

THE SOCIAL CONSEQUENCES OF TRADITIONAL RELIGION IN CONTEMPORARY AFRICA*

Etienne Le Rossignol[†]

Université de Namur

Sara Lowes[‡]

UC San Diego

Nathan Nunn[§]

University of British Columbia

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Abstract

In sub-Saharan Africa, despite the adoption of Christianity, traditional religious beliefs remain widely held. We examine the social consequences of holding traditional religious beliefs among urban and rural populations in central Africa. Using a variety of lab-in-the-field experiments that randomize partner characteristics, we test whether individuals who believe in traditional religion are treated or viewed differently by others. We find that participants act less prosocially towards partners known to hold traditional religious beliefs. We find that this behavior is supported by norms and by negative perceptions and stereotypes of traditional believers. The effects are economically important, ubiquitous, and are amplified by economic development. Individual-level data from across the African continent reveal patterns consistent with our experimental findings. Individuals who believe in witchcraft have lower incomes, and the effect is stronger in countries that are more developed. Our final analysis speaks to the origins of these effects. Within our experimental sample, the negative effects are stronger in rural villages with more historical missionary activity, and across the continent, the negative relationship between belief in witchcraft and income is stronger in regions with more colonial missionary presence. Both findings are consistent with descriptive accounts of Christianity leading to the stigmatization of African traditional religion.

Keywords: Africa; religion; tradition; cooperation; altruism; norms.

JEL Classification: O12; Z12; Z13.

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[†] Université de Namur. Email: etienne.lerossignol@unamur.be. Website: <https://etennelerossignol.com>.

[‡] UC San Diego, NBER, CEPR, and BREAD. Email: slowes@ucsd.edu. Website: www.saralowes.com.

[§] Univ. of British Columbia and CIFAR. Email: nathan.nunn@ubc.ca. Website: <https://nathannunn.arts.ubc.ca>.

1. Introduction

It is clear that religion can matter for economic outcomes ([Barro and McCleary, 2006, Iyer, 2016](#)). While advances in the past decades have led to a vastly improved understanding of the consequences of religion, our understanding remains limited in two dimensions; namely (i) how an individual's religious beliefs affect how they are treated by others and (ii) the almost exclusive focus on the major world religions, particularly the Abrahamic religions. We aim to make progress by examining the social consequences of holding traditional African religious beliefs in the contemporary Democratic Republic of the Congo (DRC).

While we have significantly improved our understanding of how religion affects the behaviors of those holding the beliefs,¹ we know much less about how a person's beliefs affect how they are perceived and treated by others. This gap in our understanding stands in contrast to the dominant theoretical framework for thinking about religion in economics – the club goods model – which has interpersonal relationships at its core ([Iannaccone, 1992](#)). Despite the theoretical link between religious beliefs and the social benefits one receives from others, we have a limited empirical understanding of exactly how a person's religious beliefs affect how they are perceived and treated by others.

Within economics, the focus of research has been primarily on either Christianity, Judaism, or Islam, with a smaller literature on Confucianism.² The study of other traditional religions – notably African traditional religions, the focus of our study – is limited despite their importance in reality. When African religions are considered, they tend to be viewed as different from the 'major world religions' – e.g., Christianity, Judaism, and Islam. This is most clearly indicated by the terminology used when discussing African traditional religions. Non-religious terms such as 'witchcraft,' 'sorcery,' or 'black magic' are used to describe the religions, and terms like 'enchantment' and 'spells' are used rather than religious terms like 'prayer' or 'blessings.'

The association of African traditional religions with the devil, and their resulting stigmatization, is punctuated by the recent and near-universal conversion to Christianity within the parts

¹ See, for example, [Barro and McCleary \(2003\)](#), [Gruber and Hungerman \(2008\)](#), [Clingingsmith, Khwaja and Kremer \(2009\)](#), [Campante and Yanagizawa-Drott \(2015\)](#), [Fruehwirth, Iyer and Zhang \(2019\)](#), [Bryan, Choi and Karlan \(2021\)](#).

² On Christianity, see [Barro and McCleary \(2003\)](#), [Becker and Woessmann \(2009\)](#), [Benjamin, Choi and Fisher \(2016\)](#), [Caicedo \(2019\)](#), [Auriol, Lassébie, Panin, Raiber and Seabright \(2020\)](#), [Squicciarini \(2020\)](#), [Bryan et al. \(2021\)](#), [Montero and Yang \(2022\)](#), [Espin-Sánchez, Gil-Guirado and Ryan \(2023\)](#); on Judaism, see [Pascali \(2016\)](#), [Koyama and Johnson \(2017\)](#); on Islam, see [Clingingsmith et al. \(2009\)](#), [Campante and Yanagizawa-Drott \(2015\)](#), [Bazzi, Koehler-Derrick and Marx \(2020\)](#), [Mehmood, Seror and Chen \(2023\)](#); and on Confucianism, see [Kung and Ma \(2014\)](#), [Chen, Ma and Sinclair \(2022\)](#).

of Africa that were not already Islamic. Today, over 97% of the continent's population report believing in either Islam or Christianity. (The most rapid conversions have been to born-again Evangelical denominations, whose teachings recognize traditional religious beliefs and make efforts to condemn and demonize them.) Despite this, belief in African traditional religions has not declined and remains fairly stable at well above 50% for most countries in sub-Saharan Africa. People often have a dual belief system where they continue to hold traditional religious beliefs and Christian beliefs at the same time.

It is understandable that traditional religions are not abandoned because doing so would mean casting aside ancestral connections and relinquishing a belief system that forms the foundation of political, social, and cultural life, particularly in rural villages. In addition, research has documented that traditional beliefs have benefits at both the societal and individual levels. Traditional religion has been shown to be an important source of political authority and legitimacy ([Lowes, Montero, Nunn and Robinson, 2023](#)); to support sustainable resource management ([Stoop, Verpoorten and Deconinck, 2019](#), [Deopa, 2022](#)); to aid collective action ([Nunn and Sanchez de la Sierra, 2017](#)); and to facilitate entrepreneurship and investment ([Butinda, Lameke, Nunn, Posch and Sanchez de la Sierra, 2023](#)).

Within this context, this study intends to fill an important gap in our understanding of the consequences of traditional religion within a developing country context by studying the social consequences of African traditional religions in the northern DRC. An important motivation for our analysis is accounts of the social stigmatization of African traditional religions despite their importance in daily life. While one can find many sensational examples of traditional beliefs resulting in mistreatment by others, such as the mistreatment of individuals believed to be 'witches' ([Owusu, 2020](#), [Miguel, 2005](#)), it is unclear how representative these examples are and whether less-extreme but more-frequent occurrences are common. The aim of our study is to add to our understanding of the social consequences for those who hold African traditional beliefs within sub-Saharan Africa by estimating the effect that holding traditional religious beliefs has on how one is treated and perceived by others.

Our analysis uses lab-in-the-field experiments implemented in DRC, a country where traditional religious beliefs are commonplace. We randomize the known presence or absence of traditional religious beliefs of the person that a participant is paired with in various experimental tasks. This is done by randomly matching a participant to another player while providing basic

information about that other player that would typically be known in day-to-day interactions in the real world. This information includes their age group, gender, education level, whether they are a coethnic, strength of Christian beliefs, strength of traditional religious beliefs, and whether they grew up in a rural or urban location. The term used for traditional religious beliefs is '*bokoko*', which is a Lingala word that more literally means beliefs in one's ancestors but, in practice, captures a broader bundle of traditional religious beliefs, including what Westerners call 'witchcraft' and 'sorcery.' Consistent with the realities of daily life, both players are given the same information about the other player, and this is known by both players.

The sample comprises 1,120 individuals from the north of the DRC: 520 individuals from a local urban center and 600 individuals from 50 rural villages. As in much of sub-Saharan Africa, our sample believes in Christianity while also continuing to hold traditional religious beliefs. Individuals in our sample report that they typically know the religious beliefs of others, including their traditional religious beliefs.

To examine how those with strong traditional beliefs are treated, we implement three lab-in-the-field experiments that are meant to mimic common social and business interactions in daily life; namely, the Dictator Game (DG), Choose Your Dictator Game (CYD), and Joy of Destruction Game (JOD). In each game, the participant completes two rounds of the game in private, each round with a different randomly-chosen other player. In the DG, player 1 chooses how much of an endowment of 1,000 Congolese Francs (CF) – about half a day's average wage – to allocate to player 2. The amount given in the DG is generally considered a measure of altruism. In the CYD game, the respondent chooses a person to be the dictator in a dictator game where the respondent receives the allocation chosen by the dictator. The dictator is chosen from two individuals. This is a measure of how altruistic the respondent perceives the other player to be, as well as a measure of the respondent's altruism toward that player. In the JOD game, players 1 and 2 are each given an endowment of CF 2,000. Player 1 then can either: (1) do nothing, in which case both players keep their initial endowments; (2) pay CF 200 to reduce the other player's endowment by CF 1,000; (3) pay CF 200 to increase the other player's endowment by CF 1,000. The JOD measures the extent to which individuals are willing to help or harm others, even when this comes at a cost to themselves.

We randomly match participants with other players who have different strengths of traditional religious beliefs (*bokoko*). During the activities, we communicate basic information about the

players, and the communication is common knowledge. The random assignment of the players and their characteristics allows us to test whether the participants behave in a more or less prosocial manner when paired with someone who holds stronger traditional religious beliefs.

We find that participants choose less prosocial actions when paired with a player 2 who has a stronger belief in traditional religion. Those with stronger traditional beliefs are given less in the DG, are less likely to be chosen as a dictator in the CYD game, and are more likely to have their payoff reduced and less likely to have their payoff increased in the JOD game. These findings are extremely stable. When we look at behavior in the urban and rural samples and for all games, we find that across both samples and all games, there is more antisocial behavior directed toward player 2s with stronger traditional beliefs. The effect is not dependent on any of the characteristics of player 1, including their own traditional beliefs. We find more antisocial behavior and less prosocial behavior towards those who hold traditional religious beliefs, even when the respondent holds strong traditional beliefs.

The magnitude of the effects is economically significant. A player 2 from the urban sample who believes in traditional religion and plays the full set of games from our study is predicted to earn \$3.15 USD. An otherwise identical player 2 who does not believe in traditional religion would earn \$3.54, a difference of 39 cents or 12.4%. For the rural sample, the same figures are \$2.97 for a believer and \$3.30 for a non-believer, a difference of 33 cents or 11.1%.

We next examine the norms that underlie this behavior. Using the method developed by [Krupka and Weber \(2013\)](#), we measure how socially acceptable the actions in the games are when paired with a player with certain characteristics. For each action that can be taken in each game, participants are asked to consider how socially acceptable the action is and are asked to choose what they think will be the most common response chosen by all other participants. They receive a payment if their answers are correct for all decisions for a game.

Our social norm findings align with those from the behavioral games. In the DG, if player 2 has stronger traditional beliefs, then it is perceived as more socially acceptable to give smaller allocations and less socially acceptable to give larger allocations. In the CYD, it is viewed as more socially acceptable to not choose the individual with strong traditional beliefs and less socially acceptable to choose them. In the JOD game, decreasing the payoff of player 2 is viewed as more socially acceptable if the other player has stronger traditional religious beliefs, and increasing the payoff of player 2 is less socially acceptable. Player 2's traditional religious beliefs has no effect

on how appropriate it is to “do nothing” in the JOD.

Having examined actual behavior and the perceptions of whether others view behavior as acceptable, we then turn to people’s own views. We study how individuals’ perceptions of another person depend on whether the other person holds traditional religious beliefs. We do this by using the “conjunction fallacy,” which is a tool used to elicit perceptions that individuals have about others ([Tversky and Kahneman, 1983](#)). The measure exploits the fact that, in violation of the laws of probability, individuals often believe that the probability of two events occurring together (in conjunction) is higher than the probability of either single event. This occurs when the conjunction appears to be more representative of the person being described than the single event. We find that individuals who hold traditional beliefs tend to be associated with negative traits like dishonesty, jealousy, selfishness, vindictiveness, and being socially excluded and less likely to be associated with positive traits like honesty, benevolence, generosity, being even-tempered, and being socially included. The effects are significant because they provide evidence of underlying beliefs that support the norms and behavior findings. Thus, the norms and observed behavior are not likely due to pluralistic ignorance or preference falsification.

We undertake several exercises to better assess the universality of the antisocial effects we find. First, we ask whether there are any subsamples for which we do not observe the negative effects. We find that the effects are remarkably general. For no subgroup – based on age, income, gender, education, or religious beliefs of either player 1 or player 2 – do we find an effect that is either zero or in the opposite direction. Notably, we also find effects among individuals who themselves hold strong traditional beliefs. They treat those holding traditional beliefs worse, hold less prosocial norms, and have more negative views about them. The findings mirror prior evidence showing a similar dynamic in India, where individuals from low castes are treated less prosocially, including by others from low castes ([Hoff, Kshetramade and Fehr, 2011](#)).

One possibility is that the effects that we document will attenuate with economic development. We find no evidence to support this view. In fact, our findings suggest the opposite: that economic development may exacerbate these effects. The only statistically significant heterogeneous effects that we find shows that the antisocial effects we document are significantly stronger for individuals who are wealthier and more educated.

We then turn to the potential relevance of our experimental findings for the rest of sub-Saharan Africa. Using survey data from 50,000 people from 34 sub-Saharan African countries, we estimate

the relationship between a person's belief in witchcraft and various measures of their economic well-being. Consistent with the experimental findings, we find that individuals who believe in witchcraft are worse off financially. While not causal, these are the patterns that one would expect to find in observational data, given the experimental findings. In line with the heterogeneity found in our experimental findings, we also find that the negative relationship between witchcraft and economic well-being is stronger in countries that are more economically developed.

The final exercise that we undertake examines the potential origins of the antisocial effects we document. Comparing evidence from ethnographic data and traditional folklore with sentiment from contemporary surveys, we find evidence of traditional religion being viewed in a much more positive manner historically relative to today. Motivated by this and anecdotal and historical accounts of the effects that Christianity had on perceptions of traditional religion, we find that in the DRC sample, antisocial behavior towards believers of traditional religion is stronger in villages that were more exposed to missionary activity during the colonial period. Consistent with this, we also find that across Africa, the negative relationship between a belief in witchcraft and economic well-being is stronger in regions with greater exposure to colonial missionary activity. Thus, the preliminary evidence suggests that the effects we document here may have originated with the introduction of Christianity on the continent.

The study complements existing research that examines the correlates of traditional belief systems, which are often described as 'witchcraft' or 'the evil eye' in surveys. For example, studies have documented cross-sectional relationships between the prevalence of witchcraft beliefs and trust ([Gershman, 2016](#)); disrupted social relations, lower happiness, more anxiety and pessimism, less innovation and entrepreneurship, and lower incomes ([Gershman, 2022](#)); and lower rates of upward educational mobility ([Alesina, Hohmann, Michalopoulos and Papaioannou, 2023](#)). Our analysis makes progress on better understanding these aggregate patterns, including whether they are causal, underlying mechanisms, and the factors that have induced these effects.

We also contribute to empirical studies that examine the determinants of 'witchcraft' beliefs, either historically ([Oster, 2004](#), [Leeson and Russ, 2018](#)) or in contemporary settings ([Miguel, 2005](#), [Gershman, 2020](#), [Stoop and Verpoorten, 2020](#)), as well as the ethnographic literature in anthropology examining the social consequences of 'witchcraft' in sub-Saharan Africa ([Krike, 1947](#), [Gluckman, 1955](#), [Evans-Pritchard, 1976](#), [Geschiere, 1997](#), [Douglas, 2004](#)). Our results also relate to empirical studies that attempt to understand the consequences of traditional medicine

(Bennett, Naqvi and Schmidt, 2018) or traditional superstitious beliefs (Mocan and Yu, 2017, Alonso, Houssa and Verpoorten, 2016, Halla, Liu and Liu, 2019) in developing country contexts.

Our findings also contribute to a body of theoretical, case study, and observational analyses of the effects of various aspects of African traditional religious beliefs on dispute resolution (Leeson, 2014), the use of Western healthcare (Stoop et al., 2019), environmental resource management (Alonso et al., 2016, Deopa, 2022), conflict (Nunn and Sanchez de la Sierra, 2017), or economic well-being (Butinda et al., 2023).

Finally, we also speak to the extensive literature examining the consequences of monotheistic Big God religions (e.g., Barro and McCleary, 2003, Becker and Woessmann, 2009, Norenzayan, 2013, Campante and Yanagizawa-Drott, 2015, Benjamin et al., 2016, Platteau, 2017, Rubin, 2017, Auriol et al., 2020, Bryan et al., 2021, Auriol, Delissaint, Fourati, Miquel-Florensa and Seabright, 2021, Caicedo, Dohmen and Pondorfer, 2021), particularly those that examine institutional consequences (Glaeser, Ponzetto and Shapiro, 2005, Chaney, 2013, Belloc, Drago and Galbiati, 2016, Cantoni, Dittmar and Yuchtman, 2018, Bazzi et al., 2020, Wang, 2021). Complementing this line of inquiry, we study the social consequences of smaller-scale traditional African religious belief systems. We also provide evidence of how the introduction of Christianity, particularly colonial missionary activity, affects the perceptions of traditional religious beliefs.

The following section provides a description of African traditional religions in general and the specific setting in which the experiments are implemented. Section 3 describes the experimental design. Section 4 examines how those with traditional religious beliefs are treated. Section 5 examines how traditional beliefs affect social norms, i.e. perceptions of the behavior that is socially acceptable. Section 6 explores the perceptions and stereotypes of those who hold traditional beliefs. Section 7 discusses the broader implications of the experimental findings, including their generality and external validity. Section 8 examines the effects of exposure to Christianity, and Section 9 concludes.

2. Traditional Religious Beliefs in Africa and the DRC

For scholars of African traditional religions, there is no clear distinction between African traditional religions and the other religions of the world. All have a divine creator, divine power, an afterlife, spirits, and the use of spiritual power, religious symbols, and ceremonies. The most noteworthy difference is that traditional religions typically believe that each group has its own

creator. Since there are different groups, comprised of different lineages, it is logical to presume that each has its own (divine) creator. This is in contrast to Christianity or Islam, where it is believed that there is one true God for all. An important consequence of this is that while traditional religions tend to be accepting of the validity of other religions, Christianity and Islam tend not to be. In their view, if a group is worshipping another God and tapping into spiritual power, then the only explanation for this is that the group is worshipping and obtaining power from the devil. This is the primary reason that African traditional religions (and many other traditional religions around the world) are referred to using terms like ‘witchcraft,’ ‘black magic,’ and ‘sorcery’ ([Paton, 2009](#), [Pietz, 2022](#)).

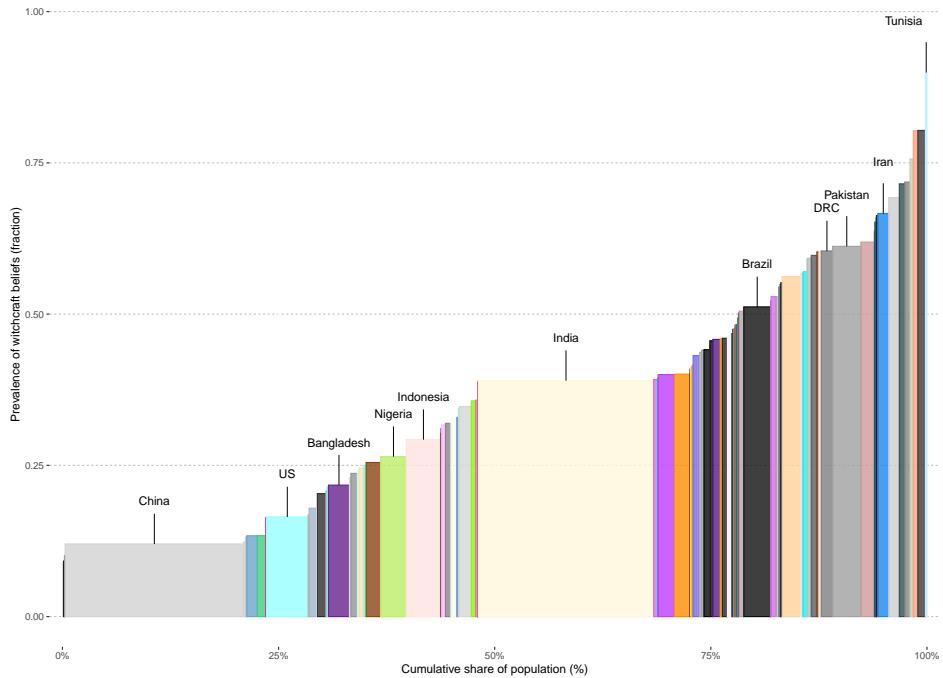
These religions are widespread. We compile statistics on the share of witchcraft believers for countries for which we could find data. The data represent approximately 88.4% of the world’s population. Among the sample for which data are available, 43% of respondents hold ‘witchcraft’ beliefs.³ If we focus on non-OECD countries for which we can find data, we find that 48% of the respondents believe in witchcraft. The prevalence of beliefs by country is illustrated in Figure 1, which reports the share of witchcraft believers by country for the full sample. The width of each population represents the country’s share of the population.

These figures may be new or surprising to the reader. This is because traditional beliefs often remain ‘invisible’ to Western scholars of religion. Common surveys (e.g., WVS, DHS, Censuses, the Barometers, etc.), unlike those that we use here, only capture a person’s ‘primary’ religion, which is presumed to be one of the major world religions. The picture that emerges from such surveys, whose focus is on the major world religions, is very different – with “other,” “folk,” or “traditional” religions comprising only 6–7% of individuals’ religions globally (e.g., [Iyer, 2016](#), Figure 1) and 3–5% in Africa (e.g., [Alesina et al., 2023](#), Appendix Figure 1). These statistics do not capture traditional religious believers who also believe in a major world religion. It is only when you ask about traditional religion that you measure the actual prevalence and importance of traditional religion.

Traditional religions in the DRC share many of the features of other African traditional religions as well as other global Indigenous religions. The belief system includes belief in supernatural forces and ancestral spirits, as well as a belief in a creator, who, unlike Christianity

³ If we make the strong assumption that in countries for which data are unavailable, no individuals believe in witchcraft, then 34.5% of the World’s population is calculated to believe in witchcraft.

Figure 1: Share of Traditional Believers Across Countries



Notes: The figure presents the share of individuals who report believing in ‘witchcraft’ across countries for which data are available. Data on the share of witchcraft believers is compiled from various sources. Most of the data comes from six surveys conducted by the Pew Research Center between 2008 and 2017. The survey question is the following “Do you believe in the evil eye, or that certain people can cast curses or spells that cause bad things to happen to someone?” We have added data for China ([Yang et al., 2007](#)), India ([Salazar, 2021](#)), Australia ([Pepper and Powell, 2018](#)), Canada ([Ipsos, 2021](#)), Japan ([Kavanagh and Jong, 2019](#)), and Vietnam ([Long and Van, 2020](#)).

or Islam, is assumed to only be the creator for a particular group and not for all populations. There are individuals who can harness supernatural forces in various ways. The Western terms used for these individuals are typically ‘witchdoctors,’ ‘sorcerers,’ ‘diviners,’ etc. Ancestral or spiritual powers can be accessed by consulting individuals who are able to embody power in objects like amulets or fetishes. Unlike Christianity or Islam, there is no heaven and hell, and there is less distinction between the natural and supernatural worlds. Instead, they are perceived as being integrated and, in many ways, one and of the same. Ancestral spirits, including the supreme creator, are moralizing in the sense that they desire for individuals to have a happy and fulfilling life ([Pobee and Mends, 1977](#), [Mekoa, 2019](#), [Aderibigbe and Falola, 2022](#)).

The common English term for these traditional religious beliefs is ‘witchcraft’ (‘sorcellerie’ in French). This is more a reflection of the views of Christianity than of traditional religions. Within the Christian framework, God created all humans (not just Europeans), and so if another religion is obtaining spiritual benefits from another source – e.g., for healing – then this must be from the devil. Hence the term ‘witchcraft.’ This is the term used by Churches today despite it not being

an indigenous term ([Paton, 2009](#), [Chitakure, 2017](#)). In our surveys and experiments, the relevant term that we use is a participant's belief in '*bokoko*', which is the Lingala word that refers to a set of traditional religious and spiritual beliefs.

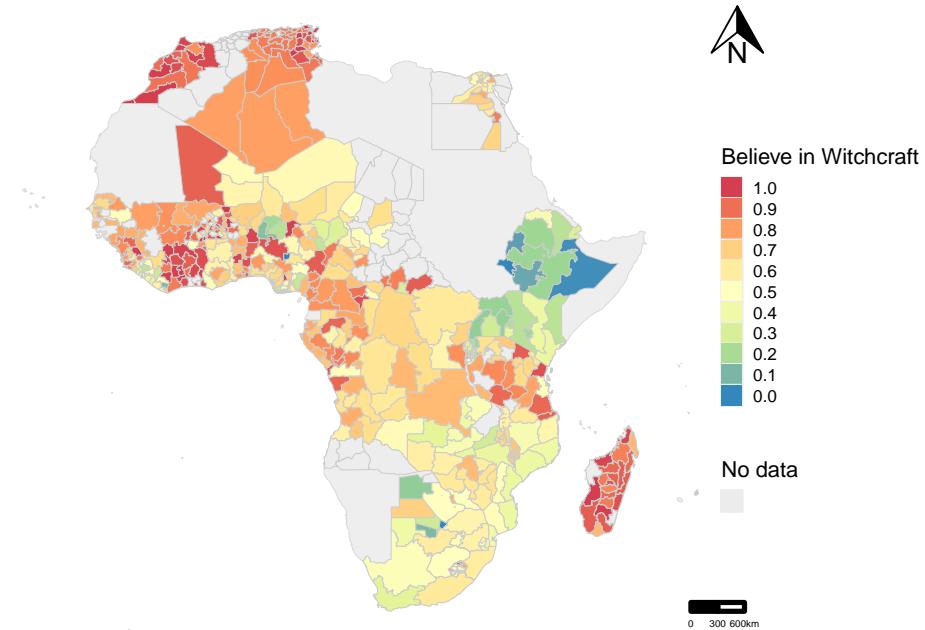
In our region of study, despite the widespread adoption of Christianity, traditional religious belief systems continue to persist. We find that nearly everyone (92%) reports believing either 'strongly' or 'very strongly' in Christianity (73% report believing 'very strongly'). At the same time, traditional religious beliefs remain strong: 46.5% report believing 'very strongly,' 26.5% report believing 'strongly,' 8.75% report 'neither believing nor disbelieving,' and 18.21% report a 'weak' or 'very weak' belief.

The persistence of traditional religions in our sample is in line with a similar pattern across the continent. This can be seen in Figure 2, which shows the average share of surveyed individuals who report believing in "witchcraft." The data are from individual-level surveys collected from 2008–2012 by Gallup and PEW. We aggregate the data to create averages at the subnational region level. It is clear that beliefs in witchcraft continue to be widespread in many parts of the continent. One exception is Ethiopia, which has a particularly long history of Christianity. In many countries, the proportion of individuals who believe in witchcraft is above 50%, and a number of regions have shares that are in excess of 90%. According to these data, 70–80% of respondents in the region where our study takes place believe in witchcraft, which is broadly consistent with our survey data.

In our sample, not only do most people hold traditional religious beliefs, but they also correctly understand that most other individuals hold traditional beliefs. We ask individuals to report the prevalence of traditional religious beliefs in the village in which they live (Appendix Figure A1). In the urban sample, the most common response (close to 60%) was 'most people,' while in the rural sample, the most common responses were 'most people' and 'everyone' (about 40% each). The next most common response is 'some people.' Less than 4% report a value less than 'some people' – either 'a few' or 'no one'. Thus, nearly everyone in our sample correctly understands that the majority of the population continues to believe in traditional religion.

Given the persistence of traditional religious beliefs, we next examine the primary reasons reported for individuals to see a 'witch doctor.' The Gallup survey asks a subsample of 18,000 respondents this question. The most common reasons listed are: to cure an illness or disease (22.9%), to place a spell on someone (19.3%), to become rich/find a job (19.1%), to cure a spell

Figure 2: Witchcraft Beliefs in sub-Saharan Africa



Notes: The figure presents the share of individuals who report believing in witchcraft. The data are from the Sub-Saharan Africa Religion Survey (2008 and 2009), the World's Muslims Survey (2011 and 2012) and Gallup (2009 and 2011, waves 4 and 6).

placed on them by a witch (13.8%), to inflict pain on someone (12.2%), to find a husband/wife (2.2%), and to have children (2.0%). Interestingly, three of the top five reasons listed – to place a spell on someone, cure a spell placed by another, and inflict pain on someone – are associated with revenge or retribution.

The Gallup data are consistent with our impression from focus groups and interviews of the role of witch doctors in the location of our study. The most common reasons to use magic are to harm others and to defend against the spells of others. It is also very common for individuals to use magic to make themselves healthier, wealthier, or more successful in life (e.g., having a successful business, finding a spouse, or having many children). Among the participants in our study, 60% report having been harmed by witchcraft or other supernatural means in the past, and 26% report worrying about being harmed by witchcraft in the future. We also asked participants if, in their view, witchcraft is an effective means of harming others. The most common response is that it is ‘very effective,’ followed by ‘somewhat effective’, with 79% of the sample choosing one of the two responses (Appendix Figure A2).

A key component of our experiment is that we communicate the traditional beliefs held by

players to their partners. Thus, our estimates capture the causal effect of traditional beliefs *when they are known*. Therefore, an important question is whether this is an empirically relevant statistic. That is, are traditional religious beliefs typically known by others? From focus groups and casual observation, it is clear that religion is openly discussed and is one of the first questions one would ask when getting to know someone new. In addition to observing one's gender and age, and asking about their ethnicity and education, it is common to ask about a person's religious beliefs. Often, these are also communicated by a person's appearance or dress. For example, if a person is wearing an amulet, jewelry, or similar item made from leopard teeth or accessories made from leopard skin, then this would communicate their beliefs.

Given the importance of this issue, we asked respondents whether people typically know about others' traditional religious beliefs. Only 0.20% of respondents (two people in total) indicated that this is 'never' known; 18% of respondents indicated that it is 'always' known; 38% indicated that it is 'often' known; 33% indicated 'sometimes' known; and 11% reported that it is 'rarely' known (Appendix Figure A3). Thus, while there is some variation, it is clear that in most cases, there is some knowledge about whether others hold traditional beliefs. Thus, we view the effect we estimate – how a person's beliefs affect how they are perceived and treated by others when these beliefs are known – to be empirically relevant and informative of the real world.

3. Samples and Experimental Design

We collect data from two samples – from individuals in an urban center in Sud-Ubangi province (henceforth, the "urban sample") and from individuals from 50 rural villages in Sud-Ubangi province (henceforth, the "rural sample").⁴

Our urban sample comprises 520 individuals randomly selected from the city. For logistical reasons related to the matching of participants in the games, we did not include individuals in the study who had characteristics that were uncommon. Specifically, we excluded individuals who were not from one of the three largest ethnic groups in the area (Ngbaka, Ngbandi, and Ngombe); the largest ethnic groups comprise 81 percent of the screening survey random sample. We also exclude individuals who did not have a strong or very strong belief in the Christian God; 88 percent of the screening survey sample have a strong or very strong belief in the Christian

⁴ The IRB asked us to conceal the exact locations of the study, including the name of the city and villages.

God.⁵ Columns 1–3 in Appendix Table A2 present the descriptive statistics for the main variables we use in our empirical analysis for the sample of urban respondents.

The rural sample comprises respondents from 50 randomly chosen villages in the territory (see Appendix Figures A4 and A5 for their locations). In each village, six men and six women were randomly chosen for a total sample size of 600 individuals. Columns 4 to 6 in Appendix Table A2 present the descriptive statistics for the main variables for the sample of rural respondents.

As part of the initial survey described above, we asked individuals how strongly held their traditional religious beliefs are. The survey question is “How strongly held are your beliefs in supernatural powers, such as witchcraft?” The response options are: very weak, weak, neither believe nor disbelieve, strong, and very strong. In pre-testing, individuals rarely chose ‘very weak’ or ‘weak’ and so for the experiment, we aggregated the categories ‘very weak’ and ‘weak.’ Thus, in the end, each individual’s belief in traditional religion falls into one of the following four categories: (1) very weak or weak, (2) neither believe nor disbelieve, (3) strong, and (4) very strong.

Individuals were not given the exact identities of the other players with whom they were playing in the experimental tasks. However, they were given the following information about the other player: their age group, gender, educational attainment, whether they are coethnic, strength of belief in the Christian God, strength of traditional beliefs (*bokoko*), and whether they grew up in a rural area. They were also told that the other players would have the same information about them. For the other player’s characteristics, their age group is either young or old; their gender is either male or female; their education is has not completed primary school, has completed primary school, or has completed secondary school or higher; ethnicity is either same ethnicity as the respondent or a different ethnicity; their strength of belief in a Christian God is either a strong belief in the Christian God or a very strong belief in the Christian God for the urban sample and varies from very weak belief to very strong belief in the rural sample; their strength of traditional beliefs is weak or very weak, neither believe nor disbelieve, strong, or very strong; and whether they grew up a rural area or not.

In Appendix Table A3, we present estimates of the relationship between respondent characteristics and the strength of their traditional religious belief. In both samples, completion of secondary school is negatively correlated with traditional beliefs. In both samples, there is also a

⁵ For a summary of implementation differences between the urban and rural samples, refer to Appendix Table A1.

positive and significant relationship between their strength of belief in the Christian God and the strength of their traditional beliefs. Those who believe more strongly in traditional beliefs also tend to believe more strongly in Christianity. While this may appear surprising, it is important to note that churches in the region, particularly evangelical and born-again churches, often integrate traditional religious beliefs into their teachings. Thus, a belief in the supernatural is not at odds with a belief in God in this setting. In addition, while the two are positively correlated, there is a lot of independent variation, which allows us to estimate the effect of traditional beliefs separately from Christian beliefs.

The primary experimental manipulation is the randomization of the strength of the traditional religious beliefs of the other player in the activities. Participants completed two iterations of each experimental activity. The assignment of the other player's characteristics was stratified so that in one of the two iterations (randomly chosen), the participant is paired with someone with either 'strong' or 'very strong' traditional beliefs, and in the other, they are paired with someone with 'weak or very weak' traditional beliefs or who 'neither believes nor disbelieves.' The other characteristics of the other player are also randomly assigned, although we do not stratify on those characteristics.⁶

4. Behavior Towards those with Strong Traditional Religious Beliefs

Our first analysis examines the extent to which the behavior of participants changes when paired with a player that has strong traditional beliefs relative to being paired with a player that has weak traditional beliefs. We measure behavior in three different games: the Dictator Game (DG), Choose Your Dictator Game (CYD), and Joy of Destruction Game (JOD). In each game, the respondent plays two rounds, each time with a different player, one of whom has strong traditional beliefs and one of whom has weak traditional beliefs. We now turn to a detailed description of each of the three games.

The first activity is a version of the standard dictator game (DG). A participant (the dictator) is given CF 1,000 (in the form of ten CF 100 bills) to allocate between themselves and another player. The participant is told that they will not know the exact identity of the other player, but they will have several pieces of information about the other player. The pieces of information

⁶ The matching used to calculate payouts was done using a larger sample of individuals than those who participated in the study. This allowed us to support a larger range of profiles for the other players in the games – e.g. different combinations of player characteristics that one could potentially be matched with – while also avoiding deception.

are described above. Likewise, the participant is told that the other player will have the same information about them. The participant then makes their allocation in private, dividing the ten CF 100 bills into two envelopes, one for themselves and one for the other player. An umbrella is used to shield their allocation choice from the enumerator. The participant (dictator) keeps their own envelope and puts the envelope for player 2 in a bag located next to the participant that is eventually collected by the enumerator after the conclusion of all rounds of the games.

