On the Determinants of Other-Regarding Behavior: A Field Test of Haidt's Moral Foundations Theory

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Abstract: This paper investigates the effect of individual moral commitments on other regarding behavior using the Moral Foundations Questionnaire (MFQ) created by Haidt and Graham (2007). The MFQ measures moral commitments using five foundations of moral decision-making (*Care*, *Fairness*, *Loyalty*, *Authority*, and *Purity*). We followed the initial questionnaire with an effort-based task designed to measure other-regarding behavior. We find that differences in moral foundations as measured by the MFQ cause modest differences in our measure of other regarding behavior (i.e., follow-up survey return). We also find several unanticipated outcomes. Follow-up survey return is supported by an interest in cooperation (*Fairness*) and not by emotional sensitivity to the well-being of others (*Care*). Moreover, follow-up survey return is less frequent when participants have stronger moral commitments based in *Authority* (i.e., individuals exchange privileges and benefits in return for promises to maintain order).

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On the Determinants of Other-Regarding Behavior

I. Introduction

Over the last two decades, results from hundreds of experiments suggest that other regarding behavior is common. To explain the causes of this other regarding behavior, researchers have focused on the contextual features of social interactions (Engel, 2011). For instance, List (2007) and Bardsley (2008) compare outcomes under a standard dictator game and a modified dictator game that allows the dictator to take as well as give some or all of the money assigned to the other participant. When dictators may take as well as give, the percentage of dictators that give falls (Bardsley, 2008; List, 2007). Furthermore, when participants earn their endowments, both taking and giving behavior subside (List, 2007).

In a similar vein, Krupka and Weber (2013) vary the context of the dictator decision across a series of experimental conditions. In the first stage of the experiment, participants identified which distributions were socially appropriate for a series of dictator games. In the second stage, a second set of participants played the dictator games described in the first stage. The results show that the first stage responses duplicate the second stage actions.

However, the results of these experiments also show that adherence to these norms is less than perfect. This suggests that factors other than norms may affect other regarding behavior. One likely candidate is individual moral commitments. Individual moral commitments may vary considerably across individuals and differences in the nature of these moral commitments may explain variations in other regarding behavior.

In a series of important papers, Jonathan Haidt and co-authors contend that moral functioning, and therefore social norms, is intuitive rather than deliberative and these intuitions have their basis in human evolution (Haidt and Joseph, 2004; Haidt and Graham, 2007; Graham et al., 2009; Graham et al., 2011). Reasoning from evolutionary processes, Haidt argues there are

five psychological foundations of moral decision-making: care/harm; fairness/reciprocity; ingroup/loyalty; authority/respect; and purity/sanctity (Haidt and Joseph, 2007). To classify participants based on their moral motives (or commitments), Haidt and co-authors developed the Moral Foundations Questionnaire (MFQ) (Haidt, 2001; Haidt and Joseph, 2004; Haidt, 2007; Haidt and Joseph, 2007; Haidt and Graham, 2007; Graham et al., 2009; and Haidt et al., 2011).

However, the degree to which the MFQ accurately captures moral commitments and predicts other regarding behavior is open to question. Consequently, this paper uses Haidt's MFQ to measure individual moral foundations and tests the effect of differences in these foundations on other regarding behavior in a field experiment. To the best of our knowledge, our experiment is the first test of the MFQ's ability to predict other-regarding behavior.

We find that differences in moral foundations as measured by the MFQ cause modest differences in our measure of other regarding behavior (i.e., follow-up survey return). We also find several unanticipated outcomes. Follow-up survey return is supported by an interest in cooperation (*Fairness*) and not by emotional sensitivity to the well-being of others (*Care*). Moreover, follow-up survey return is less frequent when participants have stronger moral commitments based in *Authority* (i.e., individuals exchange privileges and benefits in return for promises to maintain order).

II. Literature Review

Jonathan Haidt with a series of co-authors, offers a "new synthesis in moral psychology" based on human evolution (Haidt, 2001; Haidt and Joseph, 2004; Haidt, 2007; Haidt and Joseph, 2007; Haidt and Graham, 2007; Graham et al., 2009; and Haidt et al., 2011). In Haidt's view, reasoned moral systems did not cause human cooperative behavior. Rather, intuitive moral

foundations led to human cooperation and moral systems then developed out of human cooperative experiences. Consequently, the intuitions come before motivated reasoning; all reasoning is post hoc and aimed at rationalizing already conceived moral judgments.

