.

http://justflipacoin.com

How many HEADS did you get out of 10 flips?

>>