The second game is a version of a standard choose-your-dictator (CYD) game. As noted, in the DG, a participant (the dictator) chooses to allocate money between themselves and another player. In the CYD, the participant chooses who the dictator will be in a dictator game where the participant is the second player. The participant is presented with two individuals (labeled person A and person B), one of whom must be chosen to be the dictator. The participant is given information about persons A and B, and the participant knows that persons A and B also have the same information about them. The participant tells the enumerator which person (A or B) they choose to have as the dictator in the DG. The CYD game captures the extent to which the participant views person A or B as likely to be generous towards someone like them as well as the participant's own altruism towards the other player.

The final game is a one-sided joy-of-destruction (JOD) game ([Zizzo and Oswald, 2001](#)). In this activity, the participant is told that they and another player have each been given CF 2,000. The other player is anonymous, but the participant is provided with the information described above. They are also told that the other player will have the same information about them. The participant is then given three choices: (1) they can pay CF 200 from their own endowment of CF 2,000 to reduce the endowment of the other player by CF 1,000; (2) they can pay CF 200 from their own endowment to increase the endowment of the other player by CF 1,000; (3) they can choose to neither increase nor decrease the amount of the other player so that they both receive CF 2,000. Choosing to neither increase nor decrease the payoff of the other player comes at no cost. The participant makes their decision by marking an "X" next to their choice on a sheet of paper that provides an illustrated version of the options (see Appendix Figure [A6](#) for an example). The decision is made in private, using an umbrella as a shield. The marked sheet is put in an envelope, sealed, and placed in a bag collected by the enumerator.

4.1. Estimating Equations

We estimate the following equation:

$$y_{ij} = \beta_1 \text{Traditional Beliefs}_i + \beta_2 \text{Traditional Beliefs}_j + \mathbf{X}_i \boldsymbol{\Phi} + \mathbf{X}_j \boldsymbol{\Gamma} + \varepsilon_{ij}. \quad (1)$$

The unit of observation is a participant i who plays against another player j . The dependent variable y_{ij} denotes the action in a game by individual i when playing against individual j (equation (1) is estimated separately for each action of a game). \mathbf{X}_i is a vector that includes fixed effects for participant i 's age group, gender, education level, whether the individual grew up in a rural area (i.e., village rather than a city), and strength of belief in the Christian God. \mathbf{X}_j includes fixed effects for these same characteristics of player j , plus a fixed effect that equals one if player i and player j belong to the same ethnicity. We present both robust standard errors and standard errors clustered at the individual level.

The variable $\text{Traditional Beliefs}_j$ is a measure of the strength of player j 's belief in *bokoko*. Similarly, $\text{Traditional Beliefs}_i$ is the analogous measure for player i . Our primary interest is in the sign of the coefficient β_2 , which provides an estimate of whether the behavior of a player changes when the other player has strong traditional beliefs. The secondary coefficient of interest is β_1 . This tells us whether a player's behavior is affected by his or her own strength of traditional beliefs. Because we can randomize the characteristics of player j but not of player i , the interpretation of β_2 as the causal effect of traditional beliefs is more straightforward than for β_1 .

We also estimate a second baseline equation that replaces the fixed effects for player i characteristics (\mathbf{X}_i) with player i fixed effects. Thus, the estimates of interest are derived from comparisons of the actions chosen by a player when paired with different types of partners. The estimating equation is:

$$y_{ij} = \alpha_i + \beta \text{Traditional Beliefs}_j + \mathbf{X}_j \boldsymbol{\Gamma} + \varepsilon_{ij}, \quad (2)$$

where all definitions are as before, and α_i denotes player i fixed effects. Because these fixed effects absorb $\text{Traditional Beliefs}_i$, this variable and all other player i characteristics do not appear in equation (2).

We present our results with different measures of *Traditional Beliefs*. First, we measure the strength of the belief on an integer scale that ranges from one to four and is increasing in strength of belief. Second, we create an indicator variable by collapsing the data into the two categories over which randomization occurs: (1) "weak," which is defined as those who report 'very weak

or weak' or 'neither believe nor disbelieve' and (2) "strong," which is defined as those who report a 'strong' or 'very strong' traditional beliefs. The indicator equals one if the participant has a strong or very strong belief.⁷ We report estimates separately for the rural sample, urban sample, and pooling both samples (with a sample fixed effect).

The full experiments, including the games played, the measurement, and the econometric specifications, were pre-registered with registration numbers AEARCTR-0003276 and AEARCTR-0004878 ([Lowes and Nunn, 2018, 2019](#)).⁸ All pre-specified analyses and robustness tests are reported, either in the body of the paper or the appendix.

4.2. Estimates

We now turn to our estimates of equations (1) and (2). The estimates for the DG are reported in Table 1. The dependent variable is the amount given to player 2 (the recipient) by player 1 (the dictator) out of a total of CF 1,000. The odd-numbered columns report specifications without player i (i.e., player 1) fixed effects, equation (1); the even-numbered columns report specifications with respondent fixed effects, equation (2). The first four columns present the results for the urban sample; the second four columns present the results for the rural sample; and the final four columns pool the urban and rural samples and include a sample fixed effect. We present our results with two different measures of traditional beliefs: an integer scale that ranges from 1–4 and an indicator variable that equals one if the participant has strong or very strong traditional beliefs.

For the urban sample, we find that a one-unit increase in player 2's strength of traditional religious beliefs is associated with a CF 12 decline in the amount allocated to that player; this is the case with and without player 1 fixed effects (columns 1 and 2). Being paired with a player 2 with a strong or very strong traditional belief is associated with CF 30 reduction in the amount they receive (columns 3 and 4). For the rural sample, we find a negative but insignificant coefficient. Being paired with a player 2 with a strong or very strong traditional belief leads to a reduction in approximately CF 11 allocated to that player (columns 7 and 8). Columns 9–12 present the

⁷ We also report estimates with a set of indicator variables for each category of strength of traditional beliefs. This was pre-specified and is reported in Appendix Section B.2 to conserve space.

⁸ We have multiple pre-analysis plans because we have one for each round of data collection: (1) games in city, (2) norms in city, (3) games and norms in villages. The first corresponds to the games data collection in the city. The second corresponds to the norms data collection in the city. For the third round of data collection, where we collected data in the villages, we submitted a modification to the second pre-analysis plan.

Table 1: Dictator Game Estimates

| OLS, Dep. Var.: Amount Sent to Other Player (in CF) | | | | | | | | | | | | |
|---|-----------------------------------|--------------------------------------|--------------------------------------|-------|-----------------------------------|-------------------------------------|--------------------------------|-------|------------------------------------|------------------------------------|-------------------------------------|-------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -11.364 [4.932]** (3.941)** | -12.198 [3.903]*** (5.522)*** | | | -2.144 [5.605] (4.180) | -4.835 [3.994] (5.651) | | | -6.675 [3.746]* (2.872)* | -8.441 [2.802]*** (3.964)*** | | |
| Strong or Very Strong | | -29.882 [11.257]*** (8.525)*** | -29.265 [8.406]*** (11.894)*** | | | -10.355 [12.128] (8.859) | -11.077 [8.739] (12.364) | | | -19.613 [8.342]** (6.166)** | -19.749 [6.098]*** (8.626)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -8.230 [5.142] (6.257) | | | | -10.732 [5.338]** (6.428)** | | | | -9.653 [3.701]*** (4.487)*** | | | |
| Strong or Very Strong | | -15.162 [12.711] (15.661) | | | | -29.077 [14.250]** (17.242)** | | | | -22.363 [9.597]** (11.723)** | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 1,040 | 1,040 | 1,040 | 1,040 | 1,200 | 1,200 | 1,200 | 1,200 | 2,240 | 2,240 | 2,240 | 2,240 |
| Respondents | 520 | 520 | 520 | 520 | 600 | 600 | 600 | 600 | 1,120 | 1,120 | 1,120 | 1,120 |
| Mean Dep. Var. | 468.9 | 468.9 | 468.9 | 468.9 | 437.7 | 437.7 | 437.7 | 437.7 | 452.2 | 452.2 | 452.2 | 452.2 |
| SD Dep. Var. | 181.6 | 181.6 | 181.6 | 181.6 | 213.6 | 213.6 | 213.6 | 213.6 | 199.9 | 199.9 | 199.9 | 199.9 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Amount Sent to Other Player* is the amount player 1 sends to player 2 in an anonymous dictator game (in CF). *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 for strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

analysis where we pool both samples and include a sample fixed effect. We find that player 2s with stronger traditional beliefs are allocated fewer CF.

The table also reports the estimated coefficient for the beliefs of player 1 – i.e., β_1 in equation (1). As we have noted, the interpretation of this coefficient is less clear since we are unable to randomize the characteristics of player 1 (as we are able to do for player 2). With this caveat in mind, we find evidence that participants with stronger traditional beliefs give less in the dictator game. The coefficient is negative and insignificant in the urban sample and negative and significant in the rural and pooled samples.

The estimates for the CYD are reported in Table 2. In the game, after a participant, player 1, chooses which of two players to play with, then the chosen player, player 2, plays a dictator game, choosing an amount of 1,000 CF to allocate to player 1. The dependent variable is an indicator variable that equals one if a person is selected by player 1 to be the dictator. We find strong evidence that a player's traditional beliefs negatively affect the probability that they are chosen in the CYD. When beliefs are measured using a 1–4 integer scale, a one-point increase in traditional beliefs is associated with a decrease in the probability of being chosen by 14 percentage points for both urban and rural samples. Thus, a full three-point increase is associated with a decrease of

about 45 percentage points. If player 2 has strong or very strong traditional beliefs, the probability of being chosen is reduced by 37 percentage points in the urban sample and 34 percentage points in the rural sample. Thus, not only are the estimated effects highly significant, but they are also extremely large in magnitude, particularly compared to the mean probability of being picked, which, by design, is 50%. Thus, the findings suggest that individuals are extremely hesitant to engage in a relationship with those who hold strong traditional beliefs.

We next turn to our JOD estimates, which are reported in Table 3. In these regressions, the dependent variable is a measure that is increasing in the extent to which player 1 makes a prosocial decision. The variable takes on the value of -1 if player 1 chooses to pay to reduce the payoff of player 2; it takes on the value of 0 if player 1 chooses to do nothing, and it takes on the value of 1 if player 1 chooses to pay to increase the payoff of player 2. We find that 52% of the urban sample and 52% of the rural sample choose to do nothing; 32% of the urban sample and 28% of the rural sample choose to increase the endowment of the other player; and 16% of the urban sample and 20% of the rural sample choose to decrease the endowment of the other player. Consistent with the estimates from the DG and CYD games, player 1 behaves less prosocially in the JOD when randomly paired with a player 2 who has stronger traditional religious beliefs.

We also examine results by each possible JOD choice – to increase, to decrease, or to do nothing – where the outcome is equal to 1 if that action was chosen. When playing with a partner with strong or very strong traditional beliefs, individuals are five percentage points less likely to increase their partner’s endowment (Appendix Table A4); about four percentage points more likely to reduce their endowment (Appendix Table A5); and are equally as likely to do nothing (Appendix Table A6).

Robustness and Sensitivity Checks

In Appendix Figures B1–B3, we report all robustness tests that were pre-specified in our pre-analysis plans (Lowes and Nunn, 2018, 2019). We present estimates for each game with player 1 controls; player 1 fixed effects; robust standard errors, standard errors clustered at the individual level, two-way clustered standard errors by player types, and randomization inference; game order, day, and enumerator fixed effects; and controlling for bilateral characteristics between player 1 and player 2 (e.g. characteristics shared between player 1 and player 2). We also present estimates checking the robustness of our findings to measuring traditional beliefs using

Table 2: Choose Your Dictator Game Estimates

| OLS, Dep. Var.: Chose Player as Dictator | | | | | | | | | | | | |
|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.142 [0.009]*** (0.013)*** | -0.149 [0.011]*** (0.016)*** | | | -0.139 [0.008]*** (0.011)*** | -0.148 [0.010]*** (0.013)*** | | | -0.140 [0.006]*** (0.009)*** | -0.148 [0.007]*** (0.010)*** | | |
| Strong or Very Strong | | | -0.367 [0.020]*** (0.032)*** | -0.366 [0.024]*** (0.036)*** | | | -0.343 [0.018]*** (0.027)*** | -0.344 [0.021]*** (0.031)*** | | | -0.354 [0.014]*** (0.021)*** | -0.354 [0.016]*** (0.024)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.001 [0.009] (0.002) | | | | -0.002 [0.009] (0.003) | | | | -0.002 [0.006] (0.002) | | | |
| Strong or Very Strong | | | -0.000 [0.023] (0.002) | | | -0.004 [0.022] (0.006) | | | | -0.002 [0.016] (0.004) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 2,080 | 2,080 | 2,080 | 2,080 | 2,400 | 2,400 | 2,400 | 2,400 | 4,480 | 4,480 | 4,480 | 4,480 |
| Respondents | 520 | 520 | 520 | 520 | 600 | 600 | 600 | 600 | 1,120 | 1,120 | 1,120 | 1,120 |
| Mean Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |
| SD Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose Player as Dictator* is an indicator variable equal to 1 if this player was selected. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 for strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

an indicator variable for each category (Appendix Tables B1–B3), the CYD results with a logit specification (Appendix Table B4), and the JOD estimates looking separately at each action: increase, decrease or do nothing (Appendix Tables A4–A6).

We also address the possibility that some individuals might not be fully open about their own traditional beliefs. They may also expect others to do this, which could affect their behavior, potentially biasing our estimates. To address this, we asked our enumerators to assess whether they thought respondents were honest when asked about their traditional religious beliefs. After being asked “How honest do you think the respondent was when answering questions about witchcraft?” the enumerators reported whether they felt the respondent was: ‘very dishonest,’ ‘somewhat dishonest,’ ‘neither dishonest nor honest,’ ‘somewhat honest,’ or ‘very honest’. We find that people tend to be honest about their traditional beliefs (see Appendix Figure A7 for the distribution). Only 4.6% of respondents are viewed as being dishonest, either somewhat dishonest or very dishonest. Further, as reported in Appendix Tables A7–A9, the estimates are very similar if these participants are omitted from the analysis.

Table 3: Joy of Destruction Game Estimates

| OLS, Dep. Var.: Choice in JOD | | | | | | | | | | | | |
|--|----------------------------------|----------------------------------|----------------------------------|------------------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.040 [0.020]** (0.018)** | -0.039 [0.019]** (0.027)** | | | -0.043 [0.017]** (0.016)** | -0.046 [0.017]*** (0.024)*** | | | -0.043 [0.013]*** (0.012)*** | -0.043 [0.012]*** (0.018)*** | | |
| Strong or Very Strong | | | -0.107 [0.043]** (0.040)** | -0.107 [0.040]*** (0.057)*** | | | -0.084 [0.039]** (0.036)** | -0.082 [0.036]** (0.051)** | | | -0.096 [0.029]*** (0.026)*** | -0.093 [0.026]*** (0.037)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.017 [0.019] (0.020) | | | | -0.062 [0.017]*** (0.018)*** | | | | -0.027 [0.013]** (0.014)** | | | |
| Strong or Very Strong | | 0.042 [0.048] (0.051) | | | | -0.131 [0.045]*** (0.048)*** | | | | -0.048 [0.033] (0.035) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 1,022 | 1,022 | 1,022 | 1,022 | 1,190 | 1,190 | 1,190 | 1,190 | 2,212 | 2,212 | 2,212 | 2,212 |
| Respondents | 513 | 513 | 513 | 513 | 598 | 598 | 598 | 598 | 1,111 | 1,111 | 1,111 | 1,111 |
| Mean Dep. Var. | 0.164 | 0.164 | 0.164 | 0.164 | 0.081 | 0.081 | 0.081 | 0.081 | 0.119 | 0.119 | 0.119 | 0.119 |
| SD Dep. Var. | 0.674 | 0.674 | 0.674 | 0.674 | 0.685 | 0.685 | 0.685 | 0.685 | 0.681 | 0.681 | 0.681 | 0.681 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Choice in JOD* takes the value of -1 if player 1 chooses to decrease the endowment of player 2, 0 if player 1 chooses to do nothing, and 1 if player 1 chooses to increase the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 for strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Magnitude and Economic Significance

Beyond being statistically significant, we also find that the magnitude of these effects is economically significant. According to our estimates, in the urban sample, if a player 2 who believes in traditional religion played the full set of games and rounds of our behavioral experiments, then given the modal behavior of player 1, they would earn \$3.15 USD. An otherwise identical player 2 who did not believe in traditional religion would earn \$3.54, a difference of 39 cents or 12.4%. In the rural sample, a player 2 who believes in traditional religion would earn \$2.97, and a non-believer would earn \$3.30, a difference of 33 cents or 11.1%. In a setting where per capita incomes are among the lowest in the world and close to subsistence, a ten percent difference in incomes is sizeable and important.

5. Social Norms Towards Those Holding Traditional Religious Beliefs

We now turn to our second set of outcomes, which measure participants' perceptions of the social acceptability of different actions in the games. As mentioned, this is motivated by two facts. First, there is now ample evidence that norms are important determinants of behavior in experiments

and everyday life.⁹ Second, we expect these measures to be less prone to experimenter demand effects. Participants do not report their beliefs about what they think is socially acceptable, but their expectation of what others will report about the social acceptability of different actions. Additionally, their responses are incentivized. If their answers are accurate, participants receive sizable payments.

For the urban sample, the measures were collected during an additional round that occurred approximately one year after the first round of visits. We were able to reinterview 449 of the original 520 respondents urban respondents. For the rural sample, the two rounds of visits were conducted within the same week. We purposefully used the same sample of individuals because they had past experience with the behavioral games. Understanding the games and the choices that can be made in them is crucial to being able to answer the questions about how appropriate different actions are.

The strategy that we use to measure norms follows the method developed by Krupka and Weber (2013). Individuals were reminded of the three experimental tasks that they had participated in, and we reviewed how they were played. Participants were then asked to imagine that there is a hypothetical decision maker (i.e., player 1) who is completing the experimental task. The participant is given information on the identity of the person that the decision maker in the task has been paired with (i.e. player 2). For each possible choice that the decision maker in the task could make, the participant is asked: “Is this choice very socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, or very socially appropriate?” Earlier in the protocol, participants are given the following explanation about the meaning of socially appropriate:

“After I describe the situation and decision made by the person, I would like you to evaluate the decision and decide whether the action is ‘socially appropriate’ and ‘consistent with moral or proper social behavior’ or ‘socially inappropriate’ and ‘inconsistent with moral or proper social behavior.’ By ‘socially appropriate,’ I mean behavior that most people in the [study area] agree is the ‘correct’ or ‘ethical’ thing to do.”

To elicit norms, we do not ask participants to choose the answer that they think is the correct thing to do. Instead, we ask them to choose the most common response to the question of what will be the most common response of the others in the study area. That is, all individuals are trying to choose what will be the most common choice of others trying to make the same decision.

⁹ See for example, Fernandez (2007), Fernandez and Fogli (2009), Krupka and Weber (2013), Kimbrough and Vostroknutov (2016), Costa-Font, Giuliano and Ozcan (2018), Bursztyn, Gonzalez and Yanagizawa-Drott (2020a).

To encourage individuals to consider their answers carefully, the responses are incentivized. For each game, if all of a respondent's responses about the appropriateness of each choice is the most common response among all participants, then the respondent received CF 5,000 in the urban sample and CF 3,000 in the rural sample. If they get one or more answers incorrect for a game, they receive no payment.

As in the experiments, individuals are not given the exact identity of the player that player 1 is paired with; they are given the same information as in the original experiments. As before, the primary experimental manipulation is the other player's strength of traditional religious beliefs. Participants complete two iterations of the set of questions about each experimental activity, stratified by the other player's traditional beliefs. Each participant responded to questions regarding how socially appropriate actions are in the dictator game (DG), choose-your-dictator game (CYD), and the joy-of-destruction game (JOD). For the dictator game, there are 11 possible allocation choices (corresponding to each possible amount from 0 CF and 1,000 CF that can be allocated to the other player); in the CYD game, two possible choices (choose player A or choose player B); and in the JOD game, there are three possible choices (decrease the endowment of the other player, do nothing, increase the endowment of the other player).

We code participant responses of how socially appropriate actions are using a 1–4 integer scale where 1 corresponds to 'very socially inappropriate' and 4 to 'very socially appropriate.' We then re-estimate variants of equations (1) and (2) with the measure of social appropriateness as the outcome of interest. The regressions are estimated separately for each potential action that could be chosen in each game. In this way, we are able to estimate how the social appropriateness of an action depends on whether the other player has strong traditional beliefs or not.

Specifically, the equations take the following form:

$$Appropriate_{ij}^k = \beta_1^k Traditional Beliefs_i + \beta_2^k Traditional Beliefs_j + \mathbf{X}_i \Phi^k + \mathbf{X}_j \Gamma^k + \varepsilon_{ij}^k, \quad (3)$$

where k denotes an action in a game, i denotes the participant, and j denotes player 2. $Appropriate_{ij}^k$ is the reported 1–4 integer measure of appropriateness (according to participant i) of decision k made when paired with player j . \mathbf{X}_i and \mathbf{X}_j denote our vectors of controls for the player i and j characteristics. As before, in the fixed effects specifications, player i controls are replaced with player i fixed effects, α_i^k . $TraditionalBeliefs_i$ and $TraditionalBeliefs_j$ denote the strength of traditional religious beliefs for participant i and player j , respectively. The coefficients of interest

are the β_2^k 's, which capture the effect of player j 's traditional beliefs on the appropriateness of decision k . We report robust standard errors and standard errors are clustered at the respondent level.¹⁰

We first consider the dictator game. The coefficients of interest are summarized in Figure 3, and the full estimates are reported in Appendix Table B5. We present the estimated coefficient (and 95% confidence intervals) for the 1-4 integer measure of player 2's strength of traditional beliefs (Figure 3a) and for the strong or very strong indicator measure of player 2's strength of traditional beliefs (Figure 3b). In the top, middle, and bottom graphs, we report the results for the urban, rural, and both samples, respectively. Each figure shows results for the specification with player 1 controls and with player 1 fixed effects.

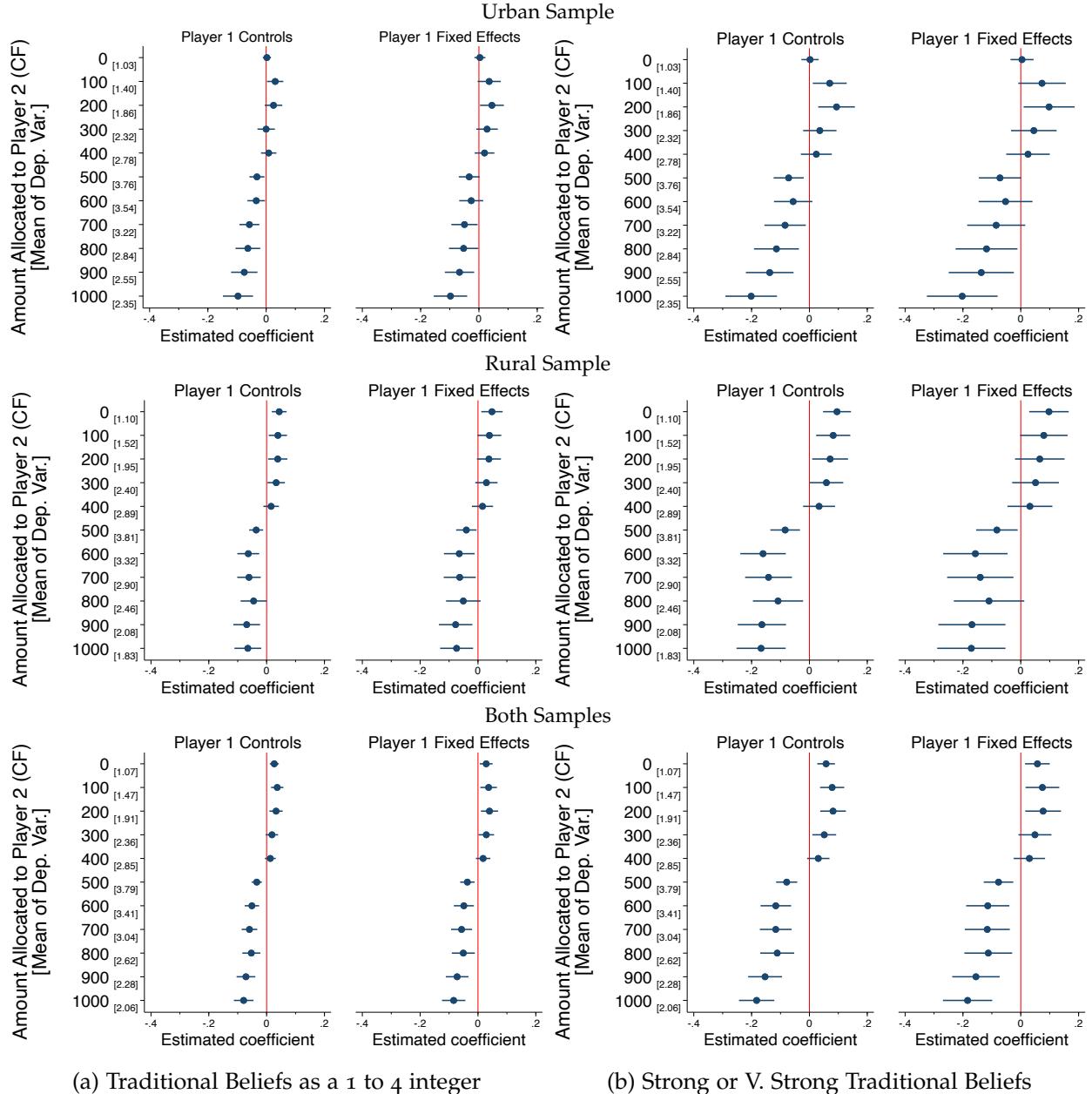
A clear pattern emerges from the estimates. For amounts allocated to player 2 that are CF 500 (50%) or above, the stronger the traditional religious beliefs held by player 2, the less socially appropriate it is to allocate large amounts to them. By contrast, for amounts below CF 500 (50%), a stronger belief by player 2 is associated with it being more socially appropriate to allocate a smaller amount to them. More generally, with the exception of the zero allocation, there is a nearly perfect monotonic ordering of the estimate for each allocation. It is perceived that allocating smaller amounts to someone with strong traditional beliefs is more socially acceptable than to someone who has less strong traditional beliefs. For the zero allocation, the overwhelming belief is that it is not acceptable to give nothing to the other player whether or not they have strong traditional beliefs – 98% of respondents say it is very socially inappropriate to send zero to the other player. Thus, the estimated coefficient is zero.

Estimates for the CYD game are reported in Table 4. As with the previous results, choosing a person to be the dictator in the dictator game is seen as less socially appropriate if that person has stronger traditional beliefs. The table also reports estimated coefficients for player 1's traditional beliefs – i.e., β_1 in equation (1). Consistent with all the previous findings, the beliefs of player 1 are uncorrelated with the outcomes of interest.

Estimates of the JOD game are summarized in Figure 4, with full estimates reported in Appendix Tables B6–B8. For each game, there are three potential choices: decrease the other player's payoff, do nothing, and increase the other player's payoff. The findings for this game echo the findings from the previous two games. Participants feel that it is more socially appropriate

¹⁰ In the figures, we present standard errors clustered at the individual level.

Figure 3: Effect of Player 2's Traditional Beliefs on How Appropriate Choices are in the DG



Notes: The figure presents the effect of player 2's traditional beliefs on how appropriate each allocation choice is in the DG for the urban sample, rural sample, and both samples. The eleven choices in the DG correspond to the amounts between CF 0 and 1,000 that can be sent to the other player. 'Appropriate' is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. The mean value of appropriate for each choice is denoted in brackets. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, (4) very strong traditional beliefs. The subfigures in column (a) present the results with traditional beliefs as a 1 to 4 variable; the subfigures in column (b) present the results with traditional beliefs as an indicator variable equal to 1 for strong or very strong traditional beliefs. 'Player 1 Controls' denotes the specification with fixed effects for player 1 characteristics; 'Player 1 Fixed Effects' denotes the specification with player 1 fixed effects. Standard errors are clustered at the individual level.

Table 4: Effect of Player 2's Traditional Beliefs on How Appropriate to Choose Player in CYD

| OLS, Dep. Var.: Appropriate to Choose Player, 1-4 | | | | | | | | | | | | |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.272 [0.019]*** (0.025)*** | -0.286 [0.020]*** (0.029)*** | | | -0.306 [0.019]*** (0.022)*** | -0.323 [0.020]*** (0.027)*** | | | -0.291 [0.013]*** (0.017)*** | -0.307 [0.014]*** (0.020)*** | | |
| Strong or Very Strong | | | -0.712 [0.043]*** (0.058)*** | -0.712 [0.044]*** (0.067)*** | | | -0.750 [0.042]*** (0.051)*** | -0.748 [0.042]*** (0.058)*** | | | -0.735 [0.030]*** (0.038)*** | -0.734 [0.030]*** (0.044)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.003 [0.021] (0.020) | | | | -0.014 [0.020] (0.019) | | | | -0.007 [0.014] (0.014) | | | |
| Strong or Very Strong | | | -0.003 [0.050] (0.046) | | | -0.061 [0.051] (0.050) | | | | -0.029 [0.036] (0.035) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 1,796 | 1,796 | 1,796 | 1,796 | 2,384 | 2,384 | 2,384 | 2,384 | 4,180 | 4,180 | 4,180 | 4,180 |
| Respondents | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 1,045 | 1,045 | 1,045 | 1,045 |
| Mean Dep. Var. | 3.076 | 3.076 | 3.076 | 3.076 | 2.811 | 2.811 | 2.811 | 2.811 | 2.925 | 2.925 | 2.925 | 2.925 |
| SD Dep. Var. | 0.984 | 0.984 | 0.984 | 0.984 | 1.125 | 1.125 | 1.125 | 1.125 | 1.075 | 1.075 | 1.075 | 1.075 |

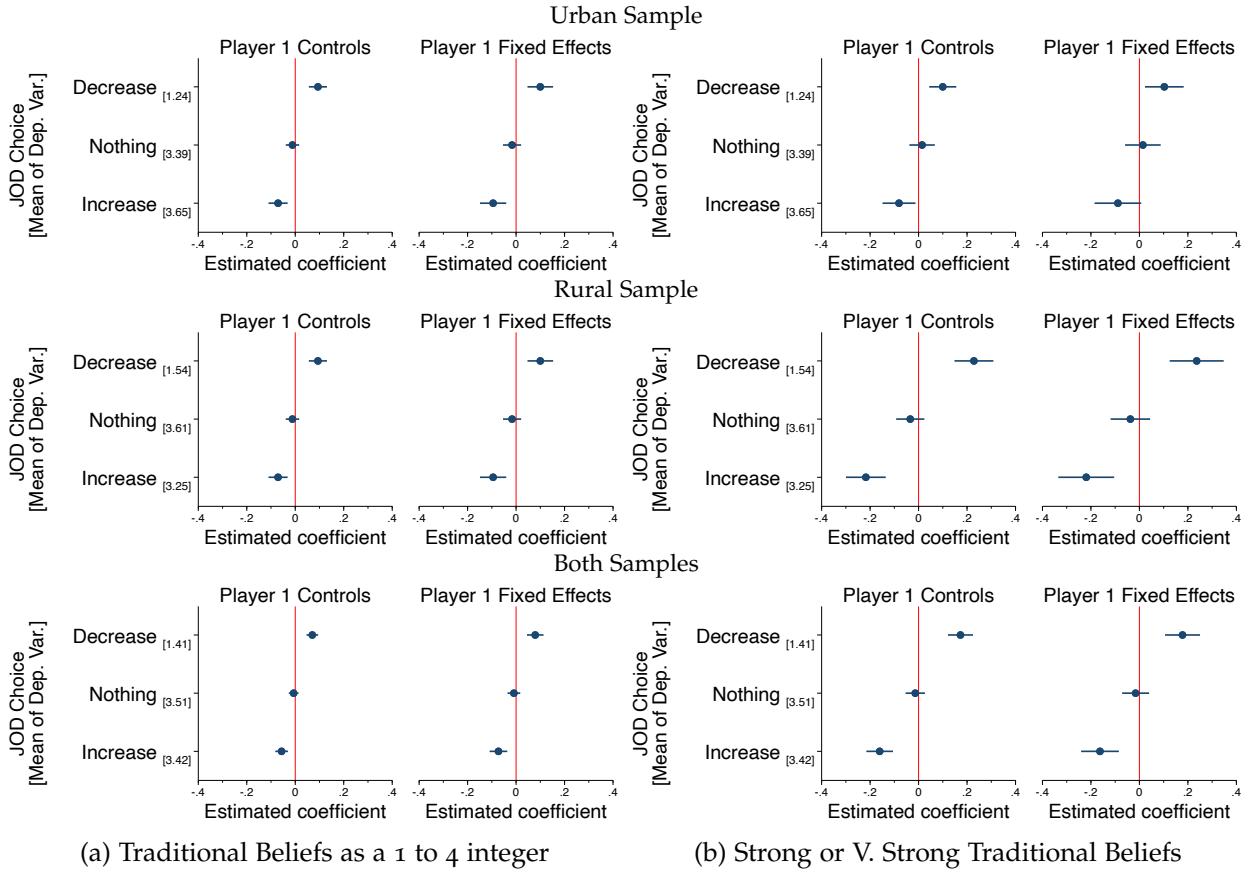
Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Choose Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 for strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

to decrease the payoff of the other player when the other player has stronger traditional beliefs. Similarly, they feel that it is less socially appropriate to increase the payoff of the other player when the other player has strong traditional beliefs. Lastly, it is equally appropriate to do nothing.

Robustness and Sensitivity Checks

In the appendix, we present the following robustness tests. We present the norms results: with player 1 controls; with player 1 fixed effects; with robust standard errors, clustered standard errors, two-way clustered standard errors by player types, and using randomization inference; with game order, day, and enumerator fixed effects; and with controls for bilateral characteristics between player 1 and player 2 (Appendix Figures B4–B9). We also present estimates that show the robustness of our findings to measuring traditional beliefs using indicator variables for each category of the measure (Appendix Tables B9–B13).

Figure 4: Effect of Player 2's Traditional Beliefs on How Appropriate Choices are in JOD



Notes: The figure presents the effect of player 2's traditional beliefs on how appropriate each choice is in the JOD for the urban sample, rural sample, and both samples. The three choices in the JOD are to decrease, do nothing, or increase the endowment of the other player. 'Appropriate' is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. The mean value of appropriate for each choice is denoted in brackets. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, (4) very strong traditional beliefs. The subfigures in column (a) present the results with traditional beliefs as a 1 to 4 variable; the subfigures in column (b) present the results with traditional beliefs as an indicator variable equal to 1 for strong or very strong traditional beliefs. 'Player 1 Controls' denotes the specification with fixed effects for player 1 characteristics; 'Player 1 Fixed Effects' denotes the specification with player 1 fixed effects. Standard errors are clustered at the individual level.