Haidt and co-authors contend that these already conceived moral judgments follow from five moral foundations (care/harm, fairness/reciprocity, authority/order, loyalty/ingroup, purity/sanctity) and these foundations of moral behavior are the cognitive processes that underlie social norms and motivate other regarding behavior (Haidt and Joseph, 2004; Haidt and Joseph, 2007).[1]

The first of these five moral foundations, care/harm, is rooted in an evolutionary process that has shaped humans to be responsive to the afflictions of offspring (Haidt and Graham, 2007). Humans are responsive to the afflictions of offspring because keeping vulnerable offspring alive is a central determinant of evolutionary success in mammals. In primate species, especially humans, this sensitivity extends beyond the relation between mother and child.[2] Fairness/reciprocity, by contrast, evolved to facilitate human cooperation (Haidt and Graham, 2007). Expanding outward from cooperation among kin, fairness/reciprocity allowed for cooperation among unrelated individuals. Emotions that allowed humans to realize the gains of reciprocal altruism with non-kin or distant kin in turn fostered evolutionary success. Fairness/reciprocity also fosters emotional reactions to signs of cheating and supports cultural constructs such as rights and social institutions related to justice.

Loyalty/ingroup developed from the long history of humans living in small groups of

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[1] Graham et al. (2011) adds liberty as a foundation.

[2] This evolutionary narrative also provides the base for the empathy-altruism hypothesis for other-regarding behavior developed by Batson et al. (1983); and Batson and Shaw (1991).

mostly kin. Humans developed a number of strong emotional and cognitive skills to recognize and trust members of their ingroup while being wary of outsiders. Indeed, experiments show that even relatively superficial cues to group membership can raise in-group favoritism and out-group hostility (Tajfel et al., 1971). Because sacrifices for the ingroup support ingroup cohesion and persistence, cultures construct virtues like loyalty, patriotism, and heroism. For similar reasons, individuals who betray or fail to aid the ingroup are punished (Haidt and Graham, 2007).[3]

These ingroups also exhibit a hierarchical structure and this in turn leads to a moral foundation based on authority/respect. The hierarchy implies that certain individuals receive privileges or benefits. However, the group expects these individuals to maintain order in the group and provide certain protections or services (Haidt and Graham, 2007). To support this hierarchy, cultures construct virtues related to good leadership. Bad leaders, by contrast, are despotic, exploitative, or inept.

Finally, purity/sanctity is based in disgust, an emotion that humans and only humans appear to have evolved. As humans transitioned to eat meat, likely scavenging carcasses at first, the frontal cortex grew rapidly. These simultaneous changes may explain why disgust is unique to humans. Disgust would have helped humans avoid consuming spoiled foods. This disgust function appears to have developed into the guardian of the body as a whole. It is therefore not surprising that moral beliefs about sex, food, and cleanliness correlate with strong disgust responses.

To measure individuals' moral foundations, Graham et al. (2009) develop the Moral

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[3] Over the last several decades research on in-group bias and other-regarding behavior has become fairly common. Ben-Ner et al. (2009) is just one example of research showing preferential treatment towards members of the in-group rather than out-group.

Foundations Questionnaire (MFQ). The MFQ includes 32 questions (6 for each foundation and 2 dummy questions) scored on a Lickert scale. Combining the responses for each foundation creates the foundation score. Haidt and coauthors used the MFQ to explore political differences, but since the survey measures moral foundations/intuitions we will use the MFQ to assess the determinants of other regarding behavior. Because these foundations often conflict, differences in other regarding behavior may follow from the relative weight individuals place on each of the foundations. For instance, Haidt and Graham (2007) show that self-described conservatives place roughly equal importance on each of the foundations while self-described liberals place a greater importance on the first two foundations.

While the literature aimed at merging evolutionary psychology and behavioral economics is limited, Brodbeck et al. (2013) offer an initial attempt at understanding the underlying psychological processes for other-regarding behavior. Toward this end, Brodbeck et al employ Relation Regulation Theory (RRT) and Relational Model Theory (RMT) first developed in Fiske (1992) and Rai and Fiske (2011). According to RRT and RMT, all moral psychology is relationship regulation. Rai and Fiske propose four universal moral motives, unity, hierarchy, equality, and proportionality. These correspond with the relational models in RMT: a community-sharing model, an authority-ranking model, an equality-matching model, and a market-pricing model. Notably, three of Fiske's relational models roughly correspond to the moral foundations of Moral Foundations Theory: Equality Matching = Fairness; Communal Sharing = Loyalty; Authority Ranking = Authority (Haidt and Graham 2007).

Based on RRT and RMT, Brodbeck et al. propose that moral motives affect decision-making through conscious and unconscious processes. In their experiment, they use framing and priming to induce moral motives of "unity" and "proportionality." Brodeck et al. prime

participants for unity using “common welfare” and “cooperative social behavior,” and they prime for proportionality using “cost-benefit optimization” and “individual profit maximization.” In the control condition, participants were not primed. Following the priming, participants play an interpersonal game and a solitary game.

In the interpersonal game, participants were asked to divide an endowment of ten euros into “Amount A” and “Amount B.” With a win (random outcome with probability = 2/3), the participant keeps their “Amount A” and “Amount B” goes to the other participant. With a loss, the participant receives their partner’s “Amount B.” The solitary game is identical to the interpersonal game except participants are not partnered with another person, and they instead insure themselves with their own “Amount B.” They found that participants in the interpersonal game who were primed with “unity” allocated more to “Amount B” while those primed with proportionality showed no difference with the control. Both “unity” and “proportionality” priming in the solitary game showed no effect. Thus, the “unity” prime only mattered in the interpersonal game.

However, because the experimenters induce the moral commitments through framing or priming, it is difficult to say that the results follow from differences in individual moral foundations or a desire to conform to a social norm suggested by the framing (or priming).

III. Experimental Design and Procedure

To allow direct inferences on the link between moral foundations and other regarding behavior, we administered Haidt’s Moral Foundations Questionnaire (MFQ), followed by an effort-based task. We designed the experiment to avoid two key problems. First, we wish to avoid selection bias into the experiment. Individuals who are inclined to volunteer for an

experiment are also more likely to show pro-social behavior in other social interactions. Thus, selection bias may reduce the variation in moral commitments across participants and cause inaccurate estimates of the effect of moral foundations on pro-social behavior. To avoid this problem, we asked for permission from a series of instructors to administer a survey in their classes near the end of the class session. Because students generally perceived the survey as part of class, very few declined to participate.[4] This allowed us to include participants with weak predispositions toward other-regarding behavior.

Second, asking a participant to complete an obvious pro-social task immediately after they have completed the MFQ may prime participants to exhibit pro-social behavior or induce experimenter effects. To prevent bias in our results, yet still allow us to match responses to the MFQ with other-regarding behavior, we concealed the true focus of our concern from participants. Toward this end, we created two surveys that suggested an apparent link between weather conditions and the MFQ. We administered the first survey in the classroom. This survey included questions about meteorological conditions (see Appendix A) in addition to the MFQ. Following the completion of the initial survey, we provided the participants with a numbered follow-up survey (Appendix B) as they left the room. The identifying number allowed us to match the initial and follow-up survey for each participant who responded to the follow-up survey. We asked participants to answer the questions on the follow-up survey and return the survey in 3 days using an addressed envelope and stamp we provided. This survey repeated three items from the MFQ and also asked questions about weather conditions. Our focus of concern was simply whether participants returned the survey.

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[4] Fourteen individuals out of 397 (3.5 percent) declined to participate and left before the initial survey was administered. Three additional participants (0.7 percent) received the initial survey but withdrew from the experiment before completing the initial survey.

We recruited 397 participants from 18 undergraduate classes at a mid-sized public college in the eastern U.S. and asked them to participate in an anonymous survey. The same researcher administered each survey and followed a script that explained that the survey was part of a senior research project required for graduation at the college. Participants were seated along with others in the same room, but answered the surveys independently without consulting other participants. Participants signed a consent form that informed them of the protections for confidentiality and anonymity and that they could decide to end their participation at any time. We then provided participants with the initial survey including questions about the weather and the moral foundations questionnaire from Graham et al. (2009).

We asked each instructor to allow us to administer the survey at the end the class session. We did this to minimize the amount of discussion about the follow-up survey. We numbered this follow-up survey in a way that allowed us to match the initial and follow-up surveys for each participant. We gave the students the follow-up survey (with an addressed envelope and stamp) as they returned the initial survey and left the room. We asked participants to answer the questions on the follow-up survey and return the survey in 3 days using the addressed envelope and stamp. Return of the follow-up survey was our measure of other-regarding behavior. We then used the moral foundation scores to predict follow-up survey returns.