6. Perceptions of those with Strong Traditional Religious Beliefs

Thus far, we have presented evidence that those with strong traditional beliefs are treated less prosocially and that this behavior is perceived as being socially acceptable. To better understand the determinants of this, we turn to the question of whether these norms and behaviors are rooted in different perceptions of traditional believers. While natural to expect this, it is not a foregone conclusion. For example, it is possible that due to the presence of Christianity, individuals do not hold negative feelings towards traditional believers, but they act as if they do. This would lead to the perceived norms and the behaviors that we document. This would be an example of

pluralistic ignorance and preference falsification ([Bursztyn, Egorov and Fiorin, 2020b](#)).

To obtain a valid measure of a person's true perceptions of traditional believers, particularly where social image concerns or experimenter demand may be present, we use the 'conjunction fallacy,' which is a tool that is used to elicit perceptions that individuals may have about others ([Tversky and Kahneman, 1983](#)). The canonical example of the conjunction fallacy comes from a scenario about Linda, a woman who is an outspoken liberal and is single and politically active. Respondents are asked whether it is more likely that Linda is a bank teller or that Linda is a bank teller and a feminist. Statistically speaking, it is more likely that Linda is a bank teller than a bank teller and a feminist. However, respondents often indicate that they feel it is more likely that she is a bank teller and a feminist. This incorrect answer reflects the association that they have in their mind between feminists and Linda's characteristics.

We use this method to elicit associations that participants have about those who have traditional religious beliefs. We construct scenarios that describe individuals with positive characteristics, such as being: generous, honest, socially included, benevolent, and even-tempered. We also construct scenarios describing people with negative characteristics: selfish, dishonest, socially excluded, jealous, and vindictive. For each scenario, we then ask the participant if it is more likely that the character in the scenario is (1) a baseline characteristic (e.g., teacher); (2) the baseline characteristic and someone with strong traditional beliefs; (3) the baseline characteristic and someone with strong Christian beliefs. This allows us to measure whether a participant associates certain characteristics with traditional beliefs or Christian beliefs. Given our findings about the association between traditional beliefs and behavior and norms, we expect traditional beliefs to be associated with negative characteristics.

For this activity, we recruited a random sample of 523 individuals from the city.¹¹ Participants listen to scenarios where the character exhibits the positive or negative traits (in random order) described above. While the complete list of the conjunction fallacy scenarios is provided in Appendix [A.2](#), we provide one example here for illustration: "Adrian is 35 years old. He lives in the city and sells airtime in the market. One day, a customer accidentally gives him 200 CF more than the price of the airtime. Adrian notices as the customer is walking away, but instead of notifying him, puts the money in his pocket to keep it." Participants are then asked: "Is it more

¹¹ Because of cost over-runs related to the COVID-19 pandemic, combined with a limited budget, we were unable to also have a sample from the rural villages for this activity.

probable that Adrian is (1) a married man or (2) a married man who is a strong believer in bokoko or (3) a married man who is a strong believer in the Christian God?”. If option 1 is chosen, then the participant does not commit the conjunction fallacy. If option 2 is chosen, then this indicates that the characteristics described in the scenario are associated with traditional religious beliefs. If option 3 is chosen, then this suggests the characteristics are associated with Christianity.

The findings are reported in Table 5. First, we present results for a scenario that did not have a negative or positive connotation. Instead, it described a character who really enjoyed eating goat and cassava. In that scenario, most people (65%) do not make the conjunction fallacy. We view this as a helpful baseline.

When we examine the positive characteristics, respondents often make the conjunction fallacy, and they tend to associate the positive characteristics with those who have a strong belief in the Christian God. For example, 92 percent of the sample make the conjunction fallacy that reflects an association between benevolence and someone who believes in the Christian God. Only three percent make the conjunction fallacy that reflects an association between benevolence and someone who has strong traditional beliefs.

For the negative characteristics, we observe the opposite pattern. Respondents consistently make the conjunction fallacy that associates the characteristic with someone who has strong traditional beliefs. For example, 87 percent of the sample associates vindictiveness with someone who has strong traditional beliefs.

We also described a scenario where the character was rich and another scenario where the character was poor. We find that for both scenarios, a large percentage of the sample does not make the conjunction fallacy. However, we also find that among those who make the conjunction fallacy, the association for both scenarios was with an individual who believed in the Christian God. Thus, to the extent that an association exists, it appears that both poverty and wealth are associated with being Christian.

For completeness, we also formally estimate whether traditional beliefs are associated with the different traits. The specification is described in detail in Appendix A.5, and the results are reported in Appendix Figure A8. Here too, we find that traditional religious beliefs tend to be associated with negative traits and tend not to be associated with positive traits.

These findings complement the findings of the effects on norms and behavior that we document. The association of those holding traditional beliefs with negative traits provides a

Table 5: Conjunction Fallacy: Distribution of Responses

| Character described as: | Potential Responses: | | | Character described as: | Potential Responses: | | |
|--------------------------|------------------------------------|---------------------------|-------------------------|--------------------------|------------------------------------|---------------------------|-------------------------|
| | Baseline Characteristic Only | Baseline & Traditional | Baseline & Christian | | Baseline Characteristic Only | Baseline & Traditional | Baseline & Christian |
| Liking Food | 64.63 (47.86) | 12.81 (33.45) | 22.56 (41.84) | | | | |
| Honest | 12.24 (32.8) | 9.75 (29.69) | 78.01 (41.46) | Dishonest | 29.45 (45.62) | 58.32 (49.35) | 12.24 (32.8) |
| Benevolent | 5.16 (22.15) | 3.06 (17.24) | 91.78 (27.5) | Jealous | 14.53 (35.28) | 82.6 (37.95) | 2.87 (16.71) |
| Generous | 7.27 (25.98) | 2.49 (15.58) | 90.25 (29.69) | Selfish | 21.8 (41.33) | 68.26 (46.59) | 9.94 (29.95) |
| Even Tempered | 31.17 (46.36) | 6.12 (23.99) | 62.72 (48.4) | Vindictive | 10.33 (30.46) | 87.38 (33.24) | 2.29 (14.99) |
| Socially Included | 29.64 (45.71) | 1.53 (12.28) | 68.83 (46.36) | Socially Excluded | 28.68 (45.27) | 61.76 (48.64) | 9.56 (29.43) |
| Rich | 51.05 (50.04) | 9.56 (29.43) | 39.39 (48.91) | Poor | 43.98 (49.68) | 5.16 (22.15) | 50.86 (50.04) |
| Observations: | 523 | 523 | 523 | | 523 | 523 | 523 |

Notes: For each scenario, we report the percentage of the sample that did not make the conjunction fallacy (i.e. *Baseline Characteristic Only*), made the conjunction fallacy with traditional beliefs (*Baseline & Traditional*), and made the conjunction fallacy with Christian beliefs (*Baseline & Christian*). Averages are reported with the standard deviation in parentheses.

rationale for the antisocial norms towards this group, which in turn supports the antisocial behavior observed in the experiments. These results also suggest that the patterns observed in the behavioral and norm measures reflect actual beliefs held by the respondents and do not arise due to pluralistic ignorance or preference falsification.

7. Generality and External Validity of Findings

Given the prevalence of this antisocial behavior, a crucial question is how the situation can be improved. A natural response would be that the solution is simple. Populations should discontinue believing in African traditional religions. However, it is well-known that given the slow-moving incremental nature of cultural evolution, beliefs can persist for long periods of time, even if they are costly (in terms of material and social payoffs). In addition, there may be important benefits to these beliefs. For example, abandoning traditional religious beliefs would also require turning one's back on one's deceased ancestors. This could have a detrimental effect on mental well-being, as well as the functioning of informal institutions, which are typically built around the lineage and political power derived from ancestors. Given these potential benefits, as well as the fact that the origin of the anti-social behavior towards African traditional religions is Christianity, it is not at all clear that further weakening traditional religious beliefs is the answer.

7.1. Generality within the Experimental Sample

Given the adverse social consequences of traditional religious beliefs that we identify, it is important to understand under what circumstances these negative effects attenuated. For example, if the effects are smaller among those who are richer or more educated, then this suggests that economic development may attenuate these detrimental effects. Additionally, it is possible that the effects we estimate are not found if player 1 also holds traditional religious beliefs.

We examine these issues by testing for heterogeneous effects depending on the characteristics of player 1: whether they belong to the same ethnic group as player 2, their gender, age, whether they are from a rural or urban area, strength of Christian beliefs, strength of traditional religious belief, education, and income. Using measures of each of these characteristics, we divide the sample into two groups and estimate the effects of player 2's belief for each subsample. For some characteristics, the division is clear - e.g., male or female gender, same ethnic group or not, grew up urban or rural. For others – e.g., religious beliefs, education, income – we choose divisions to create subsamples that are as equal as possible.¹²

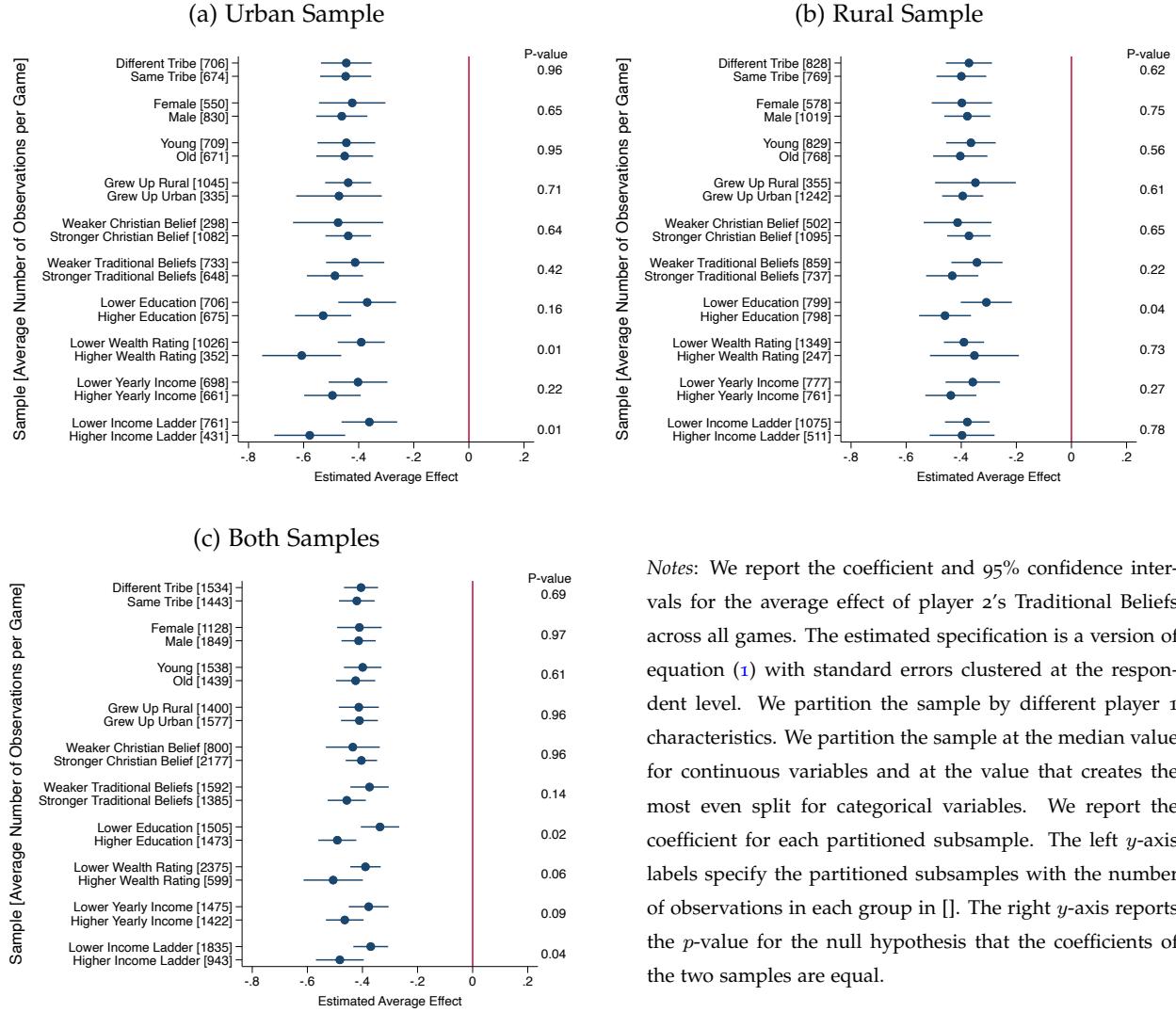
As a method of summarizing the patterns across the different behavioral measures, we report the average effects across actions in the dictator game, choose-your-dictator game, and joy-of-destruction game. We standardize each outcome to have mean zero and standard deviation one, all observations, and estimate the version of equation (1) with player 1 controls, but also including a fixed effect for each game and with standard errors clustered at the respondent level.¹³

From the estimates, which are summarized in Figure 5, a number of findings emerge. First, for all subsamples, we estimate a negative and highly significant effect of player 2's traditional religious beliefs on how prosocial player 1's behavior is. This is significant because it suggests that even educated and higher-income individuals, including those who live in the city, treat those who hold traditional religious beliefs worse. Second, we find that many of the characteristics that we might think might attenuate the documented antisocial behavior do not do so; in many cases, they magnify the effects. Individuals with more education and with higher incomes tend to have larger estimated effects and the difference is often statistically significant.

¹² For the continuous measures (i.e., yearly income and education), we partition the sample using the median value. For categorical measures (i.e., religious beliefs and perceived income and wealth), we choose the partition that generates the most equal groups.

¹³ The heterogeneity estimates for each game separately are reported in Appendix Figure A10. We report results with player 1 fixed effects in Appendix Figure B10.

Figure 5: Heterogeneity of Estimates by Player 1 Characteristics



Given the lack of evidence that economic development will ameliorate these adverse effects, the other way that the effects could be eliminated is if traditional beliefs decline. However, because of the importance of these beliefs for local political, legal, and social life, their elimination would mean a substantial weakening of these important structures, which could have detrimental effects. This puts Africans in a predicament. Traditional religions have been the foundation of society, but the introduction of Christianity and Islam have led to their demonization leading to the adverse consequences we document here. Thus, they can either abandon a religion that forms the foundation of daily life or bear the costs of continued belief.

Another important result is that we find no evidence that if player 1 has strong traditional beliefs, they tend to be relatively less antisocial towards a player 2 who holds traditional beliefs.

Instead, a player 1 who has strong traditional beliefs also treats a player 2 with strong traditional beliefs less prosocially. The finding, although striking, is consistent with recent experimental findings from India showing that low-caste individuals are treated less prosocially by everyone, even others who are also of a low caste (Hoff et al., 2011). As pre-specified, we explore this particular form of heterogeneity further by estimating a variant of our baseline equation (1) that includes an interaction between the traditional beliefs of players 1 and 2. The estimates are reported in Appendix Tables A10–A12. Consistent with the conclusion from Figure 5, we find no evidence that a player 1 who believes in traditional religion treats player 2's with the same beliefs better.

A second possibility is that other characteristics of player 2 are also important for determining the magnitude of the effects. It is possible, for example, that the antisocial behavior targeted to traditional believers is attenuated if player 2 is wealthier, more educated, or they also believe in Christianity. The heterogeneous average effects are reported in Appendix Figure A11 and for each game separately in Appendix Figure A12.¹⁴ We again find that for every subgroup examined, we estimate a negative and statistically significant effect of player 2's traditional religious beliefs. The only form of (mild) heterogeneity that we observe, which is by player 2's education, suggests that more education does not attenuate the effects but instead magnifies them. Thus, again, the estimates provide no evidence that the process of development will ameliorate the anti-social effects we are finding.

7.2. Generality Beyond the Experimental Sample

The heterogeneity analyses suggest that the effect of traditional religious beliefs on anti-social behavior is remarkably general. It is present for all subgroups of player 1 and player 2 examined. In addition, increased education or income seems to actually increase the negative consequences of believing in traditional religions. Thus, there is no indication that the antisocial behavior is likely to disappear with economic development.

We further explore the generality and external validity of our experimental findings. If these findings are relevant more generally, we would expect a person's belief in traditional religion to be associated with lower levels of economic well-being. We check for these relationships using individual-level data from Gallup, which includes information on witchcraft beliefs and various

¹⁴ We also report a version with player 1 fixed effects in Appendix Figure B11.

Table 6: Witchcraft Beliefs and Economic Well-being

| | OLS, Dep. Var.: | | | | | | | | | | | |
|--|--------------------------------------|----------------------|--|----------------------|--|----------------------|---|----------------------|------------------------------------|----------------------|----------------------------------|----------------------|
| | <i>In(1+Annual Household Income)</i> | | <i>In(1+ Per Capita Annual Income)</i> | | <i>Satisfied with standard of living (0/1)</i> | | <i>Living comfortably on present income [0-1]</i> | | <i>Life Evaluation Index [0-1]</i> | | <i>Average Effect Size (AES)</i> | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| <i>Panel A</i> | | | | | | | | | | | | |
| Witchcraft Belief | -0.096*** (0.013) | -0.090*** (0.013) | -0.120*** (0.013) | -0.114*** (0.013) | -0.060*** (0.005) | -0.057*** (0.005) | -0.025*** (0.003) | -0.023*** (0.003) | -0.021*** (0.002) | -0.020*** (0.002) | -0.092*** (0.007) | -0.086*** (0.006) |
| <i>Panel B</i> | | | | | | | | | | | | |
| Witchcraft Belief | 0.031 (0.026) | 0.036 (0.026) | 0.006 (0.026) | 0.010 (0.026) | -0.049*** (0.009) | -0.046*** (0.009) | 0.003 (0.006) | 0.005 (0.006) | -0.016*** (0.004) | -0.015*** (0.004) | -0.016 (0.013) | -0.011 (0.013) |
| Witchcraft Belief × <i>In(GDP per capita) [0-1]</i> | -0.309*** (0.055) | -0.305*** (0.055) | -0.306*** (0.057) | -0.302*** (0.056) | -0.027 (0.020) | -0.027 (0.020) | -0.071*** (0.014) | -0.071*** (0.014) | -0.014* (0.008) | -0.014* (0.008) | -0.185*** (0.028) | -0.184*** (0.028) |
| <i>Panel C</i> | | | | | | | | | | | | |
| Witchcraft Belief | 0.048* (0.027) | 0.054** (0.027) | 0.024 (0.027) | 0.029 (0.027) | -0.030*** (0.010) | -0.027*** (0.010) | 0.002 (0.007) | 0.004 (0.007) | -0.004 (0.004) | -0.003 (0.004) | -0.007 (0.013) | -0.001 (0.013) |
| Witchcraft Belief × <i>Prim. Completion [0-1]</i> | -0.267*** (0.047) | -0.265*** (0.046) | -0.267*** (0.047) | -0.263*** (0.047) | -0.056*** (0.017) | -0.057*** (0.017) | -0.052*** (0.012) | -0.052*** (0.012) | -0.033*** (0.007) | -0.033*** (0.007) | -0.156*** (0.023) | -0.157*** (0.023) |
| Demographic Controls | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Country-Wave FE | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 46,605 | 46,605 | 46,605 | 46,605 | 50,401 | 50,401 | 50,040 | 50,040 | 48,495 | 48,495 | 45,061 | 45,061 |
| Number of Countries | 30 | 30 | 30 | 30 | 34 | 34 | 34 | 34 | 33 | 33 | 30 | 30 |
| Mean Dep. Var. | 7.888 | 7.888 | 6.285 | 6.285 | 0.398 | 0.398 | 0.412 | 0.412 | 0.452 | 0.452 | 0.000 | 0.000 |
| SD Dep. Var. | 1.342 | 1.342 | 1.391 | 1.391 | 0.489 | 0.489 | 0.329 | 0.329 | 0.195 | 0.195 | 1.000 | 1.000 |

Notes: The table reports OLS estimates in columns (1)-(10) and Average Effect Size (AES) estimates in columns (11) and (12) (Kling, Liebman, Katz and Sanbonmatsu, 2004). All specifications include country-wave fixed effects. *Witchcraft Belief* is an indicator variable equal to 1 if the individual answered "Yes" to the question "Do you believe in witchcraft?" and 0 if they answered "No". The witchcraft data are from Gallup (2009 and 2011, waves 4 and 6). *In(GDP per capita) [0-1]* is the GDP per capita of a country in 2016 as reported in the World Bank Data Bank, normalized to be between 0 and 1. *Primary Completion [0-1]* is the share of individuals who have completed primary school as reported in the World Bank Data Bank, normalized to be between 0 and 1. *In(1+Annual Household Income)* is the natural log of 1 plus the household income. *In(1+ Per Capita Annual Income)* is the natural log of 1 plus the household income divided by household size. *Satisfied with Standard of Living (0/1)* is an indicator variable equal to 1 if an individual reports being satisfied with their standard of living. *Living comfortably on present income [0-1]* is increasing in the extent to which the individual feels they are living comfortably on present income. *Life Evaluation Index [0-1]* is increasing in the individual's perceived ranking of their life. *Demographic controls* include age, age squared, gender, and their interactions. In columns 1–10, robust standard errors are reported in (). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

measures of material well-being for about 50,000 people from 34 countries in sub-Saharan Africa. The estimates, which are reported in Panel A of Table 6, show that a belief in witchcraft is negatively associated with various measures of economic prosperity, including household income, per capita income, satisfaction with standard of living, perceived comfort of life given present income, and perceived quality of life. The final columns of Table 6 also present the average effect size coefficient across all of these measures.

We also check whether the heterogeneity we found in the experiments – i.e., by level of economic development – is also found more broadly. Panels B and C allow the relationship between an individual's belief in witchcraft and their measure of economic well-being to vary depending on their country's level of per capita GDP (Panel B) or primary school completion rate (Panel C).¹⁵ We find a stronger negative relationship between a person's witchcraft belief and their economic well-being with greater economic development. Thus, we find the expected patterns in the cross-sectional data for sub-Saharan as we did in the experimental evidence from the DRC, providing evidence that our experimental findings might be quite general.

¹⁵ We use the natural log of GDP per capita (in 2016) and primary school completion rates (for the most recent year available from 2010–2020). To ease interpretation, the measures are normalized to range from 0 to 1. Further details are provided in Appendix A.8.

8. On the Origins of the Estimated Effects

8.1. Variation over Time

Our findings generate a somber picture of social relations in our setting. Like most of sub-Saharan Africa, belief in some denomination of Christianity (or Islam) is now nearly universal. The anthropological and historical literatures suggest that the adoption of Christianity resulted in the demonization and stigmatization of African traditional religions, although this is based on fragmentary descriptive accounts. This provides the most natural explanation for the origins of the effects that we have documented.

To better examine whether there is evidence for this explanation, we first explore whether there is empirical evidence of changing perceptions of traditional religion over time. To do this, we rely on traditional folklore data, recently studied by [Michalopoulos and Xue \(2021\)](#), which capture information on oral histories that have been passed down for many generations. Since they tend to remain relatively unchanged over time, they provide a glimpse into the values and beliefs of the past, particularly prior to first exposure to Christianity, which for most of the continent was the late 19th or early 20th Century. Consistent with the folktales reflecting historical content prior to Missionary contact, we find that among all societies in Africa, there are no folktales that mention ‘Christian,’ ‘Christianity,’ ‘Catholic,’ or other related words.

To gain a sense of how traditional beliefs are portrayed in traditional folklore, we identify all folktales from African societies that have motifs that contain the word “magic” or any of the related words identified using ConceptNet. This returns 31 unique folktales that are common to multiple ethnic groups across the continent. Among them, in no folktale is the magic or the user of magic depicted in a stigmatized manner. If we look at the consequences of the use of magic in the storyline, we find that in 18, it results in a positive outcome; in two tales, it has an effect that is not obviously positive or negative; and in 11, it results in negative outcomes.

Evidence on the historical perceptions of indigenous religion can also be gleaned from the *Ethnographic Survey of Africa*, a compilation of ethnographic accounts of ethnic groups across the African contact ([Forde, 1950–77](#)). Among the 1,107 ethnic groups who believe that spirits can provide a source of power that can be harnessed to affect others, 40% explicitly note that this can be used to help others (i.e., for good), and 45% report that it can be used to harm others. The remaining cases are ones where the ethnographies do not specify either way. Thus, the

ethnographic data also indicates a balance in the belief of whether traditional religion is used to harm or to help.

The patterns observed in the historical record stand in contrast to the findings from our contemporary study, as well as the perceptions that emerge from our surveys and focus groups. For example, at the end of our activities, we asked participants: "Why do people use witchcraft?" The tone of the contemporary responses was much less balanced than the stories of historical folktales. Among the responses, only 13% reported that witchcraft was used for positive purposes only (e.g., gaining wealth, increasing fertility, etc). By contrast, 50% reported only negative purposes (e.g., eating human flesh, hurting others, etc.). The remainder either listed both negative and positive purposes, 22%, or listed reasons that weren't clearly positive or negative (e.g., it is their profession, they were born this way), 15%.

8.2. Heterogeneity by Historical Missionary Activity

We also examine heterogeneity depending on the strength of a person's self-reported Christian beliefs. It is possible that stronger Christian beliefs might strengthen the effects we estimate if Christianity is the source of these antisocial perceptions, norms, and actions. However, it is also possible that they might weaken the effects if Christian teachings promote universal prosocial behavior.

When we look at heterogeneity depending on an individual's self-reported beliefs in Figure 5, we find that effects do not differ depending on the Christian beliefs of the participants. For both samples, this is not particularly surprising since there is little variation on the extensive margin. Nearly everyone is Christian. As noted, for logistical reasons (due to the matching of participants), the urban sample only includes strong or very strong believers in Christianity, which further confounds this effect. While our religion question is aimed at capturing both margins, it does so in a very coarse and imperfect way.

Prior to collecting the data, we anticipated this difficulty and pre-registered an exercise that we felt was the best strategy for looking at heterogeneous effects depending on a person's exposure to Christianity; namely, to estimate heterogeneous effects within our rural village sample by the historical exposure of the village to a foreign mission station. Although, by now, Christianity has spread to all villages in some form (all rural villages in our sample have at least one church, with an average of 3.3 churches per village), we expect locations that were exposed to foreign missions

during the colonial period have a greater intensity and depth of beliefs in Christianity today. We obtain this information from a detailed map of colonial era missions from [Mantnieks \(1951\)](#). See Figure [A13](#) for a map of the villages and Christian missions.¹⁶

To examine the effects of Christian missions, we undertake a heterogeneity analysis in exactly the same manner as in Figure [5](#). Looking at the rural population, we divide the sample into two groups: those living closer to colonial mission stations and those living further from them. We estimate equation [\(1\)](#), and we present the estimated average effect of the other player's traditional beliefs for the two groups in Figure [6](#).¹⁷ We report estimates for different definitions of close and far using distances ranging from 15–40 kilometers. As before, we also report the *p*-value for the hypothesis that the estimated effects for the two groups are equal.

We find that the historical presence of Christian missions amplifies the antisocial effects directed towards traditional religion that we estimate. For both groups, the estimated effects are present (and highly significant), but they are particularly strong for villages that have a history of being close to a foreign mission station. The effects are present for both types of missions but particularly strong for Catholic missions, which were the most common denomination in DRC during the colonial period.

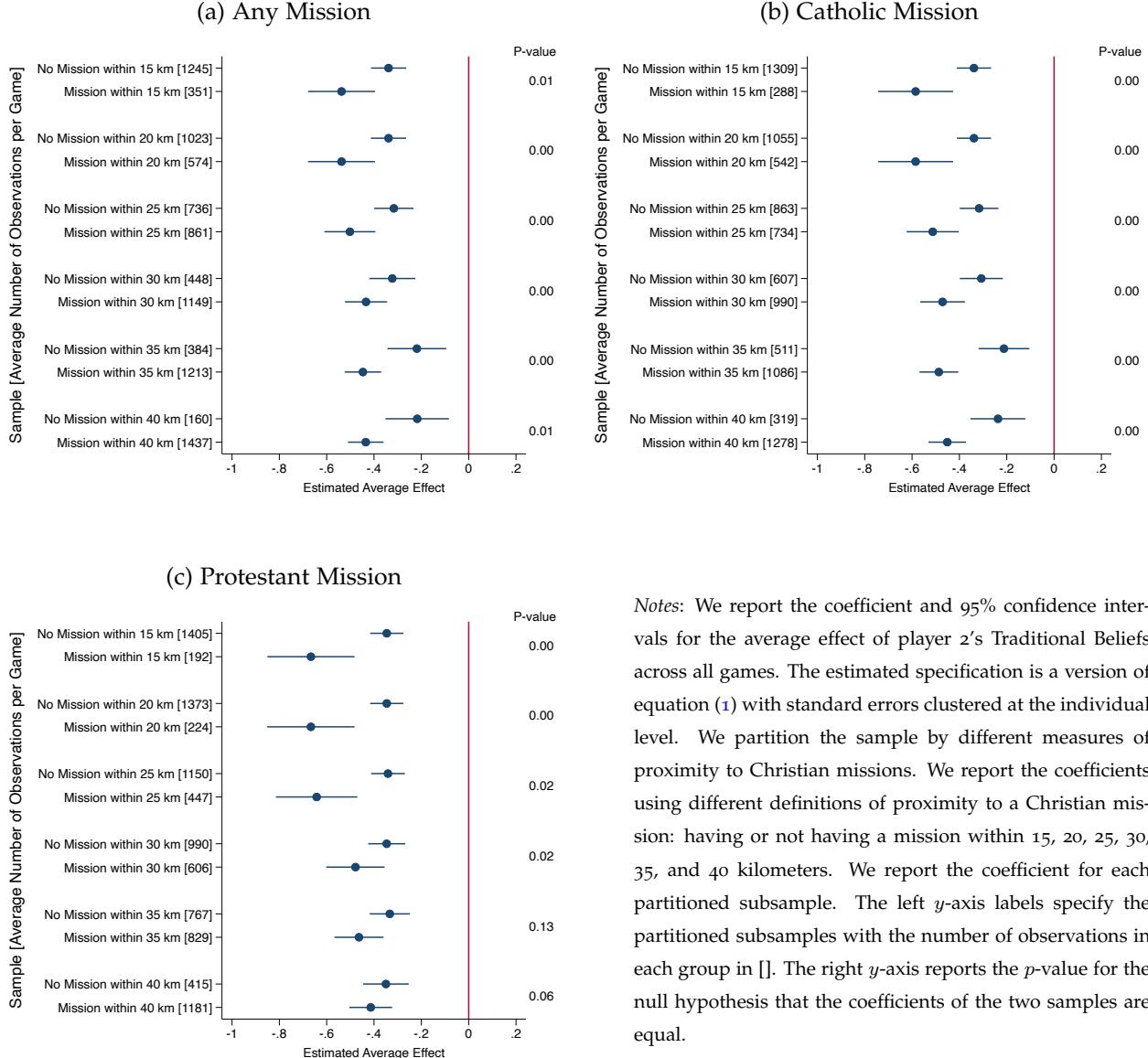
To explore this form of heterogeneity further, and check the sensitivity of the effects to the specification, also estimate a variant of our baseline specification – equation [\(1\)](#) – that allows the effect of player 2's traditional beliefs on player 1's behavior to vary depending on whether the historical exposure of player 1's village to Christianity. This analysis was pre-specified in our PAP. We report estimates using a near/far indicator variable (based on 20 kilometers) but also report estimates using more continuous measures: the inverse distance to the nearest mission station and the inverse log distance to the nearest mission station. As before, we measure each of these for Protestant missions, Catholic missions, and either denomination of mission. The estimates, which are reported in Appendix Table [A13](#) and Figure [A14](#), show for locations closer to colonial foreign mission stations, the antisocial behavior that we document is significantly stronger.

Taken as a whole, our estimates suggest that while Christianity has spread so widely and

¹⁶ Based on our knowledge of the setting, we felt that there would not be a relationship between the historical exposure of urban respondents' ancestral villages to missions and the reported intensity of Christian beliefs today. This is because, for those living in the city, the historical variation will be swamped by the current exposure of individuals to Christianity, which is much more pervasive and intensive in the city relative to the rural villages. Thus, as pre-specified, we did not undertake a similar exercise using our urban sample.

¹⁷ For a version with player 1 fixed effects, refer to Appendix Figure [B12](#).

Figure 6: Heterogeneity of Estimates by Historical Exposure to Christian Missions



deeply into the region (and the continent in general) that it's difficult to determine empirically whether this is the source of the effects we document by focusing on the most remote regions in our sample and a historical determinant that provides strong differences in the intensity of exposure to Christianity, we are able to uncover variation that can speak to this question. The evidence from this indicates that Christianity, at least historical exposure to Christianity, is associated with an amplification of antisocial behavior towards those who hold traditional religious beliefs.

We also check the generality of the finding of heterogeneity by historical missionary exposure

Table 7: Witchcraft Beliefs, Income, and Life Satisfaction: Exposure to Any Mission within a 15 to 40 km buffer

| | OLS, Dep. Var.: Average Effect Size (AES) of Economic Well-Being | | | | | | | | | | | |
|---|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | 15 km Buffer | | 20 km Buffer | | 25 km Buffer | | 30 km Buffer | | 35 km Buffer | | 40 km Buffer | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Panel A | | | | | | | | | | | | |
| Witchcraft Belief | -0.090*** (0.007) | -0.084*** (0.007) | -0.090*** (0.007) | -0.084*** (0.007) | -0.090*** (0.007) | -0.084*** (0.007) | -0.090*** (0.007) | -0.084*** (0.007) | -0.090*** (0.007) | -0.084*** (0.007) | -0.090*** (0.007) | -0.084*** (0.007) |
| Panel B | | | | | | | | | | | | |
| Witchcraft Belief | -0.089*** (0.007) | -0.084*** (0.007) | -0.089*** (0.007) | -0.084*** (0.007) | -0.089*** (0.007) | -0.084*** (0.007) | -0.089*** (0.007) | -0.084*** (0.007) | -0.089*** (0.007) | -0.084*** (0.007) | -0.089*** (0.007) | -0.084*** (0.007) |
| Witchcraft Belief × Share of land within [...] km from a mission [0-1] | -0.013** (0.006) | -0.014** (0.006) | -0.012* (0.006) | -0.014** (0.006) | -0.011* (0.006) | -0.013** (0.006) | -0.011 (0.006) | -0.012* (0.006) | -0.010 (0.006) | -0.011* (0.006) | -0.009 (0.006) | -0.010 (0.006) |
| Demographic Controls | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Missionary Controls | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Country-Wave FE | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 | 43,063 |
| Number of Countries | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| Mean Dep. Var. | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SD Dep. Var. | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Notes: The table reports Average Effect Size (AES) estimates (Kling et al., 2004). All specifications include country-wave fixed effects. *Witchcraft Belief* is an indicator variable equal to 1 if the individual answered “Yes” to the question “Do you believe in witchcraft?” and 0 if they answered “No”. The witchcraft data are from Gallup (2009 and 2011, waves 4 and 6). The AES measure is constructed using $\ln(1 + \text{Annual Household Income})$, the natural log of 1 plus the household income; $\ln(1 + \text{Per Capita Annual Income})$, the natural log of 1 plus the household income divided by household size; *Satisfied with Standard of Living (0/1)* which is an indicator variable equal to 1 if an individual reports being satisfied with their standard of living; *Living comfortably on present income [0-1]*, which is increasing in the extent to which the individual feels they are living comfortably on present income; and *Life Evaluation Index [0-1]*, which is increasing in the individual’s perceived ranking of their life. *Demographic controls* include age, age squared, gender, and their interactions. *Missionary Controls* include a control for the share of a region within [...] km from a mission. Standard errors clustered at the respondent level are reported in (). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

by returning to the Gallup data and testing for heterogeneity of the negative relationship between belief in witchcraft and economic well-being by historical missionary presence. The estimates are reported in Table 7. Each column reports the average effect size across all economic well-being measures while allowing for heterogeneity depending on a measure of missionary exposure within the respondent’s subnational region. The missionary exposure measure captures the share of land within a region that was within a certain distance – either 15, 20, 25, 30, 35, or 40 kilometers – of a mission station present in the early 1920s (Roome, 1924). Regardless of the specific measure used, and consistent with the experimental findings, we find a stronger negative relationship between a person’s witchcraft belief and their economic well-being when there was more historical missionary presence.¹⁸

9. Conclusion

Traditional religion within Africa is in a precarious position. Much of life – whether it be institutional, political, or cultural – is rooted in traditional religion, which provides stability and structure to society. At the same time, there are numerous accounts of these religions being stigmatized, likely due to their demonization by Islam and Christianity. In this paper, we examined

¹⁸ See Appendix Figure A15 for a map of the Gallup data and the Christian missions from Roome (1924).

this issue and studied the social consequences of believing in traditional religion. In rural and urban locations in the DRC, we implemented experiments and surveys that measured actions, norms, and perceptions of those who held traditional beliefs. We found consistent and strong evidence that those with stronger traditional beliefs are viewed and treated less pro-socially by others.

Across the experiments that we implemented, participants (i.e., player 1) consistently chose actions that were less beneficial for the other player (i.e., player 2) when the other player had stronger traditional religious beliefs. Players gave less in the DG, they were less likely to choose to partner with the player in the CYD game, and they were more likely to reduce the other player's payoff and less likely to increase their payoff in the JOD game. We found that these effects are remarkably general. They are not attenuated by player 1's own belief in traditional religion, Christianity, nor by their level of education or economic well-being. In addition, while player 2's traditional religious beliefs matter, this is the only characteristic that matters.

Our findings show that norms and perceptions support the behavior we document. Using the Krupka-Weber strategy, we found that norms vary significantly depending on whether player 2 held traditional beliefs or not. Consistent with the observed actions in the behavioral games, when player 2 held stronger traditional religious beliefs, acting less prosocially towards them was perceived as being more socially acceptable, and acting more prosocially towards them was less socially acceptable. Our findings for perceptions were similar. Using a variant of the conjunction fallacy, we found that traditional religious beliefs tend to be associated with negative traits like vindictiveness, jealousy, selfishness, dishonesty, and being a social outcast, and they tend not to be associated with positive traits like benevolence, generosity, honesty, being even-tempered, and being socially included. These perceptions are a potentially important foundation for the antisocial norms and behavior that we documented.

A natural reaction is to perceive our documented effects as short-run and transitory phenomena that will be ameliorated by economic development. However, our estimates provided limited evidence that economic development, through increases in wealth or education, will attenuate these effects. When we examined heterogeneity, we found no evidence that any of the decision maker's characteristics attenuated the negative effects. In fact, we find that those who are wealthier and more educated act even *less* prosocially towards those with stronger traditional beliefs. Thus, our findings indicate that, if anything, future economic development might actually

exacerbate the effects we found here.

We then explored the generality of our experimental findings for the rest of the African continent. Using survey data from approximately 50,000 individuals from 34 sub-Saharan African countries, we found the patterns in the data mirrored our experimental findings. There is a negative and significant relationship between a respondent's belief in 'witchcraft' and their economic well-being. Consistent with the heterogeneous effects found in the experiments, we find that the negative relationship is stronger in countries that have either higher education or per capita GDP.

The final exercise we undertook aimed to check whether, consistent with historical accounts, the antisocial effects we find might have their roots in the introduction of Christianity. We find that consistent with this, ethnographic accounts and folklore data show a much more positive perception of traditional religion than we observe today. Within our experimental setting, we find that the antisocial effects are significantly stronger for villages with greater colonial exposure to Christian missions. A similar pattern is also found across the continent. We observe a stronger negative relationship between witchcraft beliefs and economic well-being in locations that had more colonial missionary activity.

Overall, our study provides clear and consistent evidence of the stigmatization of those who hold traditional religious beliefs. Given that across the African continent, and much of the world, large proportions of the population continue to hold traditional religious beliefs – we estimate this to be 48% of the world's non-OECD population, this is an important finding. It also suggests the importance of legal or institutional policies that minimize these effects to the extent possible. We view this as an important and pressing area of future research.

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Online Appendix for

**THE SOCIAL CONSEQUENCES OF TRADITIONAL RELIGIONS IN
CONTEMPORARY AFRICA**

(Not for Publication)

17 February 2024

ETIENNE LE ROSSIGNOL

Université de Namur

SARA LOWES

UC San Diego

NATHAN NUNN

University of British Columbia

Appendix A. Appendix Materials

A.1. Data Collection and Summary Statistics

For the urban sample, we used Google satellite imagery to develop a sampling frame. We divided the city into enumeration areas whose shapes were determined by natural boundaries, such as roads and rivers. We estimated the population size within each area by counting the number of houses.

We randomly selected 26 out of the 89 enumeration areas to be visited by survey enumerators. We used a probability-proportional-to-size (PPS) sampling method so that the probability of choosing a particular area was proportional to its estimated population size. The target number of observations for the study was 520 people. Twenty households were visited in each area. To ensure geographic coverage within an area, enumerators followed a skip pattern that was determined by the estimated population and the target number of observations.

For each household that was visited, enumerators asked to speak to the head of the household. If the head of the household was not available, the enumerator asked to interview an adult member of the household. If the individual agreed to participate, they first completed a short screening survey that collected basic demographic information. A sub-sample of those who completed the screening survey were asked to participate in the lab experiments. Respondents who completed the screening survey received CF 500, and respondents who were invited to complete the lab experiments received CF 1,000 (approximately 0.60 USD) for completing a slightly longer version of the survey.

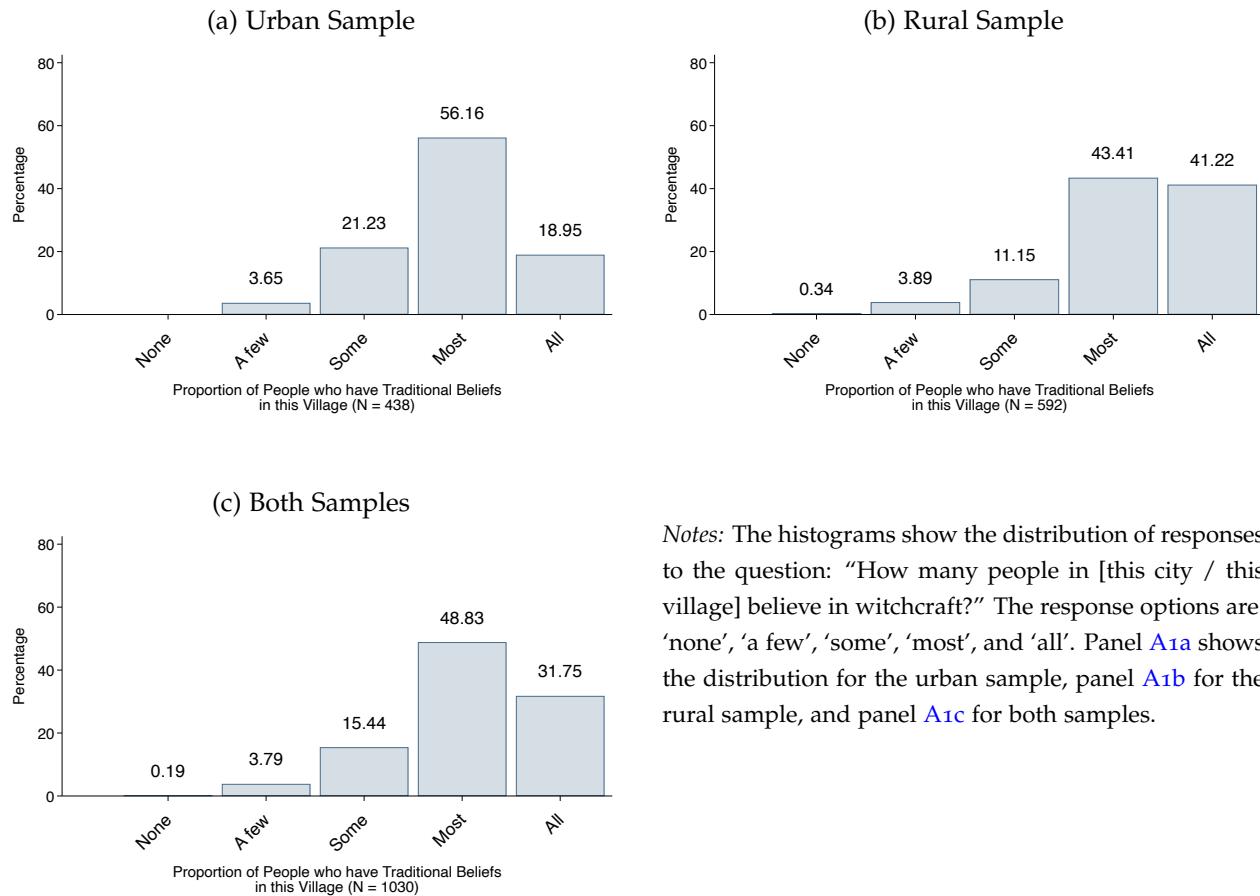
Of the 733 people who were randomly chosen for our screening survey, 520 eventually completed the experiments. Of the 213 that did not complete the experiments, 131 were excluded because they were not from a main ethnic group, 72 did not have a strong or very strong belief in the Christian God, and 10 declined to participate.

For the rural sample, we compiled a list of villages in the territory. We then randomly sampled 50 villages from that list, stratifying by regions within the territory. Within each village, enumerators randomly selected twelve individuals to interview, for a total sample size of 600 individuals. The enumerators followed a random sampling procedure to identify houses to interview. We stratified on the respondent's gender so that for each village, we had about half women and half men. Respondents received CF 2,000 for completion of the surveys in addition

to the amounts received in the lab experiments.

For a summary of implementation differences between the urban and rural samples, refer to Appendix Table A1. The key differences between the urban and rural samples were the year of visit and the time between visits. Screening for the rural sample was not necessary since villages were not ethnically diverse like the city, and they also had a larger proportion of individuals with weaker beliefs in the Christian God. Thus, we did not screen out minority ethnic groups or those who did not believe strongly or very strongly in the Christian God. Finally, respondents were told they would receive payments for 2 of the 3 games in the rural sample. We would randomly select two; in practice, we put a low probability on selecting the CYD. Aside from these implementation details made for logistical reasons, the protocols are identical.

Figure A1: Perceived Prevalence of Traditional Religious Beliefs



Notes: The histograms show the distribution of responses to the question: “How many people in [this city / this village] believe in witchcraft?” The response options are: ‘none’, ‘a few’, ‘some’, ‘most’, and ‘all’. Panel A1a shows the distribution for the urban sample, panel A1b for the rural sample, and panel A1c for both samples.

Figure A2: Effectiveness of Traditional Religion for Harming Others



Notes: The histograms show the distribution of responses to the question: “In your opinion, how effective is witchcraft for harming others?” The response options are: ‘very ineffective’, ‘somewhat ineffective’, ‘neither ineffective nor effective’, ‘somewhat effective’, and ‘very effective’. Panel A2a shows the distribution for the urban sample, panel A2b for the rural sample, and panel A2c for both samples.

Table A1: Implementation Differences between Urban and Rural Sample

| Activity | Characteristic | Urban Sample | Rural Sample |
|-----------------|---|--|--|
| Games (visit 1) | Sample | 1 city | 50 rural villages |
| | Sample size | 520 individuals | 600 individuals (12 per village) |
| | Screening for participation | From 3 largest ethnic groups; Strong or very strong belief in Christian God | None |
| | Player 2's belief in God | Strong or very strong | Very weak, weak, neither weak nor strong, strong, very strong |
| | Payment for survey participation | CF 1,000 | CF 2,000 |
| | Payment time lapse | One month | Three weeks |
| Norms (visit 2) | Games paid out | All | Two of three randomly selected |
| | Sample | Same participants as games | Same participants as games |
| | Sample size | 449 individuals | 596 individuals |
| | Time between visit 1 and 2 | 1 year | 2 days |
| | Incentive Norms | CF 5,000 for most common responses | CF 3,000 for most common responses |

Notes: This table describes the implementation of the games (visit 1) and norms measurement (visit 2) across the urban and rural samples.

Figure A3: Knowledge of Traditional Religious Beliefs of Others



Notes: The histograms show the distribution of responses to the question: “Do people know about the traditional beliefs of others?” The response options are: ‘never’, ‘rarely’, ‘sometimes’, ‘often’, and ‘always’. Panel A3a shows the distribution for the urban sample, panel A3b for the rural sample, and panel A3c for both samples.

Figure A4: Map of DRC showing Sampled Territory

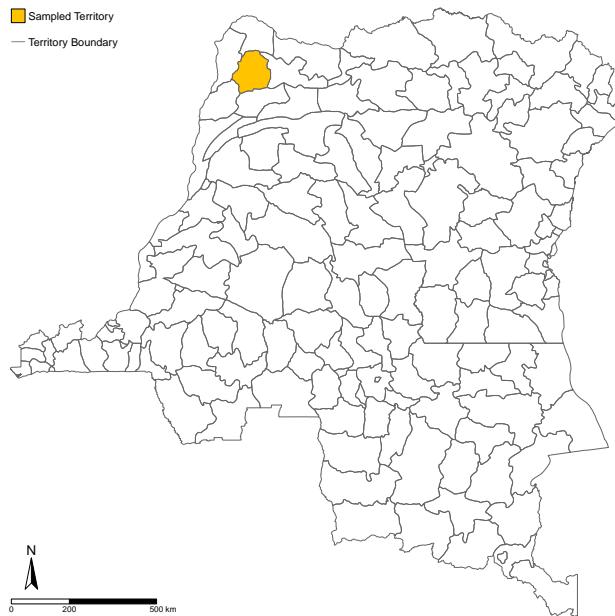


Figure A5: Map of Territory, Capital, and Sampled Villages

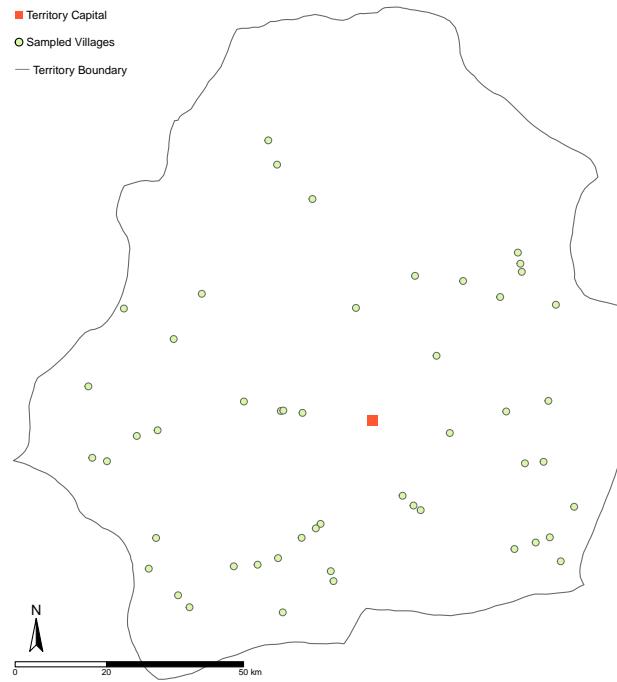


Figure A6: Form Used in the Joy of Destruction Game

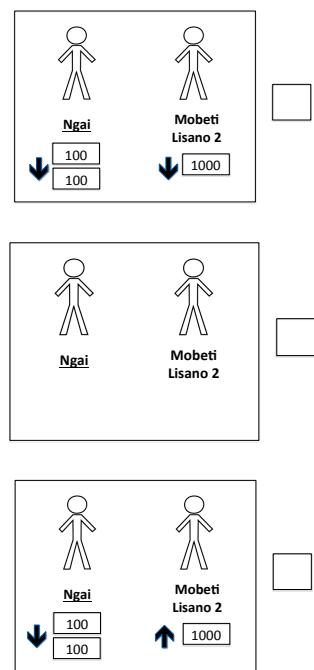


Table A2: Summary Statistics

| | Urban Sample | | | Rural Sample | | | Both Samples | | |
|--|--------------|-------|-----------|--------------|-------|-----------|--------------|-------|-----------|
| | Obs. | Mean | Std. Dev. | Obs. | Mean | Std. Dev. | Obs. | Mean | Std. Dev. |
| Respondent Characteristics | | | | | | | | | |
| Traditional Beliefs - Integer Measure (1-4) | 520 | 3.033 | 1.113 | 600 | 2.997 | 1.150 | 1120 | 3.013 | 1.132 |
| Traditional Beliefs - Strong or Very Strong (0/1) | 520 | 0.729 | 0.445 | 600 | 0.732 | 0.443 | 1120 | 0.730 | 0.444 |
| Belief in Christian God (1-5) | 520 | 4.785 | 0.411 | 600 | 4.460 | 0.947 | 1120 | 4.611 | 0.765 |
| Male (0/1) | 520 | 0.602 | 0.490 | 600 | 0.638 | 0.481 | 1120 | 0.621 | 0.485 |
| Old (0/1) | 520 | 0.487 | 0.500 | 600 | 0.482 | 0.500 | 1120 | 0.484 | 0.500 |
| Education (1-3) | 520 | 2.154 | 0.699 | 600 | 1.843 | 0.660 | 1120 | 1.988 | 0.696 |
| Less than Primary (0/1) | 520 | 0.179 | 0.384 | 600 | 0.308 | 0.462 | 1120 | 0.248 | 0.432 |
| Completed Primary (0/1) | 520 | 0.488 | 0.500 | 600 | 0.540 | 0.499 | 1120 | 0.516 | 0.500 |
| Completed Secondary (0/1) | 520 | 0.333 | 0.472 | 600 | 0.152 | 0.359 | 1120 | 0.236 | 0.425 |
| Grew Up in a Rural Area (0/1) | 520 | 0.242 | 0.429 | 600 | 0.778 | 0.416 | 1120 | 0.529 | 0.499 |
| Outcome Variables | | | | | | | | | |
| Amount Sent to Other Player in DG (in CF) (0-1000) | 1040 | 468.9 | 181.5 | 1200 | 437.6 | 213.6 | 2240 | 452.1 | 199.9 |
| Chose Player as Dictator in CYD (0/1) | 2080 | 0.500 | 0.500 | 2400 | 0.500 | 0.500 | 4480 | 0.500 | 0.500 |
| Choice in JOD (-1-1) | 1022 | 0.164 | 0.674 | 1190 | 0.081 | 0.685 | 2212 | 0.119 | 0.681 |
| Chose to Increase in JOD (0/1) | 1022 | 0.323 | 0.468 | 1200 | 0.276 | 0.447 | 2222 | 0.297 | 0.457 |
| Chose to Decrease in JOD (0/1) | 1022 | 0.159 | 0.365 | 1200 | 0.196 | 0.397 | 2222 | 0.179 | 0.383 |
| Chose to do Nothing in JOD (0/1) | 1022 | 0.519 | 0.500 | 1200 | 0.520 | 0.500 | 2222 | 0.519 | 0.500 |

Notes: This table presents summary statistics for the urban sample, the rural sample, and for both samples for the main game variables. *Traditional Beliefs - Integer Measure* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. *Traditional Beliefs - Strong or Very Strong* is an indicator variable equal 1 if the individual has strong or very strong beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. *Belief in Christian God* is a variable from 1 to 5, where (1) is very weak belief and (5) is very strong belief for the rural sample. For the urban sample the values are (4) strong belief and (5) very strong belief. *Male* is an indicator variable equal to 1 if the individual is male. *Old* is an indicator variable equal to 1 if the individual is old (greater than 35 in this context). *Education* is a variable from 1 to 3, where (1) is less than primary (2) completed primary, and (3) completed secondary or higher. *Less than primary* is an indicator variable equal to 1 if the individual completed less than primary school. *Completed primary* is an indicator variable equal to 1 if the individual completed primary school. *Completed secondary* is an indicator variable equal to 1 if the individual completed secondary school or higher. *Grew up in a rural area* is an indicator variable equal to 1 if the individual grew up in a rural area (rather than a city). *Amount Sent to the Other Player in DG* is the quantity sent in the DG from the endowment of CF 1000. *Chose Player as Dictator in CYD* is an indicator equal to 1 if a person is chosen as a dictator. *Choice in JOD* takes the value of -1 if Player 1 chose to decrease the endowment of Player 2, 0 if Player 1 chose to do nothing, and 1 if Player 1 chose to increase the endowment of Player 2. *Chose to Increase in JOD* is an indicator variable if the Player 1 chose to increase the endowment of Player 2. *Chose to Decrease in JOD* is an indicator variable if the Player 1 chose to decrease the endowment of Player 2. *Chose to do Nothing in JOD* is an indicator variable if the Player 1 chose to do nothing.

Table A3: Correlates of Traditional Beliefs

| | OLS, Dep. Var.: Strength of Traditional Beliefs | | | | | |
|-------------------------------------|---|--------------------|----------------------|--------------------|---------------------|---------------------|
| | Panel A: Urban Sample | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Male | -0.147 (-1.50) | -0.0868 (-0.85) | -0.152 (-1.54) | -0.154 (-1.59) | -0.141 (-1.43) | -0.0719 (-0.69) |
| Completed Primary | | 0.0450 (0.35) | | | | -0.00697 (-0.05) |
| Completed Secondary | | | -0.275* (-1.84) | | | -0.352** (-2.29) |
| Grew up in a rural area | | | | -0.0454 (-0.41) | | -0.0148 (-0.13) |
| Very Strong Belief in Christian God | | | | | 0.354*** (2.87) | 0.372*** (3.06) |
| Ngombe | | | | | 0.0560 (0.34) | 0.153 (0.91) |
| Ngbandi | | | | | 0.112 (0.75) | 0.150 (1.02) |
| Observations | 520 | 520 | 520 | 520 | 520 | 520 |
| Mean Dep. Var. | 3.033 | 3.033 | 3.033 | 3.033 | 3.033 | 3.033 |
| | Panel B: Rural Sample | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Male | -0.0431 (-0.44) | 0.0625 (0.60) | -0.125 (-1.27) | -0.0794 (-0.82) | -0.0504 (-0.52) | -0.0532 (-0.51) |
| Completed Primary | | -0.169 (-1.58) | | | | -0.154 (-1.47) |
| Completed Secondary | | | -0.448*** (-2.91) | | | -0.386** (-2.43) |
| Grew up in a rural area | | | | 0.354*** (2.94) | | 0.280** (2.32) |
| Belief in Christian God, 1-5 | | | | | 0.174*** (3.41) | 0.158*** (3.02) |
| Ngombe | | | | | -1.193** (-2.40) | -1.077** (-1.98) |
| Ngbandi | | | | | 0.980*** (11.55) | 1.044*** (8.38) |
| Observations | 600 | 600 | 600 | 600 | 600 | 600 |
| Mean Dep. Var. | 2.997 | 2.997 | 2.997 | 2.997 | 2.997 | 2.997 |

Notes: Robust standard errors in parentheses. All columns include controls for age and age squared. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. *Completed Primary* is an indicator variable equal to one if the respondent completed primary but did not complete secondary school. *Completed Secondary* is an indicator variable equal to one if the respondent completed secondary school. The excluded category is did not complete primary. *Very Strong Belief in Christian God* is an indicator variable equal to one if the respondent reports a very strong belief in the Christian God. The omitted category is a somewhat strong belief in the Christian God for the City Sample. *Belief in Christian God, 1-5* is a variable from 1 to 5, where (1) is a very weak belief in the Christian God, (2) weak belief in the Christian God, (3) neither weak nor strong belief in the Christian God, (4) strong belief in the Christian God, (5) very strong belief in the Christian God. Ngombe and Ngbandi are fixed effects for two of the three ethnic groups. The omitted category is Ngbaka. * p < 0.1; ** p < 0.05; *** p < 0.01

A.2. Scenarios Used for the Conjunction Fallacy Experiment

Food Scenario

- Papy is a 45-year-old man living in the city. His favorite food is goat and chikwanga. When he has the money, he tries to have this food at least twice a week. Is it more probable that Papy (1) is a carpenter (2) a carpenter who is a strong believer in bokoko or (3) a carpenter who is a strong believer in the Christian God?

Honest Scenarios

- Jean is driving his motorcycle. Out of nowhere, a chicken runs across his path. Jean tries to swerve to avoid hitting the chicken, but hits the chicken anyway, killing the chicken. Jean thinks that the chicken belongs to the household he is in front of. No one saw Jean hit the chicken. Jean goes to the household he is in front of to ask if they are the owner of the chicken. Is it more probable that Jean is (1) a married man or (2) a married man who is a strong believer in bokoko or (3) a married man who is a strong believer in the Christian God?
- Adrian is 35 years old. He lives in the city and sells airtime in the market. One day, a customer accidentally gives him 200 CF more than the price of the airtime. Adrian notices that the customer is walking away, so he calls after him so that he can return the extra money. Is it more probable that Adrian is a (1) married man or (2) a married who is a strong believer in bokoko or (3) a married man who is a strong believer in the Christian God?

Dishonest Scenarios

- Adrian is 35 years old. He lives in the city and sells airtime in the market. One day, a customer accidentally gives him 200 CF more than the price of the airtime. Adrian notices as the customer is walking away, but instead of notifying him, puts the money in his pocket to keep it. Is it more probable that Adrian is a (1) married man or (2) a married who is a strong believer in bokoko or (3) a married man who is a strong believer in the Christian God?
- Jean is driving his motorcycle. Out of nowhere, a chicken runs across his path. Jean tries to swerve to avoid hitting the chicken, but hits the chicken anyway, killing the chicken. Jean thinks that the chicken belongs to the household he is in front of. No one saw Jean hit the chicken. Jean drives away as fast as he can before anyone can notice what happened. Is it more probable that Jean is (1) a married man or (2) a married man who is a strong believer in bokoko or (3) a married man who is a strong believer in the Christian God?

Benevolent Scenarios

- Celestin is 22 years old. He just saw that his neighbor had a very successful harvest. Celestin's own harvest was very small. Despite his own misfortune, he is happy about his neighbor's success. Is it more probable that Celestin is (1) a single man or (2) a single man who is a strong believer in bokoko or (3) a single who is a strong believer in the Christian God?
- Fiston lives in the city and is 30 years old. He takes great joy in the success of others. If he thinks about the achievements of others, it makes him very happy. Is it more probable that Fiston is (1) a brickmaker or (2) a brickmaker who is a strong believer in bokoko or (3) a brickmaker who is a strong believer in the Christian God?

Jealous Scenarios

- Fiston lives in the city and is 30 years old. He is extremely jealous of the success of others. If he thinks about the achievements of others, it makes him very angry. Is it more probable that Fiston is (1) a brickmaker or (2) a brickmaker who is a strong believer in bokoko or (3) a brickmaker who is a strong believer in the Christian God?
- Celestin is 22 years old. He just saw that his neighbor had a very successful harvest. Celestin's own harvest was very small. He feels quite angry and jealous of his neighbor's success. Is it more probable that Celestin is (1) a single man or (2) a single man who is a strong believer in bokoko or (3) a single who is a strong believer in the Christian God?

Generous Scenarios

- Samuel is 40 years old and was born in the city. His neighbor's house was just robbed, and now his neighbor does not have the money needed to pay his children's school fees. Samuel has a little extra money, and he is happy to lend the money to his neighbor. Is it more probable that Samuel is (1) a mason or (2) a mason who is a strong believer in bokoko or (3) a mason who is a strong believer in the Christian God?
- Pierre lives in the city and is 55 years old. He is always helping out others, even when this comes at a cost to his own financial well-being. He always tries to help those who have less than him. Is it more probable that Pierre is (1) a taxi driver or (2) a taxi driver who is a strong believer in bokoko or (3) a taxi driver who is a strong believer in the Christian God?

Selfish Scenarios

- Pierre lives in the city and is 55 years old. He never helps others, especially when this comes at a cost to his own financial well-being. He never tries to help those who have less than him. Is it more probable that Pierre is (1) a taxi driver or (2) a taxi driver who is a strong believer in bokoko or (3) a taxi driver who is a strong believer in the Christian God?
- Samuel is 40 years old and was born in the city. His neighbor's house was just robbed, and now his neighbor does not have the money needed to pay his children's school fees. Samuel has a little extra money, but he does not want to lend the money to his neighbor. Is it more probable that Samuel is (1) a mason or (2) a mason who is a strong believer in bokoko or (3) a mason who is a strong believer in the Christian God?

Even Tempered Scenarios

- Sylvie is a 27-year-old living in the city. One day, she buys meat from a vendor in town. When she gets home, she realizes that the vendor has given her the spoilt meat rather than the fresh meat. Sylvie is very angry and decides to go back to the vendor to return the meat and get new meat. Therefore, she confronts the vendor and demands that he replace the meat. Is it more probable that Sylvie is (1) a married woman or (2) a married woman who is a strong believer in bokoko or (3) a married woman who is a strong believer in the Christian God?
- Miriam is 32 years old. One day, Miriam's neighbor lets his goats roam into Miriam's garden, where they eat some of her vegetables. Miriam is very angry and she decides to talk to her neighbor about what happened. Therefore, she goes to his house and explains to him that his goats have destroyed her vegetables. Is it more probable that Miriam is (1) a vendor at the market or (2) a vendor at the market who is a strong believer in bokoko or (3) a vendor at the market who is a strong believer in the Christian God?

Vindictive Scenarios

- Miriam is 32 years old. One day, Miriam's neighbor lets his goats roam into Miriam's garden, where they eat some of her vegetables. Miriam is very angry and decides to seek revenge against her neighbor. Therefore, she sneaks into his garden at night and destroys his garden. Is it more probable that Miriam is (1) a vendor at the market or (2) a vendor at the market who is a strong believer in bokoko or (3) a vendor at the market who is a strong believer in the Christian God?
- Sylvie is a 27-year-old living in the city. One day, she buys meat from a vendor in town. When she gets home, she realizes that the vendor has given her the spoilt meat rather than the fresh meat. Sylvie is very angry and decides to seek revenge against the vendor. Therefore, she sneaks into the market at night and destroys his stall. Is it more probable that Sylvie is (1) a married woman or (2) a married woman who is a strong believer in bokoko or (3) a married woman who is a strong believer in the Christian God?

Socially Included Scenarios

- Marie lives in the city and is 30 years old. Others view Marie very favorably. Those who know her are always happy to spend time with her. Is it more probable that Marie is (1) a farmer or (2) a farmer who is a strong believer in bokoko or (3) a farmer who is a strong believer in the Christian God?
- Ruth lives in a neighborhood of the city where most of the families are good friends with each other. Her neighbor's daughter is having a bride price ceremony. The neighbor invites almost everyone who lives nearby, including Ruth. Is it more probable that Ruth is (1) a cook or (2) a cook who is a strong believer in bokoko or (3) a cook who is a strong believer in the Christian God?

Socially Excluded Scenarios

- Ruth lives in a neighborhood of the city where most of the families are good friends with each other. Her neighbor's daughter is having a bride price ceremony. The neighbor invites almost everyone who lives nearby except for Ruth. Is it more probable that Ruth is (1) a cook or (2) a cook who is a strong believer in bokoko or (3) a cook who is a strong believer in the Christian God?
- Marie lives in the city and is 30 years old. Others view Marie very unfavorably. Those who know her dislike spending time with her. Is it more probable that Marie is (1) a farmer or (2) a farmer who is a strong believer in bokoko or (3) a farmer who is a strong believer in the Christian God?

Rich Scenarios

- Maurice is a 48-year-old living in the city. Every six months, he purchases a new pagne and asks someone to make him a new suit. Maurice is married and has 6 children. Maurice sent all his children to university. Is it more probable that Maurice is (1) a business owner or (2) a business owner who is a strong believer in bokoko or (3) a business owner who is a strong believer in the Christian God?
- Patrick is a 36-year-old living in the city. Patrick imports products from Kinshasa that he sells on the market in the city. He employs people who travel to the countryside to purchase agricultural products. Patrick also owns two trucks. Is it more probable that Patrick is (1) a married man or (2) a married who is a strong believer in bokoko or (3) a married who is a strong believer in the Christian God?

Poor Scenarios

- Patrick is a 36-year-old living in the city. Patrick sells fish on the market in the city. Patrick has very few customers for his fish, and it is hard for him to pay the school fees for his children. Is it more probable that Patrick is (1) a married man or (2) a married man who is a strong believer in bokoko or (3) a married man who is a strong believer in the Christian God?
- Maurice is a 48-year-old living in the city. Maurice has not purchased any new shoes for three years. Maurice is married and has 6 children. Maurice found ways to pay for the studies of his sons only. Is it more probable that Maurice is (1) a business owner or (2) a business owner who is a strong believer in bokoko or (3) a business owner who is a strong believer in the Christian God?