To measure other-regarding behavior we created two variables. The first was a dummy variable, *Return*, which recorded whether or not the response survey was returned. We created the second variable, *Compliance*, to capture participant's compliance with instructions for completing the response survey. We instructed participants to complete and return the survey in 3 days using the stamp and envelope we provided. To capture compliance with these instructions, we created dummy variables for the inclusion of the stamp, the mailing of the

response, and returns in 3 days. We then assigned a value of 3 to *Compliance* if the response was completed in the appropriate amount of time, mailed, and included the stamp. We assigned a value of 2 to *Compliance* if the response only complied with 2 of these instructions. Finally, we assigned a value of 1 to all other participants who completed the follow-up survey and a 0 to all participants who did not complete the follow-up survey.

To create measures for each moral foundation we followed Graham et al. (2009) and summed the responses across question type. That is, Graham et al. classify q1, q7, q12, q17, q23, q28 as "care" questions, q2, q8, q13, q18, q24, q29 as "fairness" questions, q3, q9, q14, q19, q25, q30 as "loyalty" questions, q4, q10, q15, q20, q26, q31 as "authority" questions, and q5, q11, q16, q21, q27, q32 as "purity" questions. We then used the average and standard deviation (across participants) on each measure to calculate a normalized score on each of the five measures for each participant.

IV. Results

Across 18 undergraduate class sessions, 380 participants completed the initial survey. Table 1 reports means and standard deviations for key variables. From Table 1, we see the participants were 55.2 percent male and 44.8 percent female. Among the measures of moral foundations, the mean scores on the *Care* and *Fairness* measures were highest (21.4 and 21.3, respectively, on a scale of 0 to 30) while the mean score for *Purity* was the lowest (15.2). Purity showed the greatest variation in scores (σ = 5.7) while Fairness showed the least (σ = 3.5).

Table 2 reports correlation coefficients for gender and the normalized moral foundation scores. All five moral foundations are positively correlated to varying degrees. In particular, *Care* and *Fairness* (r = 0.4489), *Loyalty* and *Authority* (r = 0.5098), *Loyalty* and *Purity* (r =

0.4431), and *Authority* and *Purity* (r = 0.5562) are correlated. These correlations led us to combine *Care* and *Fairness* into a *Care_Fairness* variable and *Loyalty, Authority*, and *Purity* into a *Loyalty_Authority_Fairness* variable. These variables were normalized and included in the probit analysis reported in Tables 3 and the ordered probit analyses in Tables 4 and 5. Men had lower scores on all moral foundations except for *Loyalty* (+0.0466). The gender difference was particularly large on the *Care* (-0.3629) and *Fairness* (-0.2047) foundations.

Based on the moral foundations theory described above, we expect that when participants report higher measures on the *Care*, *Fairness*, and *Loyalty* foundations the probability of *Return* and the degree of *Compliance* will be higher. We expect that a higher *Care* measures (i.e., emotional sensitivity to the well-being of others) will be associated with higher *Return* probability and higher *Compliance* because participants will realize the difficulty of completing a senior research project without data and provide help. We expect that a higher *Fairness* measures (i.e., strong interest and emotional reaction to cooperation and cheating) will be associated with higher *Return* probability and higher *Compliance* because participants will see the follow-up survey as an opportunity to cooperate with another student (even if the student may have no opportunity to reciprocate). We expect that a higher *Loyalty* measures (i.e., trust in other members of the ingroup) will be associated with higher *Return* probability and higher *Compliance* because our experiment includes only participants who have a common institutional affiliation with the researchers.

We expect no association between the probability of *Return* or the degree of *Compliance* and the measures of *Authority* and *Purity* measures. *Authority* (i.e., privileges and benefits in return for maintaining order) should show no relation with *Return* or *Compliance* because the student researcher who interacted with participants was a peer rather than a person in an

institutional or perceived hierarchical position. *Purity* (i.e., disgust response) should show no relation with *Return* or *Compliance* because our other-regarding response lacks obvious framing that would trigger disgust.

Table 3 reports the marginal effects from a probit analysis of return of the follow-up survey (i.e., *Return*) on the normalized moral foundation scores with and without fixed effects. Columns 1 and 2 show *Fairness* is positively and significantly associated with *Return* ($p = 0.03$, $p = 0.04$, respectively). Thus, the parameter estimate for *Fairness* is consistent with our expectation. Column 1 shows that a one standard deviation increase in the normalized *Fairness* score leads to a 4.8 percent increase in probability of *Return*. Controlling for class fixed effects (column 2) produces a similar result (4.3 percent). Columns 1 and 2 of Table 4 report ordered probit analyses of the same five normalized moral foundation scores on *Compliance*. Columns 1 and 2 show *Fairness* is positively and significantly associated with *Compliance* ($p = 0.02$ and $p = 0.02$, respectively).

Finally, columns 1, 2, and 3 of Table 5 show the marginal effects for the specification reported in column 1 of Table 4. Examining the estimates for *Fairness* across columns 1, 2, and 3 of Table 5, we see that a one standard deviation increase in the normalized *Fairness* score increases the probability that the response was completed in the appropriate amount of time, mailed, and included the stamp (relative to compliance with only two of these items) by about 3.0 percent (column 3). Similarly, a one standard deviation increase in the normalized *Fairness* score increases the probability that respondent complied with two of the requests rather than one by about 1.5 percent (column 2). Column 1 shows that a one standard deviation increase in the normalized *Fairness* score increases the probability that respondent complied in some way (relative to failure to return the follow-up survey) by about 0.5 percent.

Contrary to expectations, Tables 3 and 4 show that *Care* and *Loyalty* have no statistically significant effect on either *Return* or *Compliance*. In all cases, the estimated effects of *Care* and *Loyalty* are quantitatively small. The *Care* estimates are about 20 to 25 percent of the *Fairness* estimates while the *Loyalty* estimates are smaller still. Also contrary to expectations, *Authority* is negatively and significantly associated with *Return.* From column 1 of Table 3, we see that a one standard deviation increase in the normalized *Authority* score leads to a 4.7 percent decrease in probability of *Return* ($p = 0.02$). Controlling for class fixed effects (column 2) produces a similar result (-6.0 percent, $p = 0.01$). The ordered probit analyses on *Compliance* reported in columns 1 and 2 of Table 4 also show significant and negative effects for *Authority* ($p = 0.01$ and $p < 0.01$, respectively).

As in the case for the *Fairness*, *Authority* shows significant marginal effects across each of the possible levels of *Compliance*. Examining the estimates for *Authority* across columns 1, 2, and 3 of Table 5, we see that in each case a one standard deviation increase in the normalized *Authority* score decreases the probability of *Compliance*. This negative relation between *Authority* and both *Return* and *Compliance* may be caused by the design. Participants with high *Authority* scores may see the student researcher's request for survey completion as a threat to the classroom authority relation between student and teacher. Finally, we note that, consistent with expectations, *Purity* has no statistically significant effect on either *Return* or *Compliance*. In all cases, the estimated effects of *Purity* are quantitatively small.

Because Table 2 shows high correlations between *Care* and *Fairness,* and also among *Loyalty*, *Authority*, and *Purity*, we aggregate the raw *Care* and *Fairness* scores and aggregate *Loyalty*, *Authority*, and *Purity* scores and then normalize the aggregate scores. Aggregating these variables may allow us to capture effects from the insignificant variables and thereby improve

the overall quality of the estimates. Columns 3 and 4 of Table 3 show the results for the aggregated *Care_Fairness* and *Loyalty_Authority_Purity* variables with and without fixed effects on *Return*. Columns 3 and 4 of Tables 4 and 5 show the results for the aggregated *Care_Fairness* and *Loyalty_Authority_Purity* variables with and without fixed effects on *Compliance*. In each case, the aggregated *Care_Fairness* variable produces a parameter estimate similar to the *Fairness* variable. Similarly, aggregated *Loyalty_Authority_Purity* variable produces a parameter estimate similar to the *Authority* variable. This suggests that only the items in *Fairness* and *Authority* predict *Return* and *Compliance*.

Finally, we note that *Gender* (male = 1) is negative and statistically significant in all estimates for both *Return* and *Compliance.* The estimates in Table 3 show that male participants had a 13 to 15 percent lower probability of returning the follow-up survey. Similarly, Table 5 shows that males had lower probability of *Compliance* than females at every level. Further, the magnitude of these gender effects are 2.5 to 3 times larger than a one standard deviation increase in either *Fairness* or *Authority*.