A.3. Additional Game Results

Table A4: Joy of Destruction Game Estimates: Chose to Increase

| OLS, Dep. Var.: Chose to Increase in Joy of Destruction | | | | | | | | | | | | |
|---|--------------------------------|----------------------------------|----------------------------------|-------|------------------------------------|------------------------------------|--------------------------------|-------|------------------------------------|------------------------------------|------------------------------------|-------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.025 [0.014]* (0.013)* | -0.022 [0.013]* (0.018)* | | | -0.024 [0.011]** (0.010)** | -0.026 [0.011]** (0.015)** | | | -0.025 [0.009]*** (0.008)*** | -0.024 [0.008]*** (0.011)*** | | |
| Strong or Very Strong | | -0.070 [0.029]** (0.027)** | -0.064 [0.027]** (0.038)** | | | -0.044 [0.025]* (0.023)* | -0.042 [0.023]* (0.032)* | | | -0.056 [0.019]*** (0.017)*** | -0.052 [0.017]*** (0.024)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.007 [0.013] (0.014) | | | | -0.040 [0.012]*** (0.013)*** | | | | -0.020 [0.009]** (0.010)** | | | |
| Strong or Very Strong | | 0.044 [0.033] (0.036) | | | | -0.081 [0.030]*** (0.034)*** | | | -0.024 [0.022] (0.025) | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | Y |
| Observations | 1,022 | 1,022 | 1,022 | 1,022 | 1,200 | 1,200 | 1,200 | 1,200 | 2,222 | 2,222 | 2,222 | 2,222 |
| Respondents | 513 | 513 | 513 | 513 | 600 | 600 | 600 | 600 | 1,113 | 1,113 | 1,113 | 1,113 |
| Mean Dep. Var. | 0.323 | 0.323 | 0.323 | 0.323 | 0.276 | 0.276 | 0.276 | 0.276 | 0.297 | 0.297 | 0.297 | 0.297 |
| SD Dep. Var. | 0.468 | 0.468 | 0.468 | 0.468 | 0.447 | 0.447 | 0.447 | 0.447 | 0.457 | 0.457 | 0.457 | 0.457 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose to Increase in Joy of Destruction* takes the value 1 if player 1 chose to increase the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A5: Joy of Destruction Game Estimates: Chose to Decrease

| OLS, Dep. Var.: Chose to Decrease in Joy of Destruction | | | | | | | | | | | | |
|---|-------------------|------------------|-------------------|-------|--------------------|--------------------|-------------------|-------|--------------------|---------------------|---------------------|------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.015 [0.010] | 0.017 [0.011] | | | 0.018 [0.010]* | 0.020 [0.010]** | | | 0.018 [0.007]** | 0.019 [0.007]*** | | |
| | (0.010) | (0.015) | | | (0.009)* | (0.014)** | | | (0.007)** | (0.010)*** | | |
| Strong or Very Strong | | 0.037 [0.023] | 0.043 [0.023]* | | | 0.039 [0.023]* | 0.038 [0.021]* | | | 0.040 [0.016]** | 0.040 [0.015]*** | |
| | | (0.022) | (0.032)* | | | (0.021)* | (0.029)* | | | (0.015)** | (0.021)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.010 [0.011] | | | | 0.022 [0.010]** | | | | 0.007 [0.007] | | | |
| | (0.011) | | | | (0.010)** | | | | (0.007) | | | |
| Strong or Very Strong | | 0.002 [0.026] | | | | 0.051 [0.025]** | | | | 0.025 [0.018] | | |
| | | (0.027) | | | | (0.027)** | | | | (0.019) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | |
| Observations | 1,022 | 1,022 | 1,022 | 1,022 | 1,200 | 1,200 | 1,200 | 1,200 | 2,222 | 2,222 | 2,222 | |
| Respondents | 513 | 513 | 513 | 513 | 600 | 600 | 600 | 600 | 1,113 | 1,113 | 1,113 | |
| Mean Dep. Var. | 0.159 | 0.159 | 0.159 | 0.159 | 0.196 | 0.196 | 0.196 | 0.196 | 0.179 | 0.179 | 0.179 | |
| SD Dep. Var. | 0.365 | 0.365 | 0.365 | 0.365 | 0.397 | 0.397 | 0.397 | 0.397 | 0.383 | 0.383 | 0.383 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose to Decrease in Joy of Destruction* takes the value 1 if player 1 chose to decrease the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

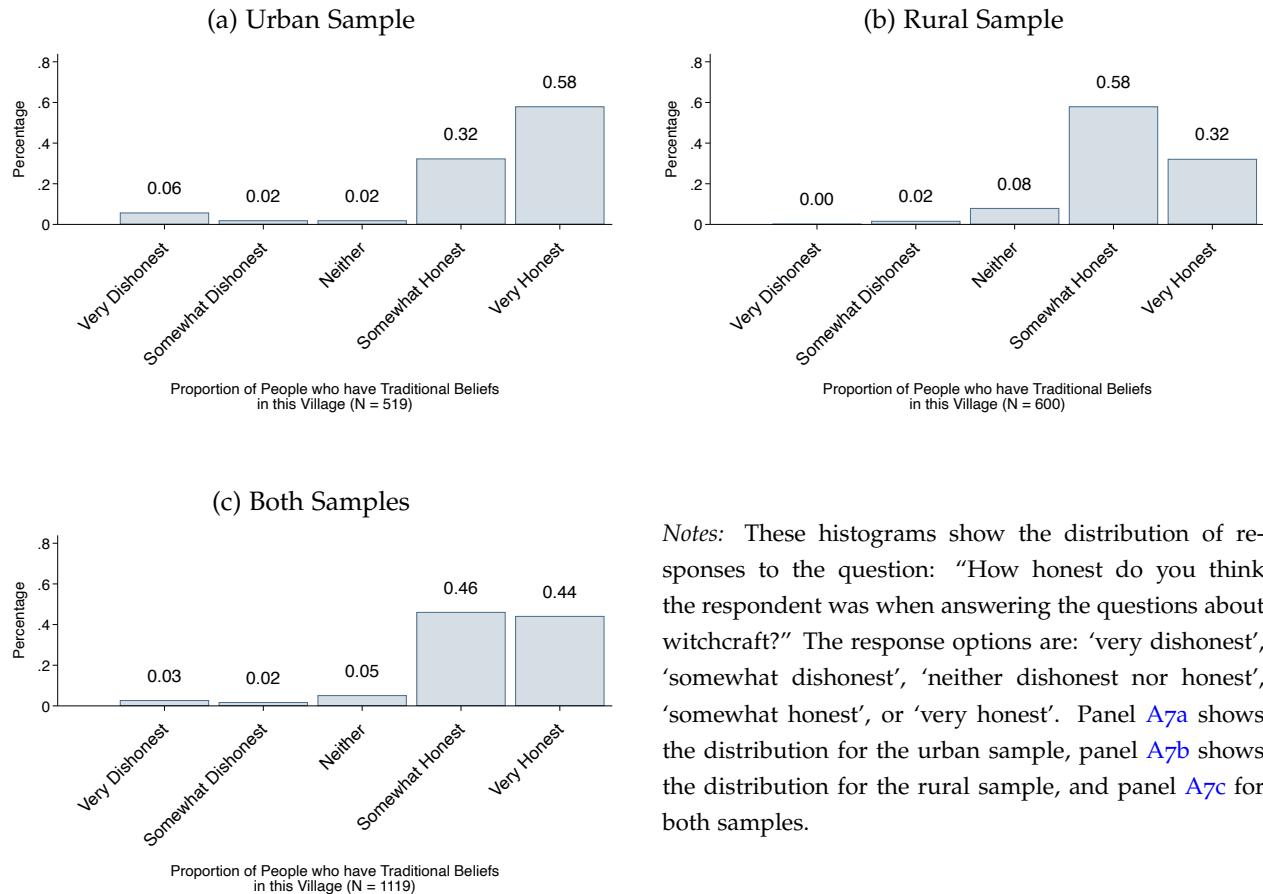
Table A6: Joy of Destruction Game Estimates: Chose to do Nothing

| <i>OLS, Dep. Var.: Chose to do Nothing in Joy of Destruction</i> | | | | | | | | | | | | |
|--|-----------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.010 [0.014] (0.013) | 0.004 [0.014] (0.020) | | | 0.008 [0.013] (0.011) | 0.008 [0.011] (0.016) | | | 0.008 [0.010] (0.009) | 0.006 [0.009] (0.012) | | |
| Strong or Very Strong | | | 0.033 [0.031] (0.029) | 0.022 [0.029] (0.041) | | | 0.008 [0.029] (0.025) | 0.007 [0.025] (0.035) | | | 0.018 [0.021] (0.019) | 0.014 [0.019] (0.027) |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.003 [0.014] (0.015) | | | | 0.016 [0.013] (0.014) | | | | 0.012 [0.010] (0.011) | | | |
| Strong or Very Strong | | | -0.047 [0.036] (0.038) | | | 0.022 [0.033] (0.037) | | | | -0.006 [0.024] (0.027) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | Y |
| Observations | 1,022 | 1,022 | 1,022 | 1,022 | 1,200 | 1,200 | 1,200 | 1,200 | 2,222 | 2,222 | 2,222 | 2,222 |
| Respondents | 513 | 513 | 513 | 513 | 600 | 600 | 600 | 600 | 1,113 | 1,113 | 1,113 | 1,113 |
| Mean Dep. Var. | 0.519 | 0.519 | 0.519 | 0.519 | 0.520 | 0.520 | 0.520 | 0.520 | 0.519 | 0.519 | 0.519 | 0.519 |
| SD Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose to do Nothing in Joy of Destruction* takes the value 1 if player 1 chose neither to increase nor to decrease the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A.4. Main Results with Respondents Deemed Honest by our Interviewers about their Beliefs

Figure A7: Enumerators' Estimation of Respondents' Honesty regarding Traditional Beliefs



Notes: These histograms show the distribution of responses to the question: "How honest do you think the respondent was when answering the questions about witchcraft?" The response options are: 'very dishonest', 'somewhat dishonest', 'neither dishonest nor honest', 'somewhat honest', or 'very honest'. Panel A7a shows the distribution for the urban sample, panel A7b shows the distribution for the rural sample, and panel A7c for both samples.

Table A7: Dictator Game Estimates: Sample of Respondents Considered Honest about their Beliefs

| OLS, Dep. Var.: Amount Sent to Other Player (in CF) | | | | | | | | | | | | |
|---|-----------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|-------------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -11.636 [5.080]** (4.141)** | -12.320 [4.160]*** (5.886)*** | | | -2.640 [5.615] (4.155) | -4.969 [3.989] (5.644) | | | -6.922 [3.814]* (2.932)* | -8.506 [2.885]*** (4.081)*** | | |
| Strong or Very Strong | | | -31.152 [11.640]*** (9.107)*** | -29.958 [8.973]*** (12.696)*** | | | -11.367 [12.115] (8.865) | -11.772 [8.767] (12.403) | | | -20.506 [8.496]*** (6.359)** | -20.304 [6.293]*** (8.902)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.765 [5.186] (6.083) | | | | -11.088 [5.342]** (6.426)** | | | | -6.978 [3.764]* (4.506)* | | | |
| Strong or Very Strong | | 2.563 [13.154] (15.823) | | | | -30.244 [14.304]** (17.312)** | | | | -16.221 [9.883] (11.969) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 958 | 958 | 958 | 958 | 1,178 | 1,178 | 1,178 | 1,178 | 2,136 | 2,136 | 2,136 | 2,136 |
| Respondents | 479 | 479 | 479 | 479 | 589 | 589 | 589 | 589 | 1,068 | 1,068 | 1,068 | 1,068 |
| Mean Dep. Var. | 463.0 | 463.0 | 463.0 | 463.0 | 437.1 | 437.1 | 437.1 | 437.1 | 448.7 | 448.7 | 448.7 | 448.7 |
| SD Dep. Var. | 180.5 | 180.5 | 180.5 | 180.5 | 211.2 | 211.2 | 211.2 | 211.2 | 198.4 | 198.4 | 198.4 | 198.4 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Amount Sent to Other Player* is the amount player 1 sends to player 2 in an anonymous dictator game (in CF). *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The sample excludes 51 respondents deemed dishonest by our interviewers about their beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A8: Choose Your Dictator Game Estimates: Sample of Respondents Considered Honest about their Beliefs

| OLS, Dep. Var.: Chose Player as Dictator | | | | | | | | | | | | |
|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.138 [0.010]*** (0.014)*** | -0.145 [0.011]*** (0.017)*** | | | -0.138 [0.008]*** (0.011)*** | -0.146 [0.010]*** (0.014)*** | | | -0.138 [0.006]*** (0.009)*** | -0.146 [0.007]*** (0.011)*** | | |
| Strong or Very Strong | | | -0.352 [0.021]*** (0.033)*** | -0.351 [0.025]*** (0.038)*** | | | -0.341 [0.019]*** (0.027)*** | -0.342 [0.021]*** (0.031)*** | | | -0.345 [0.014]*** (0.021)*** | -0.345 [0.016]*** (0.024)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.002 [0.010] (0.002) | | | | -0.002 [0.009] (0.003) | | | | -0.002 [0.007] (0.002) | | | |
| Strong or Very Strong | | | -0.001 [0.026] (0.002) | | | -0.005 [0.022] (0.007) | | | | -0.003 [0.017] (0.004) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 1,916 | 1,916 | 1,916 | 1,916 | 2,356 | 2,356 | 2,356 | 2,356 | 4,272 | 4,272 | 4,272 | 4,272 |
| Respondents | 479 | 479 | 479 | 479 | 589 | 589 | 589 | 589 | 1,068 | 1,068 | 1,068 | 1,068 |
| Mean Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |
| SD Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose Player as Dictator* is an indicator variable equal to 1 if this player was selected. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The sample excludes 51 respondents deemed dishonest by our interviewers about their beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A9: Joy of Destruction Game Estimates: Sample of Respondents Considered Honest about their Beliefs

| OLS, Dep. Var.: Choice in JOD | | | | | | | | | | | | |
|--|------------------------------|----------------------------------|----------------------------------|-------|------------------------------------|------------------------------------|----------------------------------|-------|------------------------------------|------------------------------------|------------------------------------|-------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.034 [0.021] (0.020) | -0.031 [0.020] (0.029) | | | -0.041 [0.018]** (0.017)** | -0.044 [0.017]*** (0.024)*** | | | -0.039 [0.013]*** (0.013)*** | -0.038 [0.013]*** (0.018)*** | | |
| Strong or Very Strong | | -0.095 [0.045]** (0.042)** | -0.095 [0.042]** (0.060)** | | | -0.081 [0.039]** (0.036)** | -0.078 [0.036]** (0.051)** | | | -0.088 [0.029]*** (0.027)*** | -0.085 [0.027]*** (0.038)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.024 [0.022] (0.023) | | | | -0.058 [0.017]*** (0.018)*** | | | | -0.025 [0.014]* (0.014)* | | | |
| Strong or Very Strong | | 0.065 [0.053] (0.057) | | | | -0.120 [0.045]*** (0.048)*** | | | | -0.039 [0.035] (0.037) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 941 | 941 | 941 | 941 | 1,168 | 1,168 | 1,168 | 1,168 | 2,109 | 2,109 | 2,109 | 2,109 |
| Respondents | 472 | 472 | 472 | 472 | 587 | 587 | 587 | 587 | 1,059 | 1,059 | 1,059 | 1,059 |
| Mean Dep. Var. | 0.158 | 0.158 | 0.158 | 0.158 | 0.084 | 0.084 | 0.084 | 0.084 | 0.117 | 0.117 | 0.117 | 0.117 |
| SD Dep. Var. | 0.679 | 0.679 | 0.679 | 0.679 | 0.684 | 0.684 | 0.684 | 0.684 | 0.683 | 0.683 | 0.683 | 0.683 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Choice in JOD* takes the value of -1 if player 1 chooses to decrease the endowment of player 2, 0 if player 1 chooses to do nothing, and 1 if player 1 chooses to increase the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The sample excludes 51 respondents deemed dishonest by our interviewers about their beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A.5. Additional Conjunction Fallacy Estimates

For completeness, we analyze the conjunction fallacy questions more formally by estimating the following equations:

$$Chosen_{io}^l = \beta_1^l Traditional_o + \beta_2^l Christian_o + \mathbf{X}_i^l \boldsymbol{\Phi}^l + \varepsilon_{io}^l \quad (\text{A1})$$

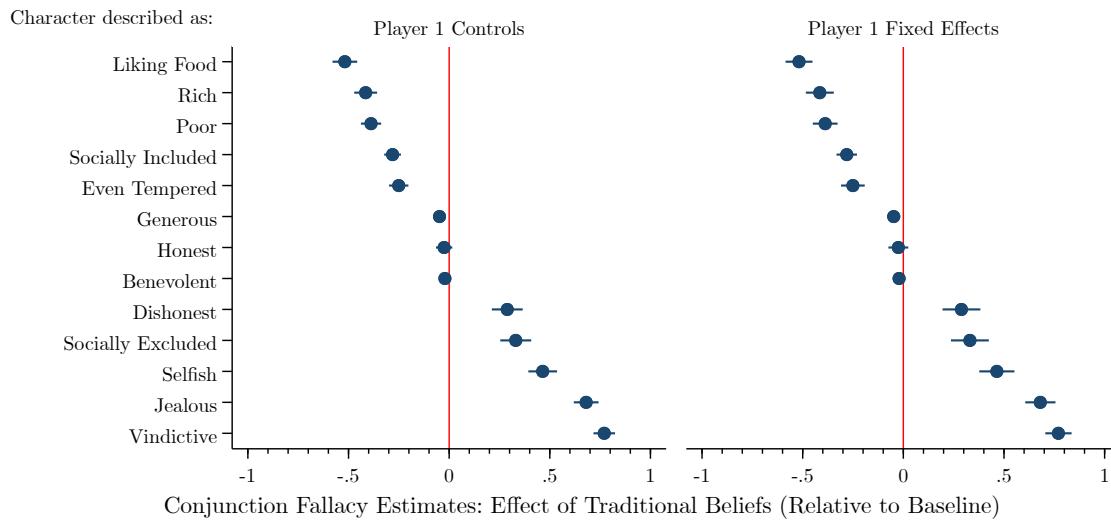
$$Chosen_{io}^l = \psi_1^l Traditional_o + \psi_2^l Christian_o + \alpha_i^l + \epsilon_{io}^l, \quad (\text{A2})$$

where the unit of observation is an option o chosen by participant i when asked about a scenario that describes a trait l . The dependent variable, denoted $Chosen_{io}^l$, is an indicator variable that equals one if option o is chosen by participant i when asked about scenario l . As noted, when participants are asked about a scenario, they have three potential choices: (1) baseline characteristic only, (2) baseline characteristic and a believer in traditional beliefs, which implies an association between the described scenario and traditional beliefs, or (3) baseline characteristic and a believer in Christianity, which implies an association between the scenario and Christianity. The variable $Traditional_o$ is an indicator for option 2 and $Christian_o$ is an indicator for option 3. The omitted category is for option 1, where only the baseline characteristic is chosen, and no fallacy occurs. The coefficients of interest are β_1^l and ψ_1^l , which indicate the extent to which traditional religion was associated with trait l . \mathbf{X}_i^l is a vector of fixed effects for the characteristics of participant i : age group, gender, education, from a rural area, strength of Christian beliefs, and strength of traditional beliefs, which are the same as those defined in equation (1). α_i^l denotes participant i fixed effects.

The estimates are summarized in Figure A8, which plots β_1^l and ψ_1^l for each scenario/trait l . The figure on the left reports estimates for equation (A1) and the right for equation (A2). Scenarios that describe individuals with positive traits tend to have a negative coefficient, which indicates that those traits are less likely to be associated with traditional beliefs. By contrast, scenarios that describe individuals with negative traits tend to have a positive coefficient, which indicates that they are more likely to be associated with traditional beliefs. In addition, for more neutral traits such as liking food, being rich, and being poor, the conjunction fallacy tends not to occur and, therefore, the estimated coefficient is negative. These results are because the omitted category is for the option where no conjunction fallacy occurs. Estimates with the omitted option being the case where a conjunction fallacy occurs and the implied association is with Christianity are

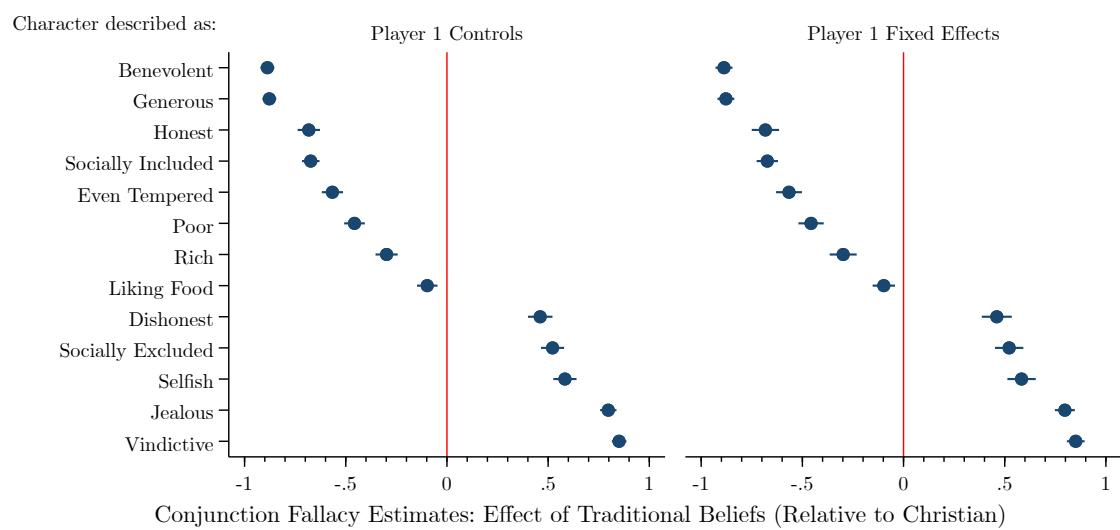
similar to those reported here, except that the estimates for liking food are very close to zero. For this trait, a conjunction fallacy tends not to occur, and when it does, there is as frequently an association with traditional beliefs as with Christianity. The estimates are reported in Appendix Figure A9.

Figure A8: Conjunction Fallacy Estimates



Notes: The conjunction fallacy scenarios described individuals with positive traits (e.g. benevolence), negative traits (e.g. dishonest), and neutral traits (e.g. likes food). The figure presents the estimated effect of traditional beliefs on the likelihood of being associated with various traits relative to the baseline characteristic in the conjunction fallacy scenarios. The first panel includes fixed effects for player 1 characteristics; the second panel includes player 1 fixed effects.

Figure A9: Conjunction Fallacy Estimates: Effect of Traditional Beliefs Relative to Christian Beliefs



Notes: The conjunction fallacy scenarios described individuals with positive traits (e.g. benevolence), negative traits (e.g. dishonest), and neutral traits (e.g. likes food). The figure presents the estimated effect of traditional beliefs on the likelihood of being associated with various traits in the conjunction fallacy scenarios. The first panel includes fixed effects for player 1 characteristics; the second panel includes player 1 fixed effects.

A.6. Heterogeneity: Behavioral Games Estimates

Table A10: DG Estimates with Interactions Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| <i>OLS, Dep. Var.: Amount Sent to Other Player (in CF)</i> | | | | | | | | | | | | |
|--|---------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------|
| | <i>Urban Sample</i> | | | | <i>Rural Sample</i> | | | | <i>Both Samples</i> | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Strong or Very Strong | | -14.118 [21.302] (13.239) | -10.838 [13.379] (18.930) | | | -29.805 [23.651] (17.459) | -32.313 [17.476] (24.725)* | | | -24.181 [15.983] (11.178) | -22.512 [11.218]** (15.869)** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | | -9.935 [11.906] (9.869) | | | -20.517 [12.971] (10.940) | | | | -16.142 [8.807]* (7.383)* | | | |
| Strong or Very Strong | | | -4.334 [16.902] (16.937) | | | | -42.383 [19.276]** (19.424)** | | | -25.498 [12.929]** (13.015)** | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.691 [4.428] | -2.723 [3.093] | | | 3.911 [4.764] | 4.427 [3.500] | | | 2.605 [3.238] | 1.249 [2.351] | | |
| × Integer Measure, 1-4 | | | | | | | | | | | | |
| Strong or Very Strong | | | -21.585 [25.271] (17.238) | -25.189 [17.333] (24.524) | | | 26.539 [27.584] (20.214) | 28.926 [20.177] (28.547) | | | 6.246 [18.764] (13.404) | 3.773 [13.419] (18.982) |
| × Strong or Very Strong | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | |
| Observations | 1,040 | 1,040 | 1,040 | 1,040 | 1,200 | 1,200 | 1,200 | 1,200 | 2,240 | 2,240 | 2,240 | |
| Respondents | 520 | 520 | 520 | 520 | 600 | 600 | 600 | 600 | 1,120 | 1,120 | 1,120 | |
| Mean Dep. Var. | 468.9 | 468.9 | 468.9 | 468.9 | 437.7 | 437.7 | 437.7 | 437.7 | 452.2 | 452.2 | 452.2 | |
| SD Dep. Var. | 181.6 | 181.6 | 181.6 | 181.6 | 213.6 | 213.6 | 213.6 | 213.6 | 199.9 | 199.9 | 199.9 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Amount Sent to Other Player* is the amount player 1 sends to player 2 in an anonymous dictator game (in CF). *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A11: CYD Estimates with Interactions Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| | OLS, Dep. Var.: Chose Player as Dictator | | | | | | | | | | | |
|--|--|------------------------------------|------------------------------------|---------|------------------------------------|------------------------------------|------------------------------------|-------|------------------------------------|------------------------------------|------------------------------------|-------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.137 [0.027]*** (0.039)*** | -0.147 [0.032]*** (0.047)*** | | | -0.047 [0.024]* (0.033)* | -0.051 [0.029]* (0.039)* | | | -0.085 [0.018]*** (0.025)*** | -0.091 [0.021]*** (0.031)*** | | |
| Strong or Very Strong | | -0.399 [0.039]*** (0.059)*** | -0.399 [0.044]*** (0.068)*** | | | -0.249 [0.037]*** (0.053)*** | -0.249 [0.042]*** (0.061)*** | | | -0.317 [0.027]*** (0.040)*** | -0.316 [0.031]*** (0.046)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.003 [0.022] (0.030) | | | | 0.075 [0.021]*** (0.025)*** | | | | 0.044 [0.015]*** (0.019)*** | | | |
| Strong or Very Strong | | -0.022 [0.032] (0.035) | | | | 0.061 [0.031]** (0.032)** | | | | 0.023 [0.022] (0.023) | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.002 [0.008] | -0.001 [0.010] | | | -0.031 [0.007]*** (0.010)*** | -0.032 [0.009]*** (0.012)*** | | | -0.018 [0.005]*** (0.008)*** | -0.019 [0.006]*** (0.009)*** | | |
| × Integer Measure, 1-4 | | | (0.012) | (0.014) | | | | | | | | |
| Strong or Very Strong | | 0.044 [0.046] (0.070) | 0.045 [0.052] (0.081) | | | -0.129 [0.043]*** (0.062)*** | -0.130 [0.048]*** (0.070)*** | | | -0.050 [0.031] (0.046) | -0.051 [0.036] (0.053) | |
| × Strong or Very Strong | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 2,080 | 2,080 | 2,080 | 2,080 | 2,400 | 2,400 | 2,400 | 2,400 | 4,480 | 4,480 | 4,480 | 4,480 |
| Respondents | 520 | 520 | 520 | 520 | 600 | 600 | 600 | 600 | 1,120 | 1,120 | 1,120 | 1,120 |
| Mean Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |
| SD Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |

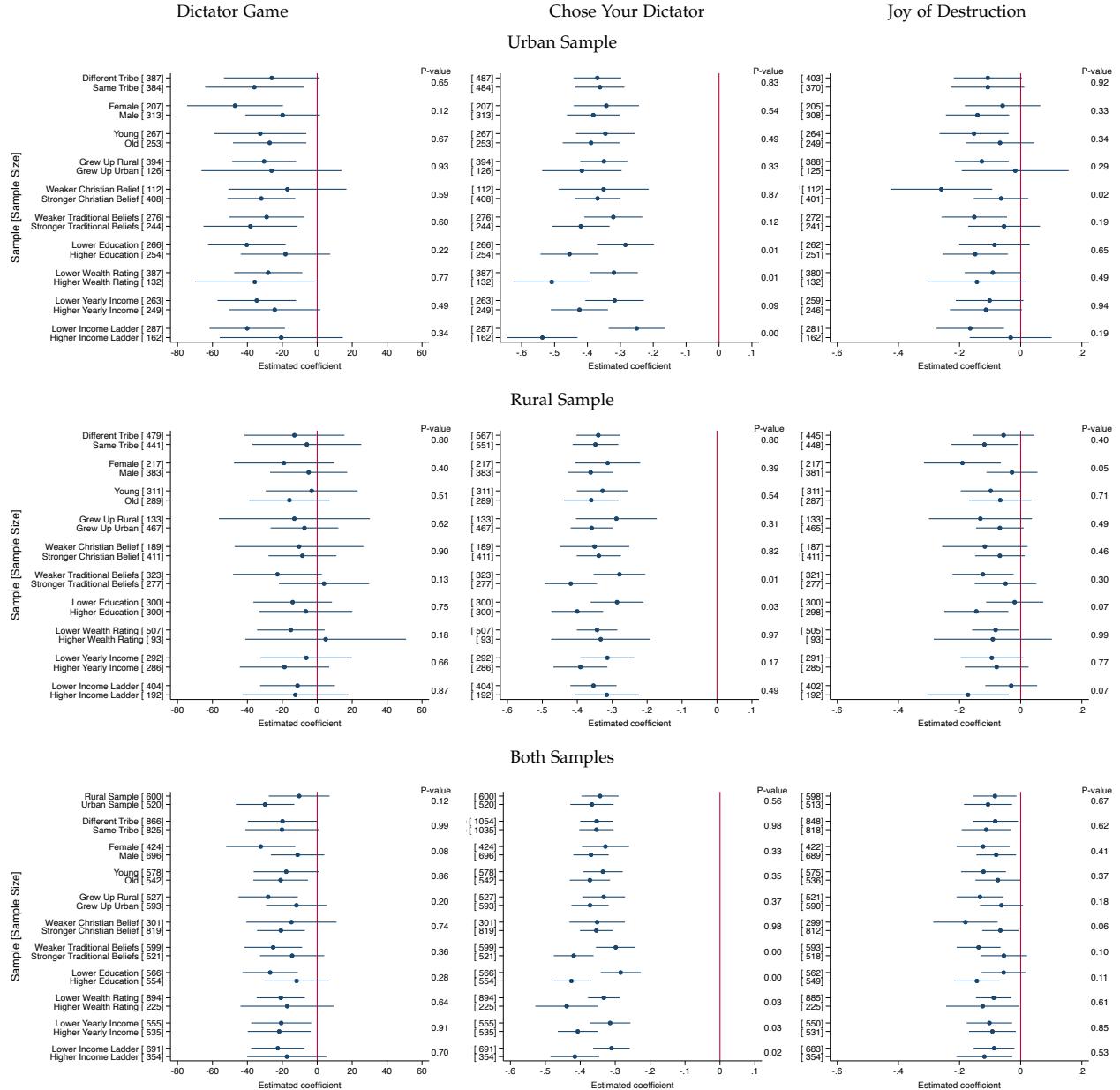
Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose Player as Dictator* is an indicator variable equal to 1 if this player was selected. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A12: JOD Estimates with Interactions Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| OLS, Dep. Var.: Choice in JOD | | | | | | | | | | | | |
|--|----------------------------------|------------------------------------|-------------------------------|-------|------------------------------------|------------------------------------|-----------------------------|-------------------------------|------------------------------------|------------------------------------|---------------------------------|-----------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.131 [0.055]** (0.052)** | -0.147 [0.054]*** (0.077)*** | | | -0.125 [0.048]*** (0.044)*** | -0.128 [0.047]*** (0.066)*** | | | -0.130 [0.036]*** (0.034)*** | -0.137 [0.035]*** (0.050)*** | | |
| Strong or Very Strong | | | | | | | | | | | | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.059 [0.045] (0.044) | | | | -0.130 [0.041]*** (0.039)*** | | | | -0.100 [0.031]*** (0.029)*** | | | |
| Strong or Very Strong | | -0.031 [0.065] (0.065) | | | | -0.199 [0.062]*** (0.062)*** | | | | -0.118 [0.045]*** (0.045)*** | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.030 [0.017]* (0.016)* | 0.036 [0.017]** (0.024)** | | | 0.027 [0.015]* (0.014)* | 0.027 [0.014]* (0.020)* | | | 0.029 [0.011]** (0.010)** | 0.031 [0.011]*** (0.015)*** | | |
| × Integer Measure, 1-4 | | | | | | | | | | | | |
| Strong or Very Strong | | 0.146 [0.093] (0.086) | 0.166 [0.085]* (0.120)* | | | | 0.135 [0.087] (0.081) | 0.152 [0.080]* (0.113)* | | | 0.140 [0.064]** (0.058)** | 0.158 [0.058]*** (0.082)*** |
| × Strong or Very Strong | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Observations | 1,022 | 1,022 | 1,022 | 1,022 | 1,190 | 1,190 | 1,190 | 1,190 | 2,212 | 2,212 | 2,212 | 2,212 |
| Respondents | 513 | 513 | 513 | 513 | 598 | 598 | 598 | 598 | 1,111 | 1,111 | 1,111 | 1,111 |
| Mean Dep. Var. | 0.164 | 0.164 | 0.164 | 0.164 | 0.081 | 0.081 | 0.081 | 0.081 | 0.119 | 0.119 | 0.119 | 0.119 |
| SD Dep. Var. | 0.674 | 0.674 | 0.674 | 0.674 | 0.685 | 0.685 | 0.685 | 0.685 | 0.681 | 0.681 | 0.681 | 0.681 |

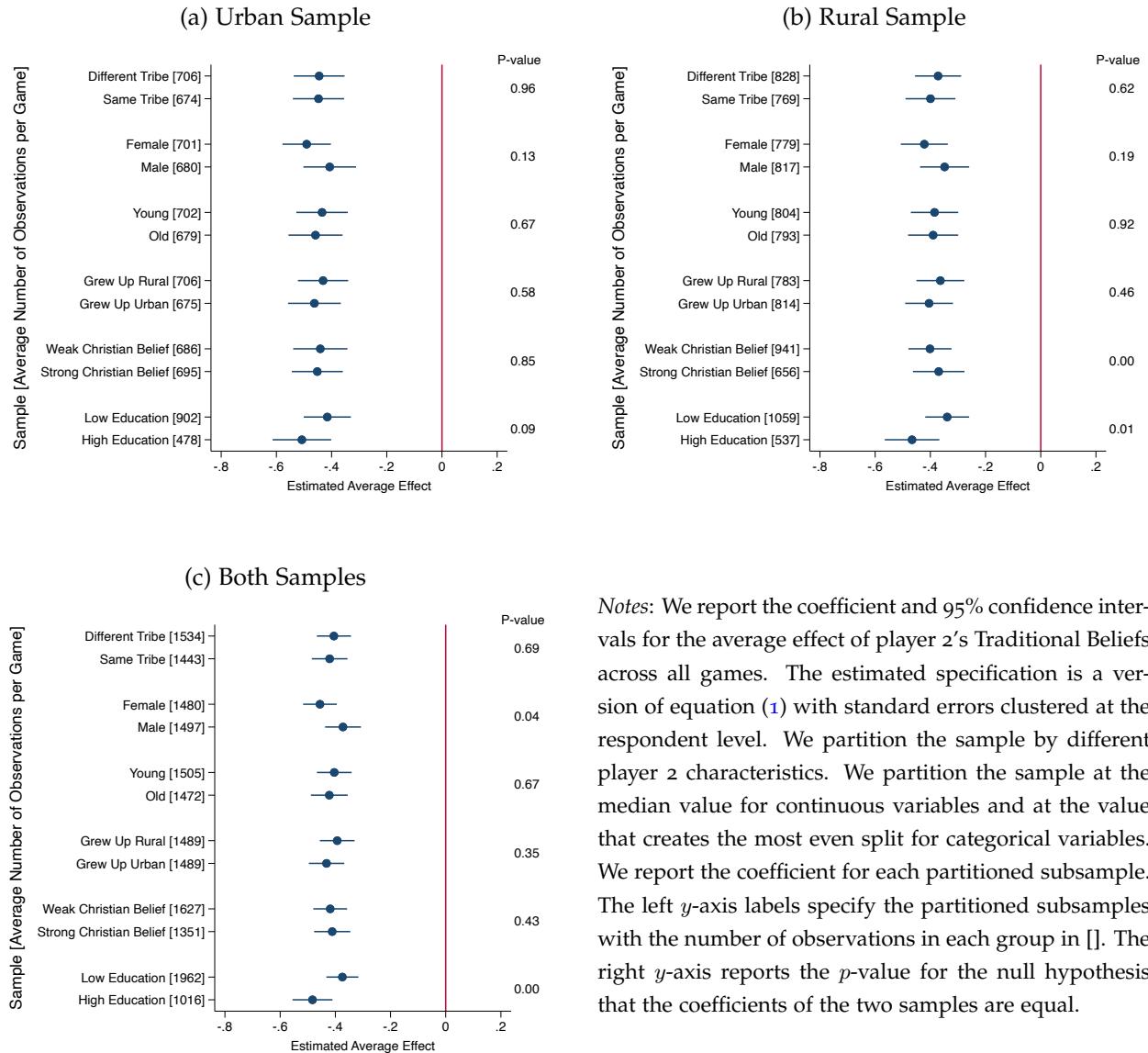
Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Choice in JOD* takes the value of -1 if player 1 chooses to decrease the endowment of player 2, 0 if player 1 chooses to do nothing, and 1 if player 1 chooses to increase the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1 and 2 present the results with traditional beliefs as a 1 to 4 variable. Columns 3 and 4 present the results with fixed effects for the traditional beliefs of players 1 and 2, where the omitted category is weak traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure A10: Heterogeneity of Estimates by Player 1 Characteristics and by Game



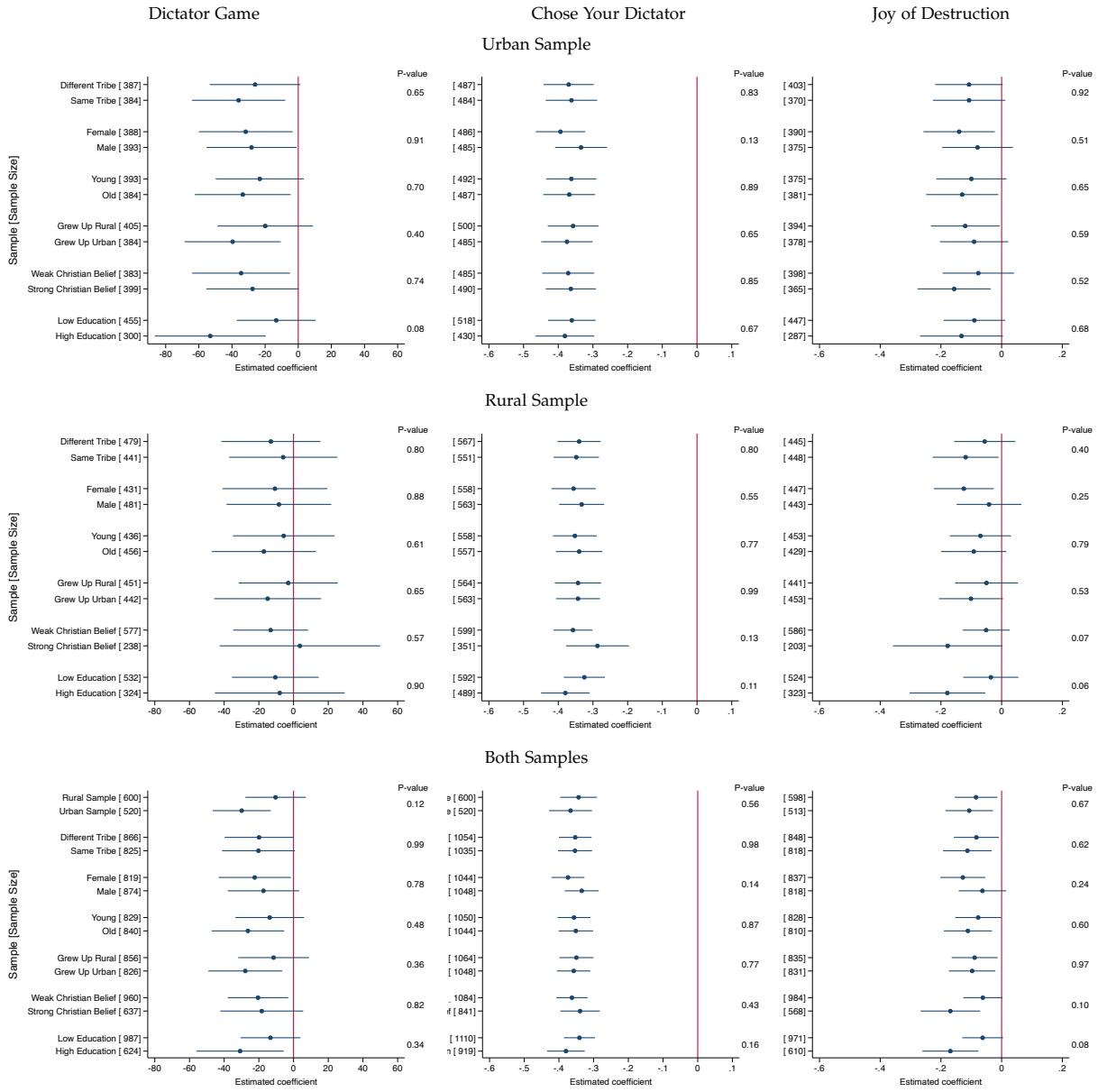
Notes: We report the coefficient and 95% confidence intervals for the effect of player 2's Traditional Beliefs for each game. We partition the sample by different player 1 characteristics. We partition the sample at the median value for continuous variables and at the value that creates the most even split for categorical variables. We report the coefficient for each partitioned subsample. The left *y*-axis labels specify the partitioned subsamples with the number of observations in each group in []. The right *y*-axis reports the *p*-value for the null hypothesis that the coefficients of the two samples are equal.