V. Discussion

Other regarding behavior is common, but the motivations behind such behavior are not well understood. One likely cause of differences in other regarding behavior is individual moral commitments. Because individual moral commitments may vary considerably across individuals, differences in these moral commitments may explain variations in other regarding behavior. To measure moral commitments, we administered an initial survey that included the Moral Foundations Questionnaire (MFQ) created by Haidt and Graham (2007). This MFQ measures moral commitments using five foundations of moral decision-making (*Care*, *Fairness*, *Loyalty*,

Authority, and *Purity*). We followed the initial survey with an effort-based task designed to measure other-regarding behavior. The task required participants to complete and return a follow-up survey in three days.

We find that differences in moral foundations as measured by the MFQ cause modest differences in our measure of other regarding behavior (i.e., follow-up survey return). We also find several unanticipated outcomes. A one standard deviation increase in the normalized *Fairness* score (designed to capture interest and emotional reaction to cooperation and cheating) leads to a 4.3 to 4.8 percent increase in probability of returning the follow-up survey (i.e., *Return*). Similarly, we see that higher *Fairness* scores are associated with a higher level of compliance with the experimenter's requests (i.e., *Compliance*). Contrary to expectations, *Care* (designed to capture emotional sensitivity to the well-being of others) and *Loyalty* (designed to capture trust in other members of the ingroup) have no statistically significant effect on either *Return* or *Compliance*. In all cases, the estimated effects of *Care* and *Loyalty* are quantitatively small.

Also contrary to expectations, *Authority* (designed to capture privileges and benefits offered in return for maintaining order) is negatively and significantly associated with *Return.* A one standard deviation increase in the normalized *Authority* score leads to a 4.7 to 6.0 percent decrease in the probability of returning the follow-up survey. Similarly, we see that higher *Authority* scores are associated with a lower level of compliance with the experimenter's requests (i.e., *Compliance*). As expected, we find no relation between *Purity* (designed to capture the disgust response) and either *Return* or *Compliance*.

Thus, our results suggest that the type of prosocial behavior examined here is supported by an interest in cooperation (*Fairness*) and not by emotional sensitivity to the well-being of

others (*Care*). Moreover, follow-up survey return is less frequent when participants have stronger moral commitments based in *Authority* (i.e., individuals exchange privileges and benefits in return for promises to maintain order). But prosocial behavior may come in many types and the pro-sociality of any behavior may depend on context and the relative importance of the five moral foundations in explaining pro-social behavior may depend on the nature of the pro-social behavior.

These results suggest unanswered questions of two types. First, the magnitude of the effect of differences in moral foundations, as measured by the MFQ, and our measure of other regarding behavior is relatively small. The gender effect is measured here is 2.5 to 3 times larger than the effect of a one standard deviation increase in our significant measures of moral foundations.[5] The weak effect from moral foundations may be because the items on the MFQ for a variety of reasons do not capture the intended effects (i.e., the moral foundations) or because moral foundations are relatively weak predictors of pro-social behavior. The MFQ may not capture moral commitments because participants are simply not able to report accurately on their own moral commitments.

The second set of unanswered questions concerns the mechanism through which cognitive processes measured by the MFQ motivate particular types of other regarding behavior. For instance, it is not clear why higher scores on *Authority* were associated with a lower probability of other regarding behavior. Framing effects, such as the voluntary nature of the experiment and anonymity of participants as well as the consent form and instructions' reiteration of these points, could be responsible for this effect. Nor is it clear why the average

[5] This gender effect may be the result of framing. The same young man administered all of the initial surveys and many of the women may have considered him attractive.

participant thought of completion of the follow up survey as a task based on cooperation (*Fairness*) rather than sensitivity to the well-being of others (*Care*). Once again, framing effects may be at work, but our data will not permit a more detailed test.

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Appendix A. Initial Survey

Questionnaire

Sex: _____

Part 1. Weather Conditions

1. Please estimate the current outside temperature in your location (in Fahrenheit degrees): _____

2. Please report on the current level of cloud cover (choose only one):

Sunny Partly Sunny Mostly Cloudy Light Rain Heavy Rain

3. Please report the date: month_____ day _____ year _____

4. Please report your current location: City:_____ State: _____

Part 2. When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale:

[0] = not at all relevant (This consideration has nothing to do with my judgments of right and wrong)
[1] = not very relevant
[2] = slightly relevant
[3] = somewhat relevant
[4] = very relevant
[5] = extremely relevant (This is one of the most important factors when I judge right and wrong)

_____Whether or not someone suffered emotionally

_____Whether or not some people were treated differently than others

_____Whether or not someone's action showed love for his or her country

_____Whether or not someone showed a lack of respect for authority

_____Whether or not someone violated standards of purity and decency

_____Whether or not someone was good at math

_____Whether or not someone cared for someone weak or vulnerable

_____Whether or not someone acted unfairly

_____Whether or not someone did something to betray his or her group

_____Whether or not someone conformed to the traditions of society

_____Whether or not someone did something disgusting

_____Whether or not someone was cruel

_____Whether or not someone was denied his or her rights

_____Whether or not someone showed a lack of loyalty

_____Whether or not an action caused chaos or disorder

_____Whether or not someone acted in a way that God would approve of

Part 3. Please read the following sentences and indicate your agreement or disagreement:

[0]	[1]	[2]	[3]	[4]	[5]
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

_____Compassion for those who are suffering is the most crucial virtue.

_____When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.

_____I am proud of my country's history.

_____Respect for authority is something all children need to learn.

_____People should not do things that are disgusting, even if no one is harmed.

_____It is better to do good than to do bad.

_____One of the worst things a person could do is hurt a defenseless animal.

_____Justice is the most important requirement for a society.

_____People should be loyal to their family members, even when they have done something wrong.

_____Men and women each have different roles to play in society.

_____I would call some acts wrong on the grounds that they are unnatural.

_____It can never be right to kill a human being.

_____ I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing.

_____ It is more important to be a team player than to express oneself.

_____ If I were a soldier and disagreed with my commanding officer's orders, I would obey anyway because that is my duty.

_____ Chastity is an important and valuable virtue.

Appendix B. Follow-up Survey

1. Please estimate the current outside temperature in your location (in Fahrenheit degrees): _____

2. Please report on the current level of cloud cover (choose only one):

Sunny Partly Sunny Mostly Cloudy Light Rain Heavy Rain

3. Please report the date: month_____ day _____ year _____

4. Please report your current location: City:_____ State: _____

Please read the following sentences and indicate your agreement or disagreement:

[0]	[1]	[2]	[3]	[4]	[5]
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

_____People should not do things that are disgusting, even if no one is harmed.

_____I would call some acts wrong on the grounds that they are unnatural.

_____ Chastity is an important and valuable virtue.

Table 1. Means and Standard Deviations

Variable	Mean	Std. Dev.	Obs
Care	21.4115	4.1371	376
Fairness	21.2864	3.5351	377
Loyalty	18.1458	4.5297	377
Authority	17.9253	4.3132	375
Purity	15.1698	5.6750	371
Care_Fairness	42.7094	6.5361	376
Loyalty_Authority_Purity	51.2162	12.1905	370
Gender	0.5521	0.4979	364
Return	0.1684	0.3747	380
Compliance	0.3973	0.9345	380

Care: sum of Q1, Q7, Q12, Q17, Q23, Q28 from Appendix B survey.
Fairness: sum of Q2, Q8, Q13, Q18, Q24, Q29 from Appendix A survey.
Loyalty: sum of Q3, Q9, Q14, Q19, Q25, Q30 from Appendix A survey.
Authority: sum of Q4, Q10, Q15, Q20, Q26, Q31 from Appendix A survey.
Purity: sum of Q5, Q11, Q16, Q21, Q27, Q32 from Appendix A survey.
Care_Fairness: Sum of Care and Fairness.
Loy_Auth_Purity: Sum of Loyalty, Authority, and Purity.
Gender: dummy variable = 1 if participant is male, 0 if female.
Return: dummy variable = 1 if participant returns follow-up survey, 0 otherwise.
Compliance = 0, 1, 2, or 3, for the number of points of compliance, stamp, mailed, and days or reply.

Table 2. Correlation Coefficients

Variable	Care	Fairness	Loyalty	Authority	Purity	Gender
Care	1.0000					
Fairness	0.4489	1.0000				
Loyalty	0.2061	0.1334	1.0000			
Authority	0.1387	0.1591	0.5098	1.0000		
Purity	0.2433	0.1938	0.4431	0.5562	1.0000	
Gender	-0.3629	-0.2047	0.0466	-0.0476	-0.1201	1.0000

Correlation coefficients for the normalized scores for Care, Fairness, Loyalty, Authority, and Purity reported in Table 1.