Figure A11: Heterogeneity of Estimates by Player 2 Characteristics



Notes: We report the coefficient and 95% confidence intervals for the average effect of player 2's Traditional Beliefs across all games. The estimated specification is a version of equation (1) with standard errors clustered at the respondent level. We partition the sample by different player 2 characteristics. We partition the sample at the median value for continuous variables and at the value that creates the most even split for categorical variables. We report the coefficient for each partitioned subsample. The left *y*-axis labels specify the partitioned subsamples with the number of observations in each group in []. The right *y*-axis reports the *p*-value for the null hypothesis that the coefficients of the two samples are equal.

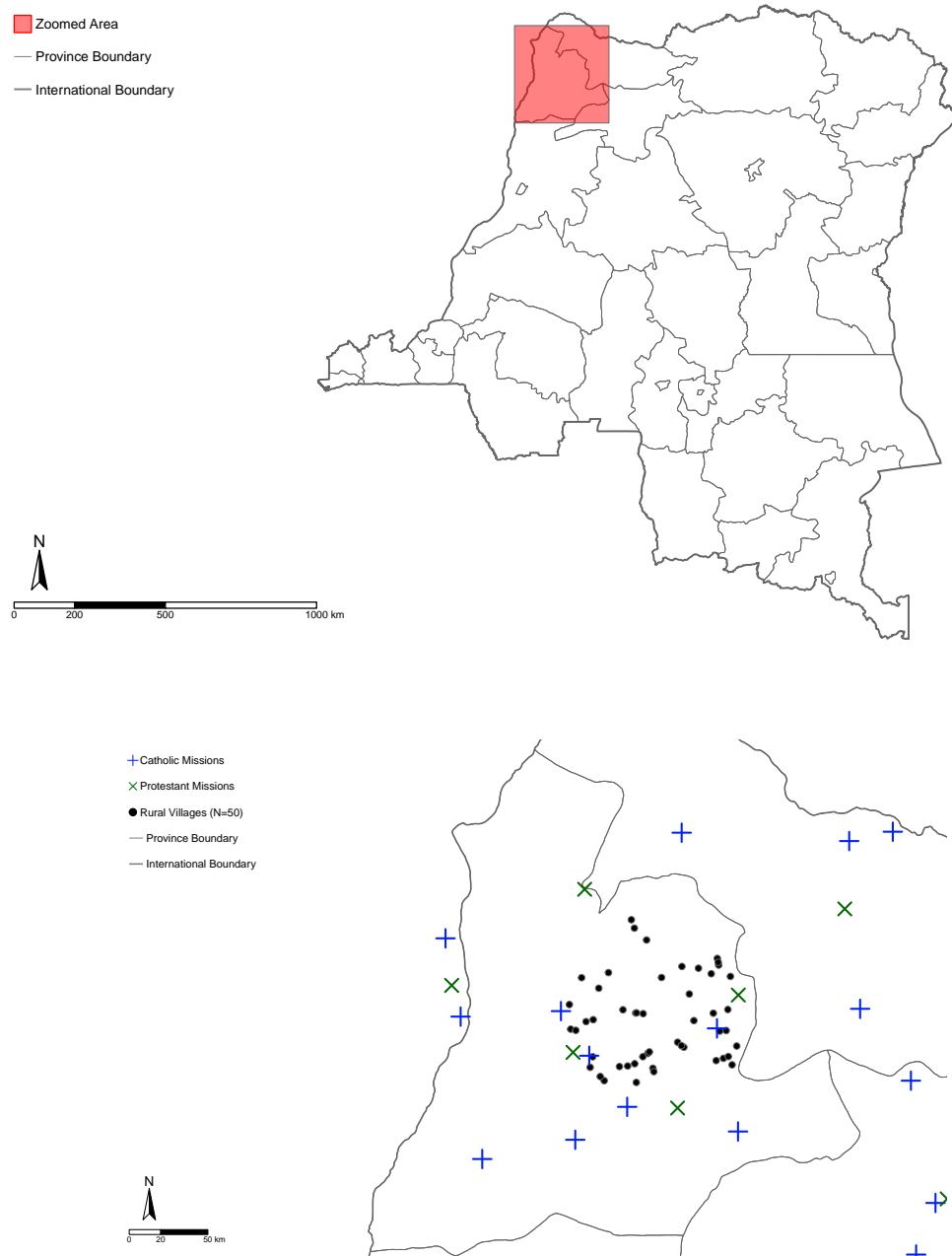
Figure A12: Heterogeneity of Estimates by Player 2 Characteristics and by Game



Notes: We report the coefficient and 95% confidence intervals for the effect of player 2's Traditional Beliefs across for each game. We partition the sample by different player 2 characteristics. We partition the sample at the median value for continuous variables and at the value that creates the most even split for categorical variables. We report the coefficient for each partitioned subsample. The left y-axis labels specify the partitioned subsamples with the number of observations in each group in []. The right y-axis reports the p-value for the null hypothesis that the coefficients of the two samples are equal.

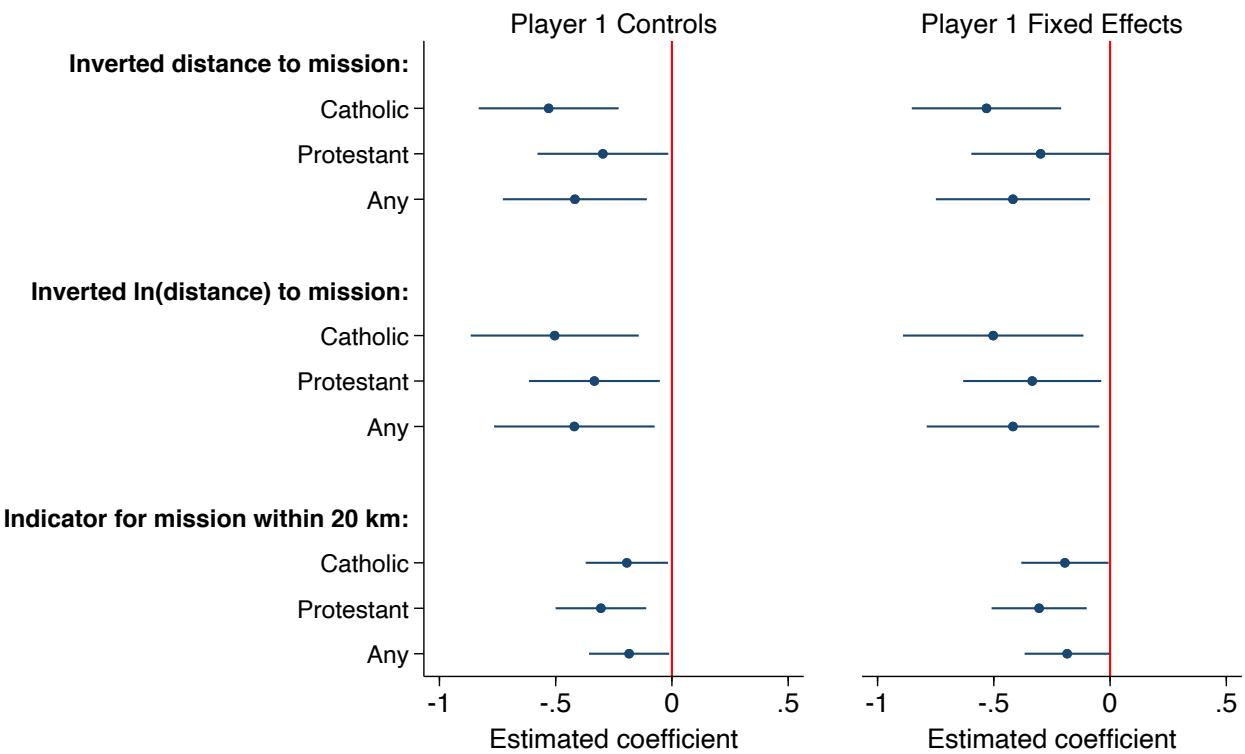
A.7. Heterogeneity by Christian Exposure

Figure A13: Rural Sample & Catholic and Protestant Missions



Notes: The figures present (a) a map of DRC, the province boundaries, and the study area of interest denoted in red and (b) a map of Catholic and Protestant missions ([Mantnieks, 1951](#)) and the rural villages in the sample.

Figure A14: Heterogeneity by Christian Exposure



Notes: The figures report the coefficient and 95% confidence intervals for the average effect of player 2's Traditional Beliefs interacted with a measure of player 1's village-level exposure to Christian mission on player 1's behavior across all games. The specifications reported are versions of equation (1) without (left panel) and with (right panel) player 1 fixed effects and standard errors clustered at the village level. The left y-axis labels specify the measure of exposure to Christian missions, either: inverted distance, inverted log distance, or an indicator for whether there was a mission within 20 kilometers of the village. The measures are calculated for Catholic missions, Protestant missions, and any mission using data from [Mantnieks \(1951\)](#).

Table A13: Heterogeneity by Village-Level Exposure to Christianity

| | OLS, Dep. Var.: | | | | | | | |
|---|------------------------|----------------------|----------------------|----------------------|-------------------|-------------------|----------------------|----------------------|
| | DG: Amount Sent | | CYD: Chose | | JOD: Choice | | Average Effect | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Player 2's Traditional Beliefs: | | | | | | | | |
| <i>Panel A: Inverted distance to historical Catholic mission index, 0-1</i> | | | | | | | | |
| Strong or Very Strong × Inv. Distance Catholic Mission | -29.280 [35.388] | -32.500 [50.991] | -0.441 [0.120]*** | -0.441 [0.139]*** | -0.176 [0.140] | -0.167 [0.208] | -0.520 [0.136]*** | -0.521 [0.145]*** |
| <i>Panel B: Inverted distance to historical Protestant mission index, 0-1</i> | | | | | | | | |
| Strong or Very Strong × Inv. Distance Protestant Mission | -42.044 [33.254] | -47.937 [46.871] | -0.252 [0.112]** | -0.251 [0.127]* | 0.019 [0.118] | -0.002 [0.171] | -0.292 [0.119]** | -0.294 [0.127]** |
| <i>Panel C: Inverted distance to Any historical mission index, 0-1</i> | | | | | | | | |
| Strong or Very Strong × Inv. Distance Any Mission | -40.130 [34.838] | -42.469 [49.850] | -0.351 [0.120]*** | -0.347 [0.140]** | -0.053 [0.129] | -0.057 [0.192] | -0.411 [0.134]*** | -0.411 [0.143]*** |
| <i>Panel D: ln(Inverted distance) to historical Catholic mission index, 0-1</i> | | | | | | | | |
| Strong or Very Strong × Ln(Inv. Distance) Catholic Mission | -50.643 [37.330] | -53.104 [52.878] | -0.409 [0.144]*** | -0.406 [0.168]** | -0.100 [0.155] | -0.082 [0.228] | -0.495 [0.153]*** | -0.493 [0.162]*** |
| <i>Panel E: ln(Inverted distance) to historical Protestant mission index, 0-1</i> | | | | | | | | |
| Strong or Very Strong × Ln(Inv. Distance) Protestant Mission | -53.006 [33.630] | -58.901 [47.211] | -0.268 [0.106]** | -0.266 [0.121]** | 0.019 [0.116] | 0.003 [0.169] | -0.329 [0.122]*** | -0.330 [0.130]** |
| <i>Panel F: ln(Inverted distance) to Any historical mission index, 0-1</i> | | | | | | | | |
| Strong or Very Strong × Ln(Inv. Distance) Any Mission | -52.907 [37.249] | -54.465 [52.790] | -0.343 [0.135]** | -0.337 [0.157]** | -0.025 [0.137] | -0.016 [0.206] | -0.413 [0.151]*** | -0.411 [0.161]** |
| <i>Panel G: Indicator for historical Catholic mission presence within 20 km</i> | | | | | | | | |
| Strong or Very Strong × Catholic Mission Presence (20 km) | -38.800 [18.498]** | -41.445 [25.662] | -0.137 [0.070]* | -0.134 [0.080] | -0.020 [0.066] | -0.023 [0.090] | -0.185 [0.068]*** | -0.185 [0.073]** |
| <i>Panel H: Indicator for historical Protestant mission presence within 20 km</i> | | | | | | | | |
| Strong or Very Strong × Protestant Mission Presence (20 km) | -59.369 [21.783]*** | -62.246 [31.136]* | -0.229 [0.061]*** | -0.226 [0.069]*** | 0.030 [0.082] | 0.026 [0.122] | -0.302 [0.088]*** | -0.302 [0.094]*** |
| <i>Panel I: Indicator for Any historical mission presence within 20 km</i> | | | | | | | | |
| Strong or Very Strong × Any Mission Presence (20 km) | -35.289 [18.230]* | -37.262 [25.265] | -0.130 [0.068]* | -0.126 [0.078] | -0.017 [0.065] | -0.023 [0.089] | -0.175 [0.068]*** | -0.176 [0.072]** |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y |
| Mean Dep. Var. | 437.7 | 437.7 | 0.500 | 0.500 | 0.0807 | 0.0807 | 0 | 0 |
| Clusters | 50 | 50 | 50 | 50 | 50 | 50 | 598 | 598 |
| Observations | 1200 | 1200 | 2400 | 2400 | 1190 | 1190 | 4778 | 4778 |

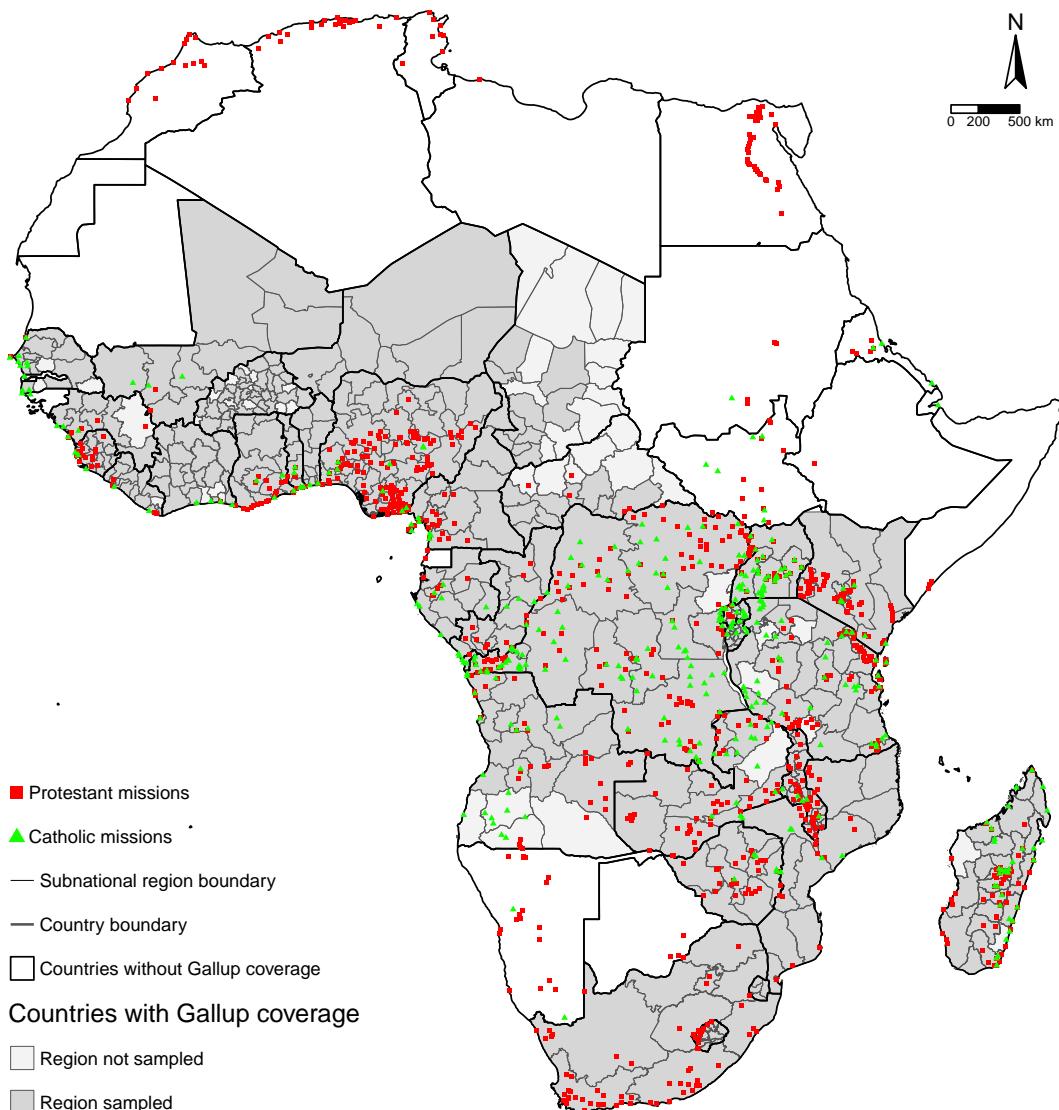
Notes: This analysis only includes the rural sample. Standard errors clustered at the village level in []. In columns (7) and (8) standard errors are clustered at the respondent and village levels. All columns include the control for the relevant village level measure of Christian exposure. All measures of Christian exposure are normalized to [0,1]. This table only reports the coefficient on the interaction between player 2 traditional beliefs and the measure of Christian exposure. All columns include fixed effects for Player 2 characteristics: sex, educational attainment, grew up in rural area, strength of belief in Christian God, and same tribe as Player 1. Odd-numbered columns include fixed effects for the equivalent Player 1 characteristics. Even-numbered columns include Player 1 fixed effects. *Amount Sent* in DG is the amount Player 1 sends to Player 2 in an anonymous dictator game (in CF). *Chose* in CYD is an indicator variable equal to 1 if this player was selected as dictator. *Choice* in JOD takes the value of -1 if Player 1 chose to decrease the endowment of Player 2, 0 if Player 1 chose to do nothing, and 1 if Player 1 chose to increase the endowment of Player 2. *Strong or Very Strong* is an indicator variable equal to 0 for weak traditional beliefs or neither weak nor strong traditional beliefs and equal to 1 for strong traditional beliefs or very strong traditional beliefs. * p < 0.1; ** p < 0.05; *** p < 0.01

A.8. Cross-Africa Analyses

We use several data sources for our cross-Africa analyses. These data sources are:

- Pew data: The data are from the Sub-Saharan Africa Religion Survey (2008 and 2009) and the World's Muslims Survey (2011 and 2012). These data are available at <https://www.pewresearch.org/religion/international-religion-survey-data/>.
- Gallup World Poll Data: The data are from 2009 and 2011, corresponding to waves 4 and 6.
- World Bank GDP per capita data: These data were downloaded from the World Bank Data Bank at <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD>.
- World Bank primary completion rates data: These data were downloaded from the World Bank Data bank at <https://data.worldbank.org/indicator/SE.PRM.CMPT.ZS>
- Christian mission data: The Christian mission data are from [Roome \(1924\)](#).

Figure A15: Regions Surveyed in Gallup & Catholic and Protestant Missions



Notes: The map presents the countries that are covered in the Gallup sample (2009 and 2011) in gray. The regions within a country that are sampled are in dark grey and those that are not sampled are denoted in light gray. The location of Christian missions, taken from [Roome \(1924\)](#), are also reported. Protestant missions are denoted by red squares and Catholic missions by green triangles.

Supplemental Material for
THE SOCIAL CONSEQUENCES OF TRADITIONAL RELIGIONS IN
CONTEMPORARY AFRICA

(Not for Online Publication)

17 February 2024

ETIENNE LE ROSSIGNOL

Université de Namur

SARA LOWES

UC San Diego

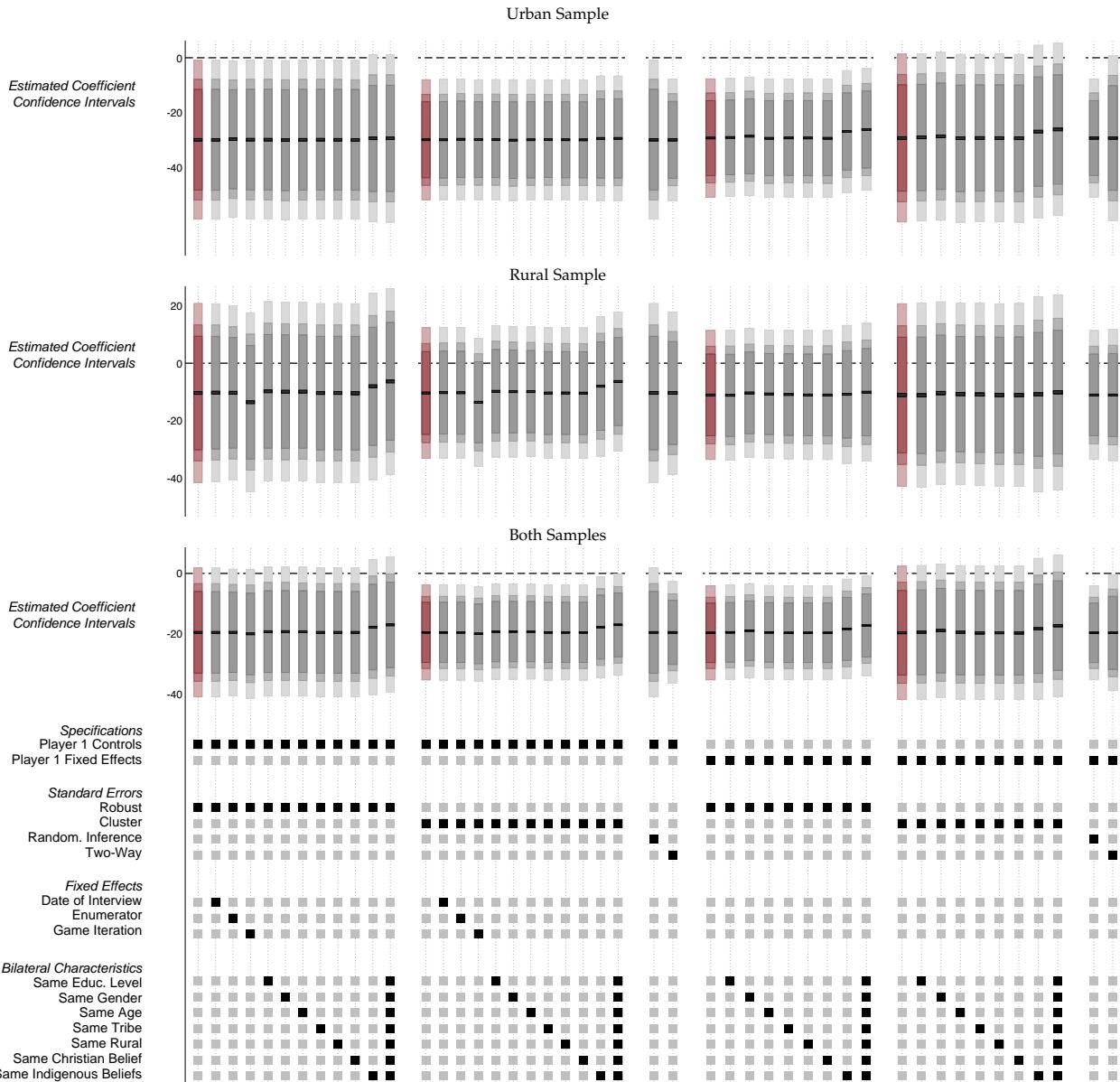
NATHAN NUNN

University of British Columbia

Appendix B. Robustness Tables and Figures (Not for publication)

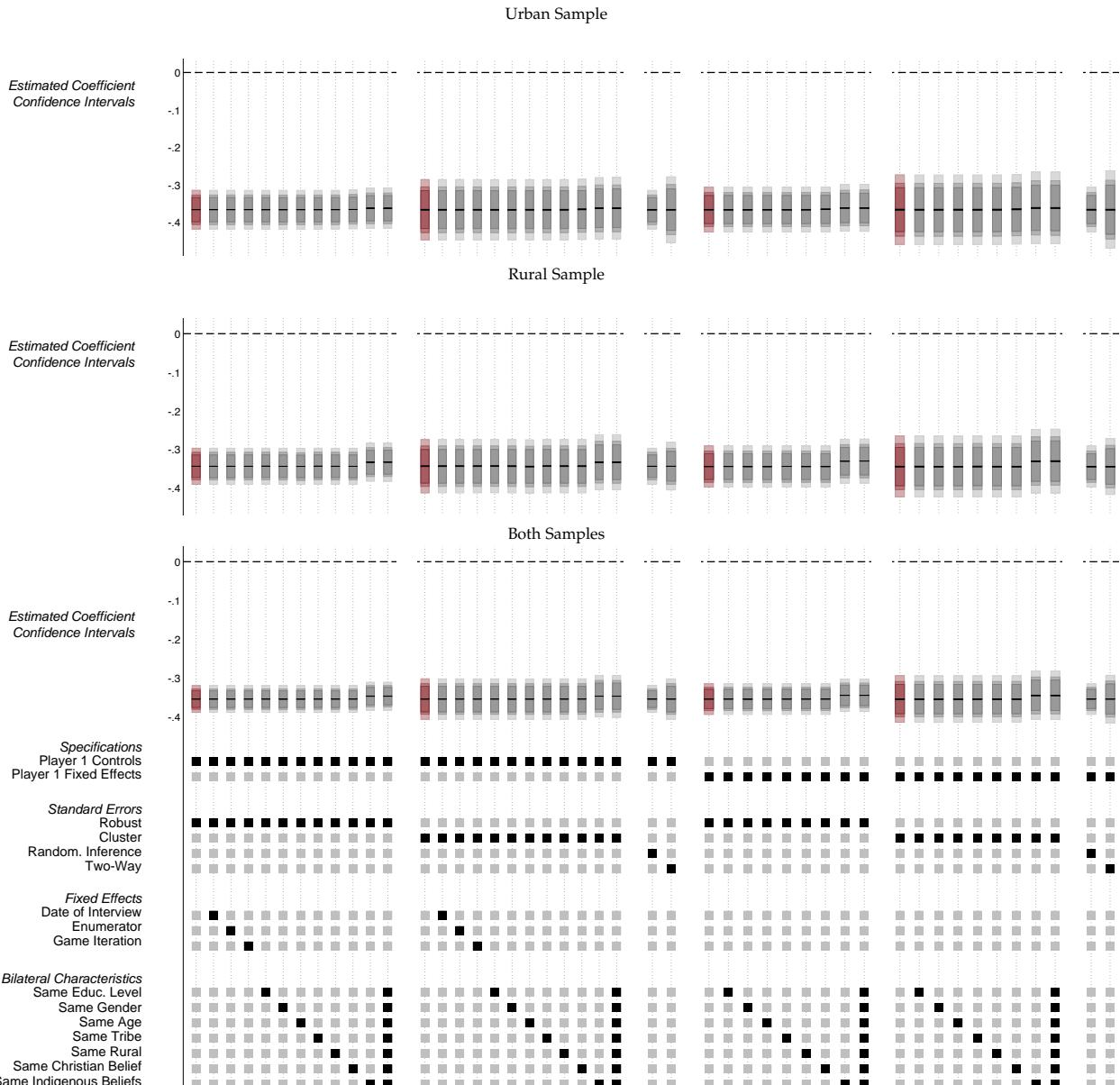
B.1. Robustness Figures for Behavioral Games Estimates

Figure B1: Summary of Robustness Checks: Dictator Game



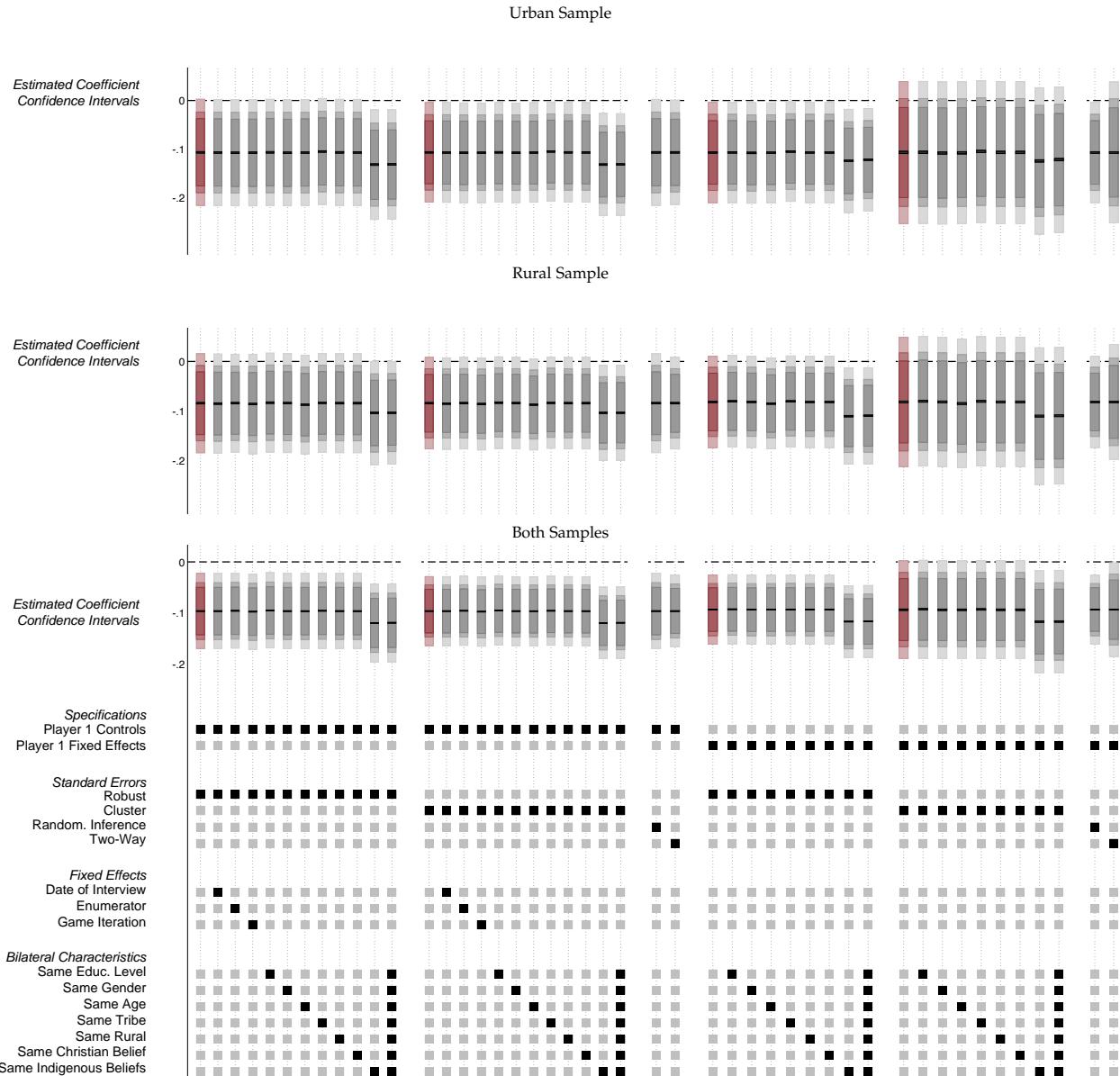
Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the amount sent by player 1 to player 2 (in CF) in the dictator game. Traditional beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote the 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B2: Summary of Robustness Checks: Chose Your Dictator Game



Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the decision of player 1 to choose player 2 as dictator in the choose your dictator game. Traditional beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote the 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B3: Summary of Robustness Checks: Joy of Destruction Game



Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the decision made by player 1 to player 2 in an anonymous joy of destruction game. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote the 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

B.2. Additional Sensitivity Checks for Behavioral Games Estimates

Table B1: DG Estimates: Measuring Traditional Beliefs Using Indicator Variables for Each Category

| OLS, Dep. Var.: Amount Sent to Other Player (in CF) | | | | | | |
|---|----------------------------------|----------------------------------|-------------------------------------|----------------------------------|---------------------------------------|-------------------------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | 6.228 [15.666] (15.562) | 8.523 [16.827] (23.808) | 19.544 [16.991] (16.877) | -11.363 [17.149] (24.263) | 12.145 [11.638] (11.630) | -2.806 [12.173] (17.219) |
| Strong | -27.452 [16.027] (14.398)* | -27.828 [15.722] (22.244)* | -0.331 [17.162] (14.875) | -23.653 [14.171] (20.049)* | -13.685 [11.803] (10.432) | -25.639 [10.614]** (15.013)** |
| Very Strong | -26.373 [15.570] (13.558)* | -22.339 [13.582] (19.216) | -0.112 [17.966] (14.685) | -9.517 [14.497] (20.511) | -13.451 [11.880] (9.971) | -16.149 [9.960] (14.088) |
| Player 1's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | -23.028 [21.984] (27.598) | | -44.932 [28.368] (34.662) | | -34.317 [17.325]** (21.447)** | |
| Strong | -16.788 [18.245] (22.454) | | -47.049 [18.430]** (22.245)** | | -33.382 [13.051]** (15.876)** | |
| Very Strong | -28.714 [16.577] (20.458)* | | -36.632 [16.342]** (19.633)** | | -33.896 [11.549]*** (14.029)*** | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N |
| Observations | 1,040 | 1,040 | 1,200 | 1,200 | 2,240 | 2,240 |
| Respondents | 520 | 520 | 600 | 600 | 1,120 | 1,120 |
| Mean Dep. Var. | 468.9 | 468.9 | 437.7 | 437.7 | 452.2 | 452.2 |
| SD Dep. Var. | 181.6 | 181.6 | 213.6 | 213.6 | 199.9 | 199.9 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Amount Sent to Other Player* is the amount player 1 sends to player 2 in an anonymous dictator game (in CF). *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B2: CYD Estimates: Measuring Traditional Beliefs Using Indicator Variables for Each Category

| OLS, Dep. Var.: Chose Player as Dictator | | | | | | |
|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | | | | | | |
| | -0.013 [0.029] (0.028) | -0.017 [0.038] (0.043) | -0.005 [0.026] (0.027) | -0.017 [0.035] (0.041) | -0.008 [0.019] (0.019) | -0.017 [0.026] (0.030) |
| Strong | | | | | | |
| | -0.403 [0.029]*** (0.037)*** | -0.416 [0.036]*** (0.048)*** | -0.338 [0.026]*** (0.033)*** | -0.340 [0.032]*** (0.042)*** | -0.366 [0.019]*** (0.025)*** | -0.373 [0.024]*** (0.032)*** |
| Very Strong | | | | | | |
| | -0.345 [0.029]*** (0.037)*** | -0.338 [0.036]*** (0.048)*** | -0.354 [0.026]*** (0.032)*** | -0.364 [0.032]*** (0.041)*** | -0.350 [0.019]*** (0.025)*** | -0.351 [0.024]*** (0.031)*** |
| Player 1's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | | | | | | |
| | 0.004 [0.041] (0.005) | | -0.004 [0.040] (0.011) | | 0.000 [0.029] (0.006) | |
| Strong | | | | | | |
| | -0.002 [0.032] (0.004) | | -0.009 [0.029] (0.009) | | -0.005 [0.022] (0.005) | |
| Very Strong | | | | | | |
| | 0.001 [0.028] (0.004) | | -0.003 [0.027] (0.008) | | -0.001 [0.019] (0.004) | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N |
| Observations | 2,080 | 2,080 | 2,400 | 2,400 | 4,480 | 4,480 |
| Respondents | 520 | 520 | 600 | 600 | 1,120 | 1,120 |
| Mean Dep. Var. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| SD Dep. Var. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Chose Player as Dictator* is an indicator variable equal to 1 if this player was selected. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B3: JOD Estimates: Measuring Traditional Beliefs Using Indicator Variables for Each Category

| OLS, Dep. Var.: Choice in JOD | | | | | | |
|--|---------------------|--------------------|----------------------|----------------------|----------------------|----------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | | | | | | |
| | -0.026 [0.060] | 0.051 [0.079] | -0.041 [0.055] | -0.138 [0.073]* | -0.034 [0.040] | -0.051 [0.053] |
| | (0.060) | (0.111) | (0.055) | (0.103)* | (0.040) | (0.075) |
| Strong | | | | | | |
| | -0.148 [0.059]** | -0.131 [0.069]* | -0.079 [0.056] | -0.128 [0.063]** | -0.110 [0.041]*** | -0.132 [0.046]*** |
| | (0.057)** | (0.097)* | (0.054) | (0.089)** | (0.039)*** | (0.065)*** |
| Very Strong | | | | | | |
| | -0.088 [0.063] | -0.024 [0.069] | -0.130 [0.055]** | -0.173 [0.062]*** | -0.116 [0.041]*** | -0.105 [0.046]** |
| | (0.060) | (0.098) | (0.054)** | (0.088)*** | (0.040)*** | (0.065)** |
| Player 1's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | | | | | | |
| | -0.017 [0.080] | | 0.006 [0.088] | | -0.025 [0.059] | |
| | (0.085) | | (0.093) | | (0.063) | |
| Strong | | | | | | |
| | 0.021 [0.071] | | -0.057 [0.060] | | -0.019 [0.046] | |
| | (0.076) | | (0.064) | | (0.049) | |
| Very Strong | | | | | | |
| | 0.045 [0.063] | | -0.177 [0.053]*** | | -0.080 [0.041]** | |
| | (0.066) | | (0.057)*** | | (0.044)** | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N |
| Observations | 1,022 | 1,022 | 1,190 | 1,190 | 2,212 | 2,212 |
| Respondents | 513 | 513 | 598 | 598 | 1,111 | 1,111 |
| Mean Dep. Var. | 0.164 | 0.164 | 0.081 | 0.081 | 0.119 | 0.119 |
| SD Dep. Var. | 0.674 | 0.674 | 0.685 | 0.685 | 0.681 | 0.681 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Choice in JOD* takes the value of -1 if player 1 chooses to decrease the endowment of player 2, 0 if player 1 chooses to do nothing, and 1 if player 1 chooses to increase the endowment of player 2. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

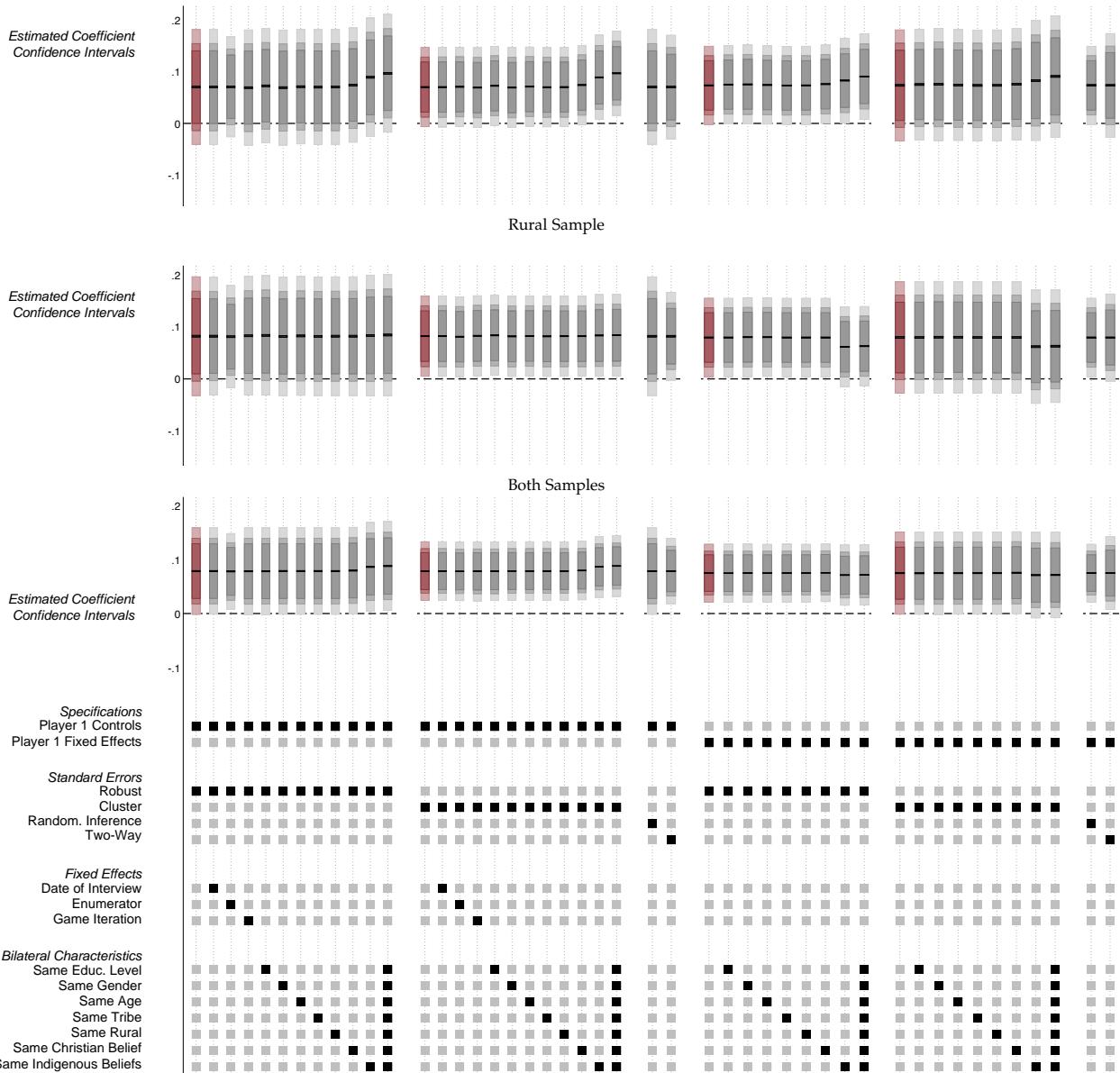
Table B4: Choose Your Dictator Game: Logit Estimates

| $\text{Logit - Marginal Effects at Means:}$ $\text{OLS, Dep. Var.: Choose Player as Dictator}$ | | | | | | | | | | | | |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.151 [0.011]*** (0.016)*** | -0.159 [0.011]*** (0.017)*** | | | -0.161 [0.011]*** (0.014)*** | -0.177 [0.011]*** (0.016)*** | | | -0.156 [0.008]*** (0.011)*** | -0.168 [0.008]*** (0.012)*** | | |
| Strong or Very Strong | | | -0.387 [0.024]*** (0.037)*** | -0.388 [0.024]*** (0.037)*** | | | -0.392 [0.023]*** (0.034)*** | -0.408 [0.024]*** (0.035)*** | | | -0.389 [0.017]*** (0.025)*** | -0.396 [0.017]*** (0.025)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.001 [0.010] (0.002) | | | | -0.002 [0.010] (0.004) | | | | -0.002 [0.007] (0.002) | | | |
| Strong or Very Strong | | | -0.000 [0.027] (0.003) | | | -0.005 [0.027] (0.008) | | | | -0.003 [0.019] (0.004) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | Y |
| Observations | 2,080 | 2,080 | 2,080 | 2,080 | 2,400 | 2,400 | 2,400 | 2,400 | 4,480 | 4,480 | 4,480 | 4,480 |
| Respondents | 520 | 520 | 520 | 520 | 600 | 600 | 600 | 600 | 1,120 | 1,120 | 1,120 | 1,120 |
| Mean Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |
| SD Dep. Var. | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 | 0.500 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Choose Player as Dictator* is an indicator variable equal to 1 if this player was selected. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

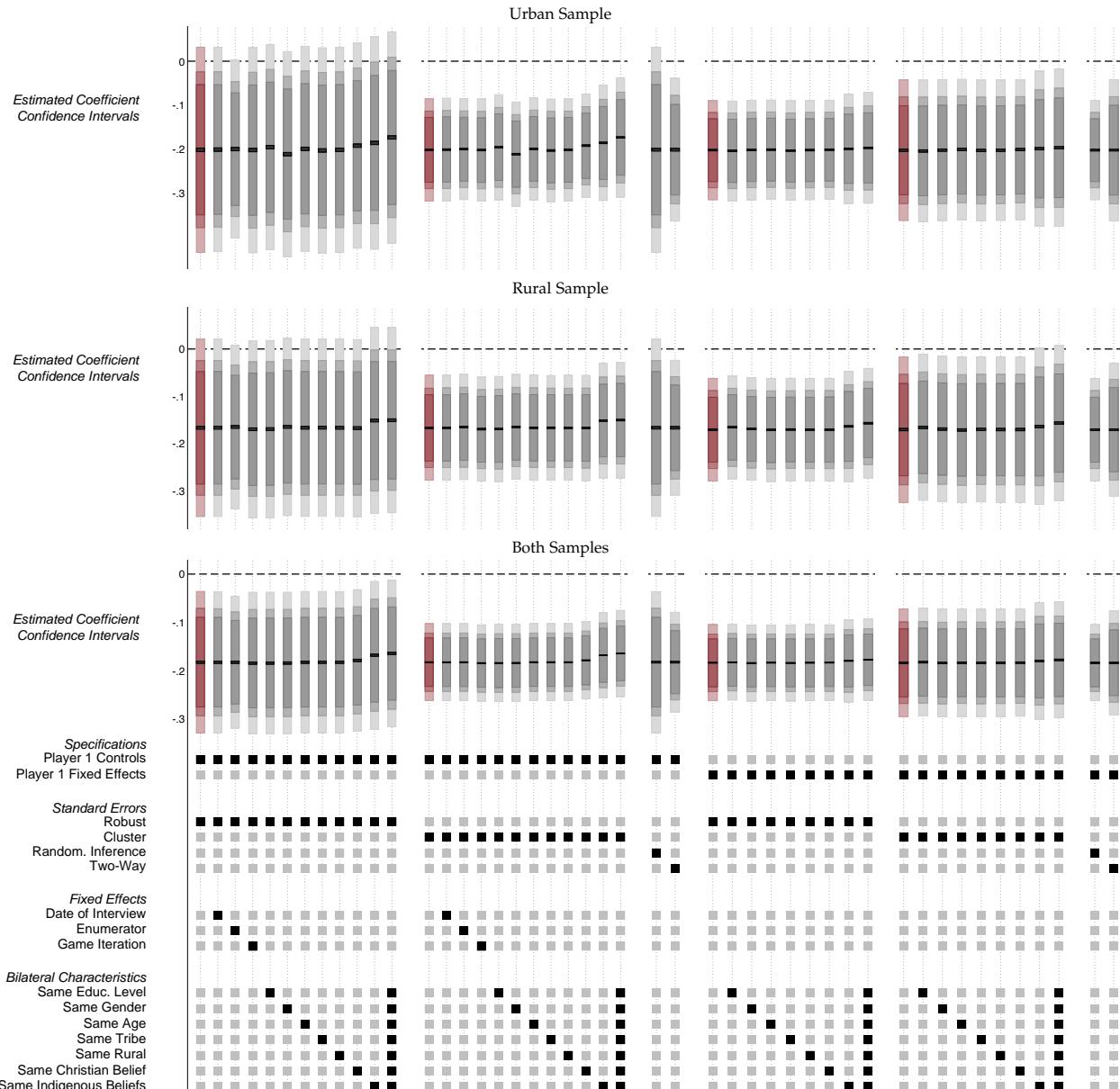
B.3. Robustness Figures for Social Norms Estimates

Figure B4: Robustness: DG Appropriate to Send CF 100 to Player 2
Urban Sample



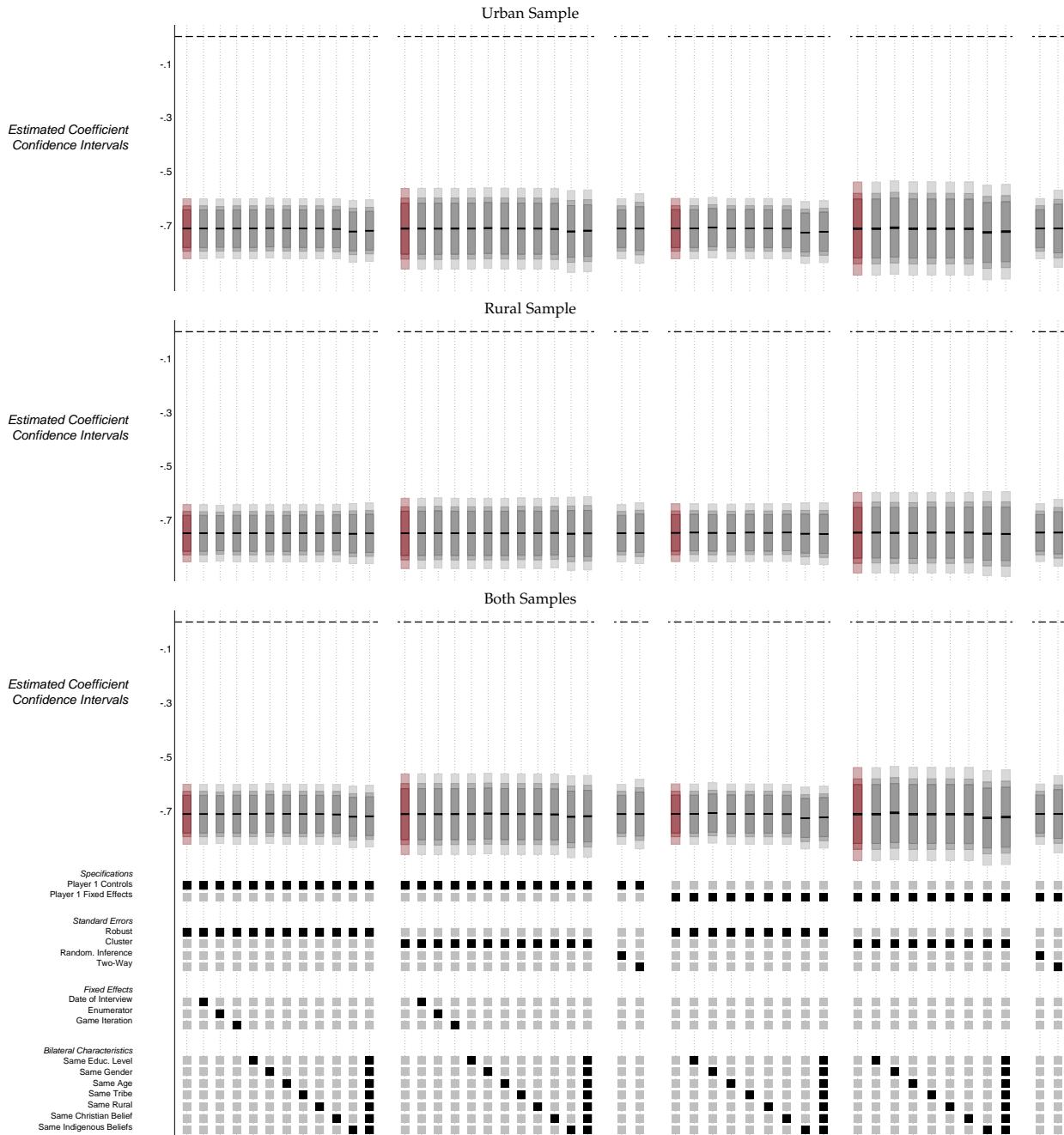
Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the appropriateness of sending CF100 to a player 2 with strong traditional beliefs. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote the 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B5: Robustness: DG Appropriate to Send CF 1,000 to Player 2



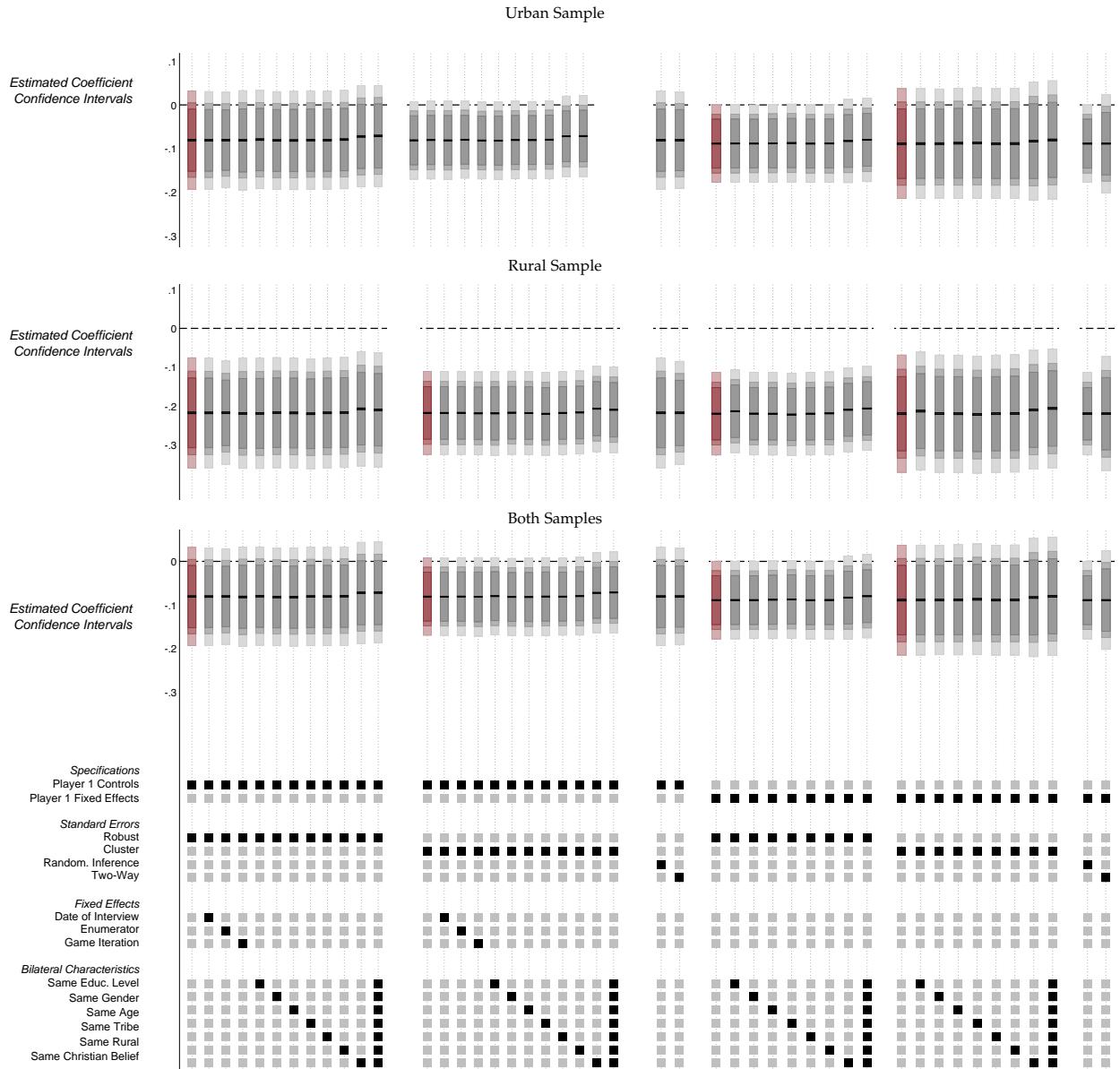
Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the appropriateness of sending CF 1,000 to a player 2 with strong traditional beliefs. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote the 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B6: Robustness: CYD Appropriate to Choose Player



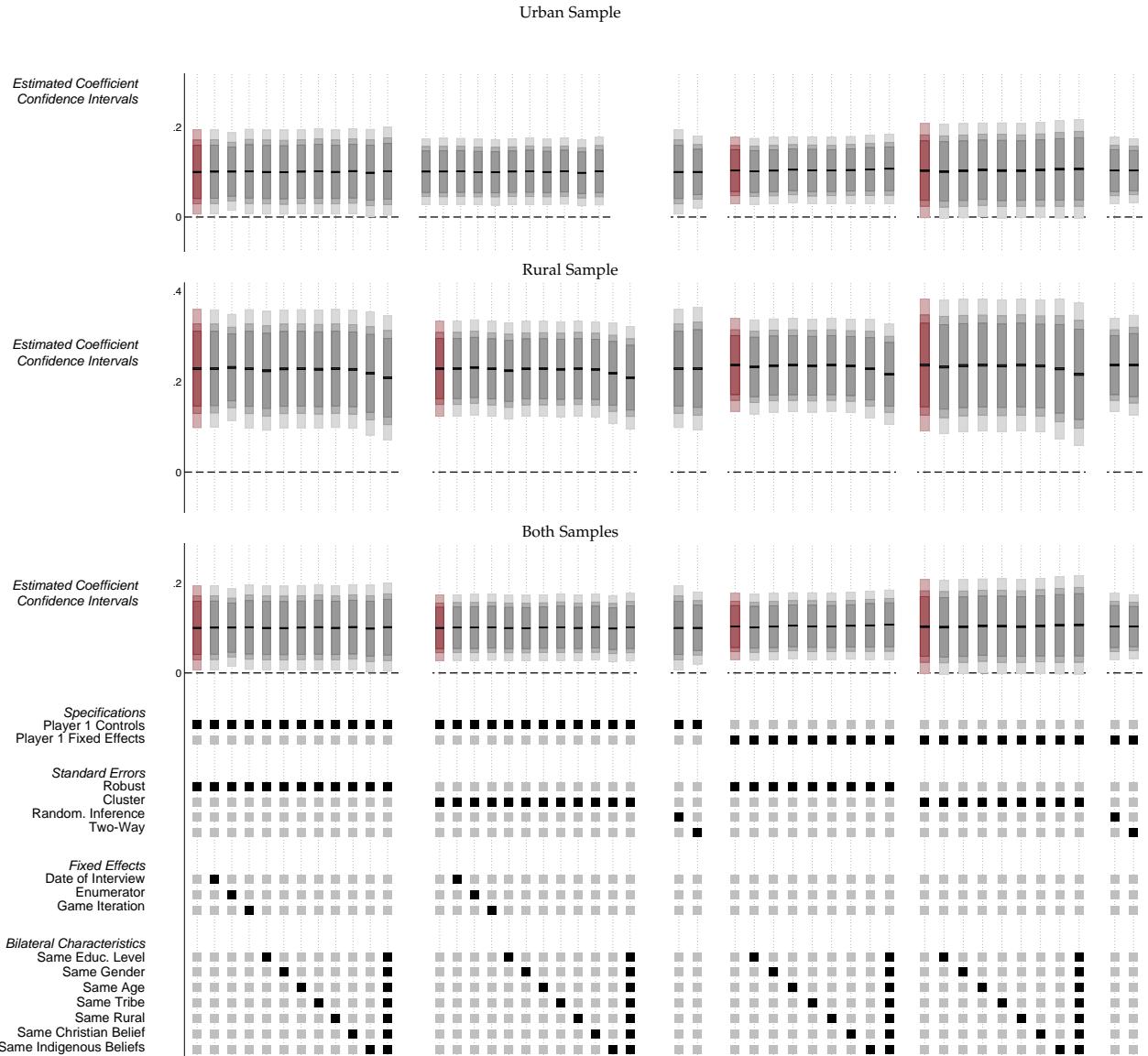
Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the appropriateness of choosing a player 2 with strong traditional beliefs in an anonymous chose your dictator game. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B7: Robustness: JOD Appropriate to Increase



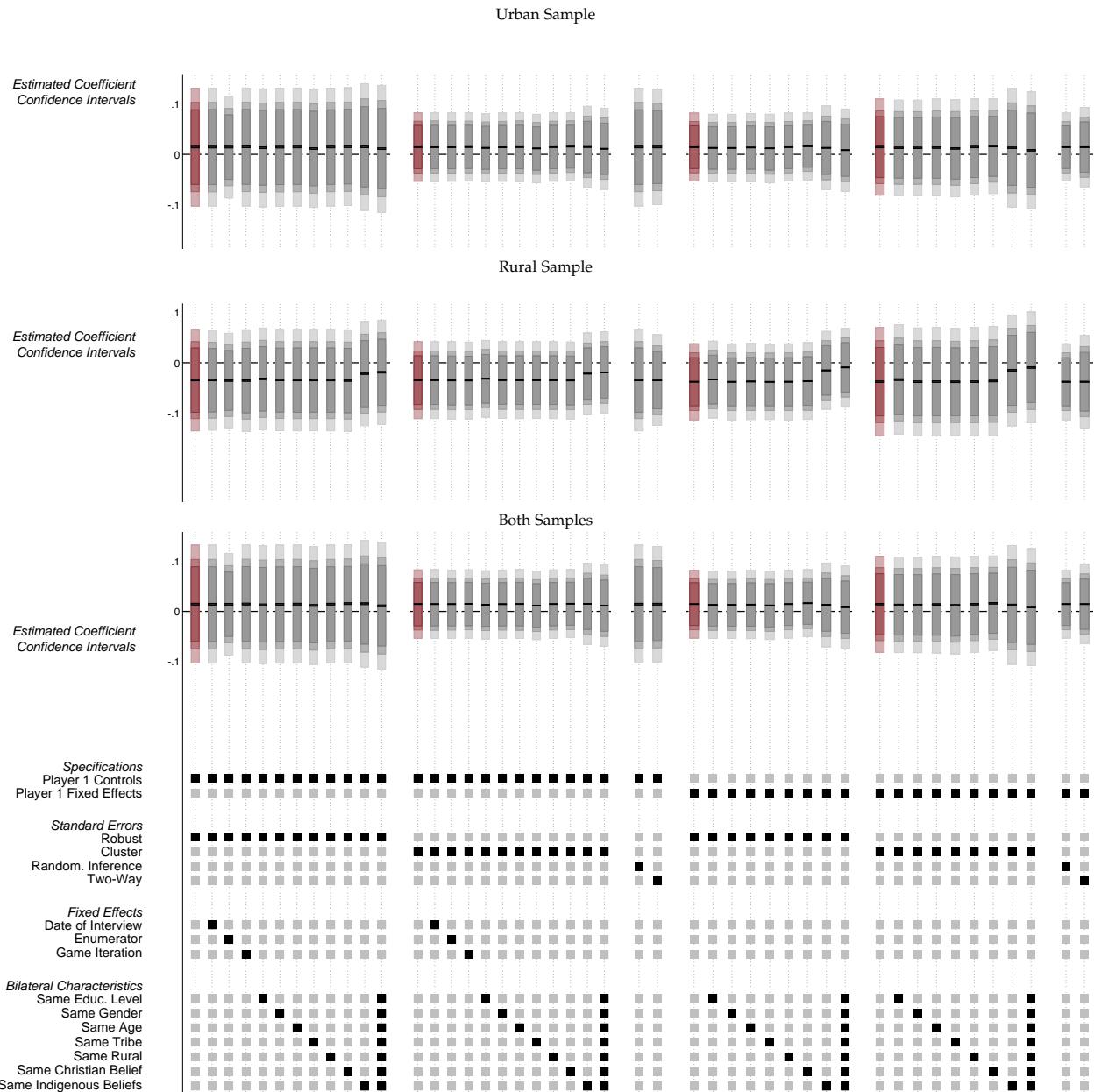
Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the appropriateness to increase the endowment of player 2 in an anonymous joy of destruction game. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B8: Robustness: JOD Appropriate to Decrease



Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the appropriateness to decrease the endowment of player 2 in an anonymous joy of destruction game. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

Figure B9: Robustness: JOD Appropriate to do Nothing



Notes: The figure shows the coefficients and standard errors for the effect of player 2's Traditional Beliefs on the appropriateness to neither increase nor decrease the endowment of player 2 in an anonymous joy of destruction game. Traditional Beliefs are measured with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. The top panel is the urban sample, the middle panel is the rural sample, and the third panel is the pooled sample. The specifications in the third panel include a sample fixed effect. Coefficients are depicted by black horizontal lines. The vertical bars, from darkest to lightest, denote 90, 95, and 99% confidence intervals, respectively. The red bars indicate our main specifications. The bottom panel indicates the combination of robustness checks associated with each specification.