Table 3. Probit Analysis of Return - Marginal Effects

Return	(1)	(2)	(3)	(4)
Care	0.0113 (0.0248)	0.0090 (0.0227)		
Fairness	0.0479** (0.0220)	0.0430** (0.0211)		
Loyalty	-0.0017 (0.0239)	0.0047 (0.0245)		
Authority	-0.0531** (0.0237)	-0.0597*** (0.0232)		
Purity	-0.0046 (0.0243)	-0.0034 (0.0244)		
Care_Fairness			0.0526** (0.0251)	0.0469** (0.0233)
Loyalty_Authority_Purity			-0.0515*** (0.0207)	-0.0504** (0.0208)
Gender	-0.1569*** (0.0447)	-0.1394*** (0.0435)	-0.1458*** (0.0437)	-0.1279*** (0.0428)
Pseudo R^2	0.0959	0.1473	0.0870	0.1367
Fixed Effects	N	Y	N	Y

Dependent variable: Return: dummy variable = 1 if participant returns follow-up survey, 0 otherwise.
Fixed Effect= Y (yes) if accounting for section, (n=18), = N (no) if not accounting for section
Robust standard errors in parentheses.
Parameter estimates are marginal effects.
* = 0.1 level of statistical significance, ** = 0.05 level of statistical significance, *** = 0.01 level of statistical significance

Table 4. Ordered Probit Analysis of Compliance

Compliance	(1)	(2)	(3)	(4)
Care	0.0610 (0.0879)	0.0493 (0.0831)		
Fairness	0.2052** (0.0852)	0.2043** (0.0846)		
Loyalty	0.0286 (0.0945)	0.0587 (0.1017)		
Authority	-0.2502*** (0.0989)	-0.3086*** (0.1034)		
Purity	-0.0330 (0.1020)	-0.0142 (0.1079)		
Care_Fairness			0.2355*** (0.0936)	0.2254*** (0.0901)
Loyalty_Authority_Purity			-0.2184*** (0.0902)	-0.2240** (0.0951)
Gender	-0.6499*** (.1744299)	-0.5951*** (0.1803)	-0.5846*** (0.1680)	-0.5192*** (0.1742)***
Pseudo R^2	0.0741	0.1162	0.0664	0.1054
Fixed Effects	N	Y	N	Y

Dependent variable: Compliance = 0, 1, 2, or 3, for the number of points of compliance, stamp, mailed, and days or reply.
Robust standard errors in parentheses. * = 0.1 level of statistical significance, ** = 0.05 level of statistical significance, *** = 0.01 level of statistical significance

Table 5. Ordered Probit Analysis of Compliance - Marginal Effects

Compliance	(1) Outcome1	(2) Outcome2	(3) Outcome3	(4) Outcome1	(5) Outcome2	(6) Outcome3
Care	0.0016 (0.00238)	0.0044 (0.0064)	0.0082 (0.0118)			
Fairness	0.0055* (0.0029)	0.0147** (0.0066)	0.0276** (0.0116)			
Loyalty	0.0008 (0.0025)	0.0020 (0.0068)	0.0038 (0.0134)			
Authority	-0.0067** (0.0034)	-0.0179** (0.0083)	-0.0337** (0.0135)			
Purity	-0.00089 (0.0027)	-0.0024 (0.0073)	-0.0044 (0.01383)			
Care_Fairness				0.0063** (0.0031)	0.0168** (0.0074)	0.0325** (0.0132)
Loyalty_Authority_ Purity				-0.0059* (0.0032)	-0.0156** (0.0071)	-0.0302** (0.0126)
Gender	-0.0171** (0.0074)	-0.046*** (0.015)	-0.0932*** (0.0276)	-0.0153** (0.0068)	-0.0415*** (0.0143)	-0.0853*** (0.0265)

Dependent variable: Compliance = 0, 1, 2, or 3, for the number of points of compliance, stamp, mailed, and days or reply.
Parameter estimates are marginal effects to the next level of Compliance.
Robust standard errors in parentheses. * = 0.1 level of statistical significance, ** = 0.05 level of statistical significance, *** = 0.01 level of statistical significance.