B.4. Additional Sensitivity Checks for Social Norms Estimates

Table B5: DG Appropriate to Send [...] CF

| | | OLS, Dep. Var: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|-------|--|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|---------------------|-------------------|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | | |
| Panel A: Rural Sample | | | | | | | | | | | | | | | | | | | | | | | |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | | 0.002 [0.016] | 0.004 [0.014] | 0.070 [0.043] | 0.073 [0.030]** | 0.094 [0.048]* | 0.098 [0.032]** | 0.036 [0.045]*** | 0.045 [0.029] | 0.024 [0.040] | 0.025 [0.027] | -0.072 [0.038] | -0.072 [0.027]** | -0.056 [0.037]*** | -0.053 [0.034] | -0.084 [0.047] | -0.085 [0.036]** | -0.114 [0.036] | -0.118 [0.058] | -0.137 [0.072] | -0.137 [0.038]*** | -0.202 [0.042]* | -0.202 [0.041]*** |
| Strong or Very Strong | | [0.015] | [0.020] | (0.030) | (0.042)** | (0.032)* | (0.045)*** | (0.029) | (0.040) | (0.027) | (0.038) | (0.027)** | (0.037)*** | (0.034) | (0.047) | (0.036) | (0.051)** | (0.040) | (0.054)*** | (0.042)* | (0.057)*** | (0.045)** | (0.062)*** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | | 0.023 [0.013]* | -0.030 [0.051] | | 0.044 [0.060] | | 0.051 [0.064] | | 0.090 [0.057] | | -0.026 [0.038] | | 0.044 [0.052] | | -0.049 [0.066] | | -0.035 [0.083] | | -0.167 [0.096]* | | -0.167 [0.105] | | -0.059 [0.137] |
| (0.013)* | | (0.062) | | (0.075) | | | (0.083) | | | | (0.073) | | (0.044) | | | (0.063) | | | (0.109) | | (0.124)* | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | |
| Respondents | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 |
| Mean Dep. Var. | 1.031 | 1.031 | 1.402 | 1.402 | 1.864 | 1.864 | 2.321 | 2.321 | 2.784 | 2.784 | 3.759 | 3.759 | 3.537 | 3.537 | 3.218 | 3.218 | 2.837 | 2.837 | 2.551 | 2.551 | 2.354 | 2.354 | |
| SD Dep. Var. | 0.229 | 0.229 | 0.640 | 0.640 | 0.722 | 0.722 | 0.773 | 0.773 | 0.681 | 0.681 | 0.500 | 0.500 | 0.680 | 0.680 | 0.869 | 0.869 | 1.079 | 1.079 | 1.237 | 1.237 | 1.361 | 1.361 | |
| Panel B: Urban Sample | | | | | | | | | | | | | | | | | | | | | | | |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | | 0.095 [0.026]*** | 0.097 [0.025]*** | 0.082 [0.044]* | 0.080 [0.030]*** | 0.072 [0.049] | 0.066 [0.031]** | 0.059 [0.045] | 0.051 [0.029]* | 0.033 [0.037] | 0.032 [0.028] | -0.084 [0.029]*** | -0.083 [0.026]*** | -0.160 [0.050]*** | -0.157 [0.040]*** | -0.141 [0.058]** | -0.140 [0.041]** | -0.109 [0.066] | -0.110 [0.044]** | -0.164 [0.072]** | -0.169 [0.059]*** | -0.167 [0.043]** | -0.171 [0.060]*** |
| (0.025)*** | | (0.035)*** | (0.030)* | (0.042)*** | (0.032) | (0.044)** | (0.030) | (0.041)* | (0.028) | (0.040) | (0.026)*** | (0.037)*** | (0.040)*** | (0.057)*** | (0.041)** | (0.058)*** | (0.044) | (0.062)** | (0.043)** | (0.059)*** | (0.043)** | (0.060)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | | 0.054 [0.028]* | 0.142 [0.050]*** | 0.252 [0.058]*** | 0.235 [0.063]*** | 0.158 [0.066]*** | -0.005 [0.053]*** | -0.178 [0.057]*** | -0.145 [0.068]** | -0.055 [0.077] | -0.145 [0.085] | -0.055 [0.096] | -0.009 [0.109] | -0.107 [0.114] | | | | | | | | | |
| (0.029)* | | (0.062)*** | | (0.073)*** | | (0.066)*** | | (0.053)*** | | (0.040) | | (0.065)*** | | (0.083)** | | (0.096) | | (0.109) | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | |
| Respondents | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 |
| Mean Dep. Var. | 1.097 | 1.097 | 1.520 | 1.520 | 1.951 | 1.951 | 2.395 | 2.395 | 2.893 | 2.893 | 3.810 | 3.810 | 3.323 | 3.323 | 2.902 | 2.902 | 2.463 | 2.463 | 2.084 | 2.084 | 1.831 | 1.831 | |
| SD Dep. Var. | 0.450 | 0.450 | 0.771 | 0.771 | 0.847 | 0.847 | 0.788 | 0.788 | 0.655 | 0.655 | 0.515 | 0.515 | 0.872 | 0.872 | 1.007 | 1.007 | 1.148 | 1.148 | 1.243 | 1.243 | 1.267 | 1.267 | |
| Panel C: Both Samples | | | | | | | | | | | | | | | | | | | | | | | |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | | 0.058 [0.016]*** | 0.057 [0.015]*** | 0.079 [0.031]** | 0.075 [0.021]** | 0.082 [0.035]** | 0.077 [0.022]** | 0.051 [0.034] | 0.049 [0.021]** | 0.031 [0.029] | 0.030 [0.020] | -0.079 [0.022]*** | -0.077 [0.018]*** | -0.116 [0.034]*** | -0.114 [0.027]*** | -0.117 [0.041]*** | -0.116 [0.028]** | -0.111 [0.040]*** | -0.112 [0.030]*** | -0.153 [0.042]*** | -0.155 [0.030]*** | -0.183 [0.031]*** | |
| (0.016)*** | | (0.022)*** | (0.021)** | (0.030)*** | (0.023)** | (0.032)*** | (0.021) | (0.029)** | (0.020) | (0.028) | (0.019)*** | (0.026)*** | (0.027)*** | (0.038)*** | (0.040)*** | (0.040)*** | (0.042)*** | (0.030)*** | (0.042)*** | (0.031)*** | (0.043)*** | | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | | 0.040 [0.016]** | 0.069 [0.036]* | 0.160 [0.042]*** | 0.149 [0.041]*** | 0.132 [0.035]*** | -0.008 [0.026] | -0.081 [0.039]*** | -0.094 [0.048]** | -0.036 [0.056] | -0.062 [0.063] | -0.074 [0.067] | | | | | | | | | | | |
| (0.017)** | | (0.044)* | | (0.052)*** | | (0.052)*** | | (0.044)*** | | (0.030) | | (0.046)*** | | (0.059)*** | | (0.072) | | (0.082) | | (0.087) | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | |
| Observations | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | |
| Respondents | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | |
| Mean Dep. Var. | 1.069 | 1.069 | 1.469 | 1.469 | 1.914 | 1.914 | 2.363 | 2.363 | 2.846 | 2.846 | 3.788 | 3.788 | 3.415 | 3.415 | 3.038 | 3.038 | 2.624 | 2.624 | 2.285 | 2.285 | 2.056 | 2.056 | |
| SD Dep. Var. | 0.373 | 0.373 | 0.720 | 0.720 | 0.797 | 0.797 | 0.782 | 0.782 | 0.669 | 0.669 | 0.509 | 0.509 | 0.802 | 0.802 | 0.963 | 0.963 | 1.134 | 1.134 | 1.262 | 1.262 | 1.333 | 1.333 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B6: JOD Appropriate to Increase

| OLS, Dep. Var.: Appropriate to Increase in JOD | | | | | | |
|--|--|----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Strong or Very Strong | -0.081 [0.044] [*] (0.035)* | -0.089 [0.035]** (0.049)** | -0.217 [0.055]*** (0.042)*** | -0.219 [0.042]*** (0.059)*** | -0.161 [0.037]*** (0.028)*** | -0.163 [0.028]*** (0.040)*** |
| Player 1's Traditional Beliefs: | | | | | | |
| Strong or Very Strong | 0.000 [0.050] (0.058) | | -0.195 [0.067]*** (0.083)*** | | -0.112 [0.044]** (0.053)** | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N |
| Observations | 898 | 898 | 1,192 | 1,192 | 2,090 | 2,090 |
| Respondents | 449 | 449 | 596 | 596 | 1,045 | 1,045 |
| Mean Dep. Var. | 3.653 | 3.653 | 3.253 | 3.253 | 3.424 | 3.424 |
| SD Dep. Var. | 0.657 | 0.657 | 0.968 | 0.968 | 0.871 | 0.871 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Increase the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B7: JOD Appropriate to do Nothing

| OLS, Dep. Var.: Appropriate to Nothing in JOD | | | | | | |
|---|-----------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Strong or Very Strong | 0.014 [0.046] (0.027) | 0.014 [0.026] (0.037) | -0.034 [0.039] (0.030) | -0.037 [0.029] (0.041) | -0.014 [0.030] (0.020) | -0.016 [0.020] (0.028) |
| Player 1's Traditional Beliefs: | | | | | | |
| Strong or Very Strong | 0.070 [0.058] (0.073) | | -0.040 [0.046] (0.054) | | 0.021 [0.036] (0.044) | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N |
| Observations | 898 | 898 | 1,192 | 1,192 | 2,090 | 2,090 |
| Respondents | 449 | 449 | 596 | 596 | 1,045 | 1,045 |
| Mean Dep. Var. | 3.385 | 3.385 | 3.608 | 3.608 | 3.512 | 3.512 |
| SD Dep. Var. | 0.696 | 0.696 | 0.680 | 0.680 | 0.695 | 0.695 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Nothing the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B8: JOD Appropriate to Decrease

| OLS, Dep. Var.: Appropriate to Decrease in JOD | | | | | | |
|--|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Strong or Very Strong | 0.100 [0.036]*** (0.028)*** | 0.103 [0.029]*** (0.041)*** | 0.228 [0.051]*** (0.041)*** | 0.236 [0.040]*** (0.057)*** | 0.173 [0.033]*** (0.026)*** | 0.178 [0.026]*** (0.037)*** |
| Player 1's Traditional Beliefs: | | | | | | |
| Strong or Very Strong | -0.006 [0.042] (0.048) | | 0.122 [0.059]** (0.069)** | | 0.060 [0.038] (0.044) | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N |
| Observations | 898 | 898 | 1,192 | 1,192 | 2,090 | 2,090 |
| Respondents | 449 | 449 | 596 | 596 | 1,045 | 1,045 |
| Mean Dep. Var. | 1.239 | 1.239 | 1.538 | 1.538 | 1.410 | 1.410 |
| SD Dep. Var. | 0.556 | 0.556 | 0.886 | 0.886 | 0.776 | 0.776 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Decrease the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B9: DG Appropriate to Send [...] CF: Measuring Traditional Beliefs Using Indicator Variables for Each Category: Urban Sample

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------|---|-------------------|----------------------|-------------------|---------------------|-------------------|----------------------|------------------|--------------------|--------------------|---------------------|---------------------|--------------------|----------------------|----------------------|---------------------|----------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | 0.007 [0.025] | 0.005 [0.030] | 0.054 [0.059] | 0.166 [0.061]** | -0.087 [0.067] | 0.062 [0.068] | -0.093 [0.073] | 0.049 [0.059] | 0.005 [0.066] | 0.092 [0.055]* | -0.006 [0.044] | -0.010 [0.051] | -0.164 [0.064]** | -0.073 [0.069] | -0.235 [0.083]*** | -0.187 [0.072]*** | -0.178 [0.072] | -0.017 [0.076] | -0.179 [0.076] | -0.122 [0.122] | -0.122 [0.080] | -0.171 [0.133] | -0.171 [0.089]* |
| Strong | 0.001 [0.023] | -0.006 [0.032] | 0.108 [0.057]* | 0.209 [0.049]*** | 0.069 [0.067] | 0.147 [0.053]*** | 0.016 [0.073] | 0.016 [0.044] | 0.030 [0.065] | 0.034 [0.039] | -0.062 [0.047] | -0.070 [0.049] | -0.161 [0.060]** | -0.095 [0.050]* | -0.193 [0.079]** | -0.153 [0.059]*** | -0.201 [0.099]** | -0.138 [0.067]** | -0.208 [0.114]* | -0.198 [0.114]* | -0.285 [0.125]** | -0.295 [0.125]** | |
| Very Strong | 0.010 [0.023] | 0.019 [0.021] | 0.084 [0.059] | 0.097 [0.056]* | 0.034 [0.065] | 0.108 [0.056]* | -0.034 [0.069] | 0.121 [0.052]** | 0.022 [0.061] | 0.104 [0.045]** | -0.088 [0.047]* | -0.084 [0.049]* | -0.110 [0.060]** | -0.081 [0.055] | -0.202 [0.079]** | -0.198 [0.059]*** | -0.199 [0.099]** | -0.116 [0.066]* | -0.239 [0.113]** | -0.192 [0.062]** | -0.283 [0.127]** | -0.274 [0.127]** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | -0.007 [0.015] | -0.222 [0.086]** | | -0.285 [0.104]*** | | -0.288 [0.114]** | | -0.330 [0.105]*** | | -0.075 [0.065] | | -0.224 [0.096]** | | -0.138 [0.112] | | -0.224 [0.142] | | -0.143 [0.167] | | -0.165 [0.184] | | | |
| Strong | -0.001 [0.013] | -0.246 [0.075]*** | | -0.155 [0.086]* | | -0.105 [0.071] | | -0.040 [0.054]** | | -0.112 [0.067] | | 0.003 [0.093] | | -0.116 [0.093] | | -0.220 [0.116]* | | -0.358 [0.135]*** | | -0.316 [0.148]** | | | |
| Very Strong | 0.033 [0.018]* | -0.048 [0.072] | | -0.029 [0.080] | | -0.048 [0.078] | | -0.047 [0.067] | | -0.026 [0.050] | | -0.085 [0.065] | | -0.111 [0.086] | | -0.084 [0.109] | | -0.161 [0.124] | | -0.032 [0.136] | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | |
| Respondents | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | |
| Mean Dep. Var. | 1.031 | 1.031 | 1.402 | 1.402 | 1.864 | 1.864 | 2.321 | 2.321 | 2.784 | 2.784 | 3.759 | 3.759 | 3.537 | 3.537 | 3.218 | 3.218 | 2.837 | 2.837 | 2.551 | 2.551 | 2.354 | 2.354 | |
| SD Dep. Var. | 0.229 | 0.229 | 0.640 | 0.640 | 0.722 | 0.722 | 0.773 | 0.773 | 0.681 | 0.681 | 0.500 | 0.500 | 0.680 | 0.680 | 0.869 | 0.869 | 1.079 | 1.079 | 1.237 | 1.237 | 1.361 | 1.361 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B10: DG Appropriate to Send [...] CF: Measuring Traditional Beliefs Using Indicator Variables for Each Category: Rural Sample

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|---------------------|---|---------------------|---------------------|---------------------|--------------------|----------------------|--------------------|-------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | -0.026 [0.028] | 0.034 [0.051] | 0.020 [0.061] | 0.028 [0.061] | 0.035 [0.068] | 0.007 [0.063] | 0.002 [0.065] | -0.025 [0.059] | -0.015 [0.053] | 0.003 [0.055] | -0.011 [0.032] | -0.037 [0.053] | 0.017 [0.067] | 0.065 [0.079] | -0.044 [0.081] | -0.106 [0.082] | -0.035 [0.095] | -0.133 [0.087] | -0.030 [0.104] | -0.135 [0.085] | -0.013 [0.085] | -0.043 [0.108] | |
| Strong | 0.047 [0.033] | 0.099 [0.042]** | 0.075 [0.063] | 0.082 [0.054] | 0.062 [0.069] | 0.009 [0.054] | 0.015 [0.065] | -0.023 [0.052] | 0.008 [0.055] | 0.024 [0.047] | -0.085 [0.040]** | -0.098 [0.048]** | -0.151 [0.047] | -0.142 [0.072]** | -0.171 [0.069]** | -0.253 [0.083]** | -0.141 [0.072]** | -0.240 [0.095] | -0.187 [0.077]** | -0.303 [0.104] | -0.194 [0.073]** | -0.244 [0.106]* | |
| Very Strong | 0.117 [0.044]*** | 0.134 [0.051]*** | 0.112 [0.066] | 0.109 [0.054] | 0.122 [0.076] | 0.134 [0.058] | 0.107 [0.076] | 0.102 [0.055] | 0.044 [0.073] | -0.094 [0.048] | -0.109 [0.066] | -0.152 [0.038] | -0.100 [0.065]** | -0.160 [0.098]** | -0.140 [0.073]** | -0.113 [0.073]** | -0.122 [0.087] | -0.174 [0.104]** | -0.153 [0.098]* | -0.142 [0.104]** | -0.153 [0.088]* | -0.142 [0.105]** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | 0.073 [0.051] | 0.462 [0.103]*** | 0.543 [0.116]*** | 0.431 [0.101]*** | 0.134 [0.076]* | -0.152 [0.078]* | -0.145 [0.109] | -0.038 [0.129] | -0.195 [0.146] | -0.102 [0.159] | -0.102 [0.169] | | | | | | | | | | | | |
| Strong | 0.056 [0.033]* | 0.284 [0.061]*** | 0.413 [0.127]*** | 0.392 [0.146]*** | 0.211 [0.126]*** | -0.023 [0.083]* | -0.271 [0.083]* | -0.167 [0.120] | -0.066 [0.154] | -0.009 [0.176] | -0.149 [0.201] | | | | | | | | | | | | |
| Very Strong | 0.084 [0.032]*** | 0.259 [0.054]*** | 0.394 [0.066]*** | 0.326 [0.063]*** | 0.182 [0.053]*** | -0.063 [0.039] | -0.181 [0.065]*** | -0.150 [0.081]* | -0.140 [0.092] | -0.057 [0.103] | -0.152 [0.106] | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | | |
| Observations | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | | |
| Respondents | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | |
| Mean Dep. Var. | 1.097 | 1.097 | 1.520 | 1.520 | 1.951 | 1.951 | 2.395 | 2.395 | 2.893 | 2.893 | 3.810 | 3.810 | 3.323 | 3.323 | 2.902 | 2.902 | 2.463 | 2.463 | 2.084 | 2.084 | 1.831 | 1.831 | |
| SD Dep. Var. | 0.450 | 0.450 | 0.771 | 0.771 | 0.847 | 0.847 | 0.788 | 0.788 | 0.655 | 0.655 | 0.515 | 0.515 | 0.872 | 0.872 | 1.007 | 1.007 | 1.148 | 1.148 | 1.243 | 1.243 | 1.267 | 1.267 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B11: DG Appropriate to Send [...] CF: Measuring Traditional Beliefs Using Indicator Variables for Each Category: Both Samples

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------|---|--------------------------|--------------------------|--------------------------|------------------------|-----------------------|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|----------------------|------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | -0.014 [0.018] | 0.015 [0.031] | 0.029 [0.043] | 0.097 [0.042]** | -0.024 [0.048] | 0.043 [0.046] | -0.051 [0.049] | 0.007 [0.041] | -0.008 [0.039] | 0.047 [0.026] | -0.007 [0.037] | -0.022 [0.047] | -0.058 [0.053] | 0.005 [0.058]** | -0.129 [0.055]** | -0.139 [0.071] | -0.103 [0.059] | -0.082 [0.079] | -0.097 [0.059]** | -0.119 [0.084] | -0.086 [0.062] | -0.093 [0.083] | |
| Strong | 0.028 [0.021] | 0.051 [0.026]* | 0.084 [0.043]* | 0.145 [0.036]*** | 0.059 [0.049] | 0.077 [0.038]** | 0.011 [0.049] | -0.002 [0.034] | 0.019 [0.042] | -0.038 [0.031] | -0.074 [0.030]** | -0.081 [0.034]** | -0.155 [0.048]** | -0.131 [0.043]** | -0.186 [0.043]** | -0.216 [0.047]*** | -0.176 [0.069]** | -0.193 [0.051]*** | -0.204 [0.077]*** | -0.254 [0.052]*** | -0.240 [0.081]*** | -0.266 [0.054]*** | |
| Very Strong | 0.073 [0.027]*** | 0.080 [0.030]*** | 0.103 [0.045]** | 0.104 [0.039]*** | 0.080 [0.049] | 0.123 [0.040] | 0.040 [0.053]** | 0.109 [0.040] | 0.034 [0.048] | 0.071 [0.036] | -0.091 [0.044] | -0.096 [0.029]** | -0.137 [0.048]** | -0.091 [0.048]** | -0.180 [0.047]* | -0.159 [0.058]** | -0.153 [0.049]*** | -0.115 [0.069]** | -0.203 [0.053]** | -0.178 [0.076]*** | -0.213 [0.052]*** | -0.197 [0.082]*** | |
| | (0.026)*** [0.043]*** | (0.039)** [0.055]*** | (0.055)*** [0.043] | (0.056)*** [0.043] | (0.040) [0.056]*** | (0.051)*** [0.040] | (0.035) [0.047]** | (0.030)*** [0.047]** | (0.049)*** [0.047]** | (0.066)* [0.050]*** | (0.066)* [0.049]*** | (0.066)* [0.044]*** | (0.066)* [0.044]*** | (0.066)* [0.044]*** | (0.066)* [0.050]*** | (0.069)** [0.059]** | (0.075)** [0.059]** | (0.064)** [0.064]** | (0.074)** [0.064]** | (0.068)** [0.068]** | (0.077)*** [0.068]** | | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | 0.039 [0.026] | 0.152 [0.066]** | 0.161 [0.078]** | 0.102 [0.077] | -0.081 [0.067] | -0.107 [0.050]** | -0.212 [0.073]*** | -0.091 [0.085] | -0.195 [0.100]* | -0.084 [0.114] | -0.195 [0.123] | -0.084 [0.145] | -0.158 [0.145] | -0.158 [0.155] | -0.158 [0.145] | -0.158 [0.145] | |
| Strong | 0.034 [0.021]* | 0.075 [0.048] | 0.186 [0.055]*** | 0.193 [0.053]*** | 0.119 [0.044]*** | -0.056 [0.034]* | -0.164 [0.051]*** | -0.142 [0.065]** | -0.118 [0.076] | -0.130 [0.086] | -0.204 [0.090]** | -0.130 [0.112] | -0.204 [0.119]** | -0.130 [0.112] | -0.204 [0.119]** | -0.130 [0.112] | -0.204 [0.119]** | -0.130 [0.112] | -0.204 [0.119]** | -0.130 [0.119]** | -0.204 [0.119]** | | |
| Very Strong | 0.062 [0.020]*** | 0.147 [0.044]*** | 0.227 [0.051]*** | 0.174 [0.049]*** | 0.096 [0.042]** | -0.037 [0.031] | -0.146 [0.047]*** | -0.121 [0.059]** | -0.097 [0.070] | -0.072 [0.079] | -0.085 [0.083] | -0.072 [0.079] | -0.085 [0.083] | -0.072 [0.083] | | |
| | (0.020)*** [0.055]*** | (0.055)*** [0.064]*** | (0.064)*** [0.064]*** | (0.064)*** [0.064]*** | (0.064)*** [0.064]*** | (0.053)** [0.053]** | (0.035) [0.055]*** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | (0.074)** [0.074]** | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | |
| Respondents | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | |
| Mean Dep. Var. | 1.069 | 1.069 | 1.469 | 1.469 | 1.914 | 1.914 | 2.363 | 2.363 | 2.846 | 2.846 | 3.788 | 3.788 | 3.415 | 3.415 | 3.038 | 3.038 | 2.624 | 2.624 | 2.285 | 2.285 | 2.056 | 2.056 | |
| SD Dep. Var. | 0.373 | 0.373 | 0.720 | 0.720 | 0.797 | 0.797 | 0.782 | 0.782 | 0.669 | 0.669 | 0.509 | 0.509 | 0.802 | 0.802 | 0.963 | 0.963 | 1.134 | 1.134 | 1.262 | 1.262 | 1.333 | 1.333 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B12: CYD Appropriate to Choose Player Estimates: Measuring Traditional Beliefs Using Indicator Variables for Each Category

| OLS, Dep. Var.: Appropriate to Choose Player, 1-4 | | | | | | |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Urban Sample | | Rural Sample | | Both Samples | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Player 2's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | | | | | | |
| Strong | 0.185 [0.057]*** (0.056)*** | 0.232 [0.072]*** (0.082)*** | -0.141 [0.054]*** (0.055)*** | -0.158 [0.069]** (0.078)** | 0.004 [0.040] (0.040) | 0.011 [0.050] (0.057) |
| Very Strong | -0.572 [0.063]*** (0.074)*** | -0.539 [0.067]*** (0.089)*** | -0.869 [0.058]*** (0.065)*** | -0.879 [0.063]*** (0.078)*** | -0.739 [0.043]*** (0.049)*** | -0.733 [0.046]*** (0.060)*** |
| Player 1's Traditional Beliefs: | | | | | | |
| Neither Weak nor Strong | 0.070 [0.086] (0.076) | | -0.060 [0.096] (0.095) | | -0.004 [0.065] (0.061) | |
| Strong | 0.058 [0.067] (0.065) | | -0.121 [0.066]* (0.065)* | | -0.048 [0.048] (0.047) | |
| Very Strong | 0.017 [0.063] (0.062) | | -0.049 [0.062] (0.059) | | -0.020 [0.045] (0.043) | |
| Player 1 FE | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | Y | Y |
| Observations | 1,796 | 1,796 | 2,384 | 2,384 | 4,180 | 4,180 |
| Respondents | 449 | 449 | 596 | 596 | 1,045 | 1,045 |
| Mean Dep. Var. | 3.076 | 3.076 | 2.811 | 2.811 | 2.925 | 2.925 |
| SD Dep. Var. | 0.984 | 0.984 | 1.125 | 1.125 | 1.075 | 1.075 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Choose Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B13: JOD Appropriate to [...]: Measuring Traditional Beliefs Using Indicator Variables for Each Category

| OLS, Dep. Var.: Appropriate to [...] the Endowment of Other Player, 1-4 | | | | | | | | | | | | | | | | | | |
|---|------------------------|---------------------|--------------------|-------------------------|--------------------------|-------------------------|-----------------------|-----------------------|----------------------|--------------------|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | Urban Sample | | | | | | Rural Sample | | | | | | Both Samples | | | | | |
| | Decrease | | Nothing | | Increase | | Decrease | | Nothing | | Increase | | Decrease | | Nothing | | Increase | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | |
| Neither Weak nor Strong | 0.040 [0.046] | 0.076 [0.058] | -0.112 [0.065]* | -0.035 [0.053] | -0.024 [0.061] | -0.060 [0.070] | 0.026 [0.063] | -0.033 [0.081] | 0.024 [0.053] | 0.023 [0.059] | 0.101 [0.072] | 0.025 [0.082] | 0.038 [0.041] | 0.017 [0.053] | -0.031 [0.042] | -0.001 [0.040] | 0.038 [0.049] | -0.008 [0.055] |
| Strong | 0.143 [0.051]*** | 0.134 [0.054]** | -0.058 [0.064] | 0.021 [0.050] | -0.100 [0.063] | -0.118 [0.066]* | 0.243 [0.071]*** | 0.247 [0.069]*** | -0.021 [0.056] | -0.014 [0.048] | -0.195 [0.080]** | -0.218 [0.075]*** | 0.205 [0.046]*** | 0.199 [0.045]*** | -0.040 [0.042] | 0.001 [0.034] | -0.162 [0.053]*** | -0.170 [0.051]*** |
| Very Strong | 0.097 [0.049]** | 0.151 [0.050]*** | -0.029 [0.065] | -0.028 [0.049] | -0.086 [0.060] | -0.122 [0.057]** | 0.240 [0.070]*** | 0.192 [0.070]*** | -0.023 [0.056] | -0.036 [0.048] | -0.137 [0.080]* | -0.194 [0.069]*** | 0.180 [0.045]*** | 0.174 [0.045]*** | -0.019 [0.043] | -0.033 [0.035] | -0.120 [0.052]** | -0.163 [0.046]*** |
| Player 1's Traditional Beliefs: | 0.045*** [0.071]*** | (0.055) (0.069) | (0.069) (0.056) | (0.081)** (0.064)*** | (0.099)*** (0.099)*** | (0.081)** (0.064)*** | (0.064) [0.070]*** | (0.068) [0.070]*** | (0.049) [0.056] | (0.068) [0.048] | (0.049) [0.080]* | (0.049) [0.069]*** | (0.049) [0.045]*** | (0.049) [0.045]*** | (0.041) [0.045]*** | (0.037) [0.041]*** | (0.049) [0.046]*** | (0.066) [0.046]*** |
| Neither Weak nor Strong | 0.010 [0.077] | 0.120 [0.098] | 0.062 [0.084] | 0.288 [0.122]** | -0.015 [0.082] | -0.312 [0.132]** | 0.171 [0.071]** | 0.045 [0.062] | -0.150 [0.077]* | | | | | | | | | |
| Strong | -0.008 [0.058] | 0.053 [0.083] | 0.003 [0.072] | 0.171 [0.073]** | -0.027 [0.059] | -0.354 [0.086]*** | 0.100 [0.049]** | 0.016 [0.048] | -0.214 [0.059]*** | | | | | | | | | |
| Very Strong | 0.001 [0.053] | 0.152 [0.077]*** | 0.037 [0.066] | 0.219 [0.068]*** | -0.056 [0.054] | -0.234 [0.075]*** | 0.124 [0.045]*** | 0.050 [0.045] | -0.129 [0.052]** | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | Y | Y | Y | Y | Y | Y | Y |
| Observations | 898 | 898 | 898 | 898 | 898 | 898 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 |
| Respondents | 449 | 449 | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 596 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 |
| Mean Dep. Var. | 1.239 | 1.239 | 3.385 | 3.385 | 3.653 | 3.653 | 1.538 | 1.538 | 3.608 | 3.608 | 3.253 | 3.253 | 1.410 | 1.410 | 3.512 | 3.512 | 3.424 | 3.424 |
| SD Dep. Var. | 0.556 | 0.556 | 0.696 | 0.696 | 0.657 | 0.657 | 0.886 | 0.886 | 0.680 | 0.680 | 0.968 | 0.968 | 0.776 | 0.776 | 0.695 | 0.695 | 0.871 | 0.871 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the JOD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to [...] the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns include indicators for each category of strength of belief, where the omitted category is weak traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B14: DG Appropriate to Send [...] CF: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs: Urban Sample

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|---|------------------|------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.012 [0.013] | 0.008 [0.014] | 0.030 [0.059] | 0.026 [0.045] | -0.017 [0.068] | 0.008 [0.047] | -0.059 [0.072] | -0.034 [0.036] | -0.016 [0.062] | -0.026 [0.034] | -0.002 [0.039] | -0.016 [0.040] | -0.049 [0.058] | 0.012 [0.043] | -0.072 [0.075] | -0.006 [0.047] | -0.106 [0.095] | -0.019 [0.053] | -0.062 [0.053] | -0.003 [0.053] | -0.141 [0.062] | -0.160 [0.121] | -0.070** [0.085] |
| Player 1's Traditional Beliefs: | | (0.013) | (0.020) | (0.043) | (0.063) | (0.048) | (0.067) | (0.045) | (0.051) | (0.040) | (0.048) | (0.035) | (0.057) | (0.045) | (0.061) | (0.049) | (0.067) | (0.064) | (0.074) | (0.075) | (0.087) | (0.085) | (0.098)** |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.020 [0.016] | | 0.004 [0.047] | | -0.017 [0.055] | | -0.038 [0.058] | | -0.007 [0.053] | | 0.022 [0.031] | | -0.021 [0.048] | | -0.037 [0.062] | | -0.042 [0.081] | | -0.031 [0.092] | | -0.028 [0.102] | | |
| Integer Measure, 1-4 × Integer Measure, 1-4 | (0.016) | | (0.038) | | (0.045) | | (0.048) | | (0.045) | | (0.028) | | (0.041) | | (0.049) | | (0.065) | | (0.073) | | (0.084) | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | |
| Respondents | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 |
| Mean Dep. Var. | 1.031 | 1.031 | 1.402 | 1.402 | 1.864 | 1.864 | 2.321 | 2.321 | 2.784 | 2.784 | 3.759 | 3.759 | 3.537 | 3.537 | 3.218 | 3.218 | 2.837 | 2.837 | 2.551 | 2.551 | 2.354 | 2.354 | |
| SD Dep. Var. | 0.229 | 0.229 | 0.640 | 0.640 | 0.722 | 0.722 | 0.773 | 0.773 | 0.681 | 0.681 | 0.500 | 0.500 | 0.680 | 0.680 | 0.869 | 0.869 | 1.079 | 1.079 | 1.237 | 1.237 | 1.361 | 1.361 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with traditional beliefs as a 1 to 4 variable. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B15: DG Appropriate to Send [...] CF: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs: Urban Sample

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------|---|------------------|-------------------|------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.004 [0.015] | 0.006 [0.015] | 0.065 [0.088] | 0.072 [0.066] | 0.035 [0.104] | 0.039 [0.068] | -0.072 [0.109] | -0.059 [0.054] | -0.009 [0.100] | -0.005 [0.053] | -0.034 [0.064] | -0.027 [0.052] | 0.029 [0.090] | 0.031 [0.065] | -0.088 [0.111] | -0.092 [0.074] | -0.095 [0.140] | -0.108 [0.071] | -0.057 [0.163] | -0.067 [0.094] | -0.206 [0.179] | -0.212 [0.103]** | |
| (0.015) | (0.021) | (0.066) | (0.094) | (0.069) | (0.097) | (0.058) | (0.076) | (0.054) | (0.075) | (0.052) | (0.074) | (0.066) | (0.092) | (0.076) | (0.105) | (0.074) | (0.101) | (0.099) | (0.133) | (0.108) | (0.145)** | | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.025 [0.019] | -0.033 [0.070] | 0.004 [0.083] | -0.023 [0.088] | 0.067 [0.082] | -0.000 [0.048] | 0.102 [0.077] | -0.052 [0.093] | -0.022 [0.119] | -0.112 [0.137] | -0.112 [0.151] | -0.062 [0.151] | | | | | | | | | | | |
| (0.018) | (0.071) | (0.083) | (0.089) | (0.083) | (0.089) | (0.083) | (0.048) | (0.077) | (0.093) | (0.120) | (0.138) | (0.151) | | | | | | | | | | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | -0.003 [0.025] | -0.003 [0.024] | 0.007 [0.100] | 0.001 [0.074] | 0.082 [0.117] | 0.081 [0.078] | 0.148 [0.124] | 0.143 [0.063]** | 0.045 [0.111] | 0.041 [0.061] | -0.052 [0.075] | -0.062 [0.060] | -0.117 [0.104] | -0.115 [0.075] | 0.005 [0.130] | 0.010 [0.084] | -0.026 [0.163] | -0.015 [0.084] | -0.111 [0.188] | -0.095 [0.103] | 0.006 [0.208] | 0.014 [0.112] | |
| × Strong or Very Strong | (0.024) | (0.035) | (0.074) | (0.105) | (0.078) | (0.110) | (0.067) | (0.089)** | (0.062) | (0.086) | (0.059) | (0.085) | (0.077) | (0.106) | (0.085) | (0.118) | (0.088) | (0.119) | (0.108) | (0.145) | (0.118) | (0.158) | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | 898 | |
| Respondents | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 | 449 |
| Mean Dep. Var. | 1.031 | 1.031 | 1.402 | 1.402 | 1.864 | 1.864 | 2.321 | 2.321 | 2.784 | 2.784 | 3.759 | 3.759 | 3.537 | 3.537 | 3.218 | 3.218 | 2.837 | 2.837 | 2.551 | 2.551 | 2.354 | 2.354 | |
| SD Dep. Var. | 0.229 | 0.229 | 0.640 | 0.640 | 0.722 | 0.722 | 0.773 | 0.773 | 0.681 | 0.681 | 0.500 | 0.500 | 0.680 | 0.680 | 0.869 | 0.869 | 1.079 | 1.079 | 1.237 | 1.237 | 1.361 | 1.361 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B16: DG Appropriate to Send [...] CF: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs: Rural Sample

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------------|---|-----------------------------|-------------------------------|------------------------------|-------------------------------|---------------------------------|-----------------------------|---------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|----------------------------------|------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.000 [0.027] (0.026) | 0.003 [0.027] (0.038) | 0.004 [0.052] (0.038) | -0.018 [0.035] (0.049) | -0.017 [0.061] (0.044) | -0.027 [0.039] (0.055) | 0.047 [0.060] (0.042) | 0.019 [0.040] (0.056) | 0.043 [0.045] (0.036) | 0.021 [0.034] (0.049) | 0.005 [0.035] (0.030) | -0.011 [0.034] (0.048) | -0.000 [0.057] (0.048) | -0.027 [0.049] (0.070) | 0.104 [0.072] (0.054) | 0.068 [0.052] (0.073) | 0.029 [0.084] (0.062) | 0.008 [0.058] (0.082) | 0.010 [0.098] (0.068) | -0.027 [0.060] (0.085) | 0.097 [0.101] (0.067) | 0.064 [0.057] (0.081) | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.010 [0.022] (0.021) | | 0.038 [0.045] (0.037) | | 0.064 [0.052] (0.043) | | 0.104 [0.053]** (0.044)** | | 0.081 [0.041]** (0.036)** | | 0.020 [0.028] (0.025) | | -0.005 [0.051] (0.046) | | 0.086 [0.063] (0.054) | | 0.023 [0.072] (0.060) | | 0.051 [0.081] (0.066) | | 0.089 [0.084] (0.066) | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 × Integer Measure, 1-4 | 0.014 [0.010] (0.009) | 0.015 [0.009]* (0.013) | 0.011 [0.017] (0.013) | 0.019 [0.011]* (0.016)* | 0.018 [0.019] (0.014) | 0.021 [0.013]* (0.018)* | -0.005 [0.019] (0.014) | 0.003 [0.013] (0.018) | -0.009 [0.015] (0.011) | -0.002 [0.011] (0.015) | -0.013 [0.011] (0.010) | -0.010 [0.010] (0.015) | -0.021 [0.018] (0.015) | -0.012 [0.016] (0.022) | -0.054 [0.023]** (0.017)** | -0.043 [0.016]*** (0.023)*** | -0.024 [0.026] (0.019) | -0.019 [0.018] (0.026) | -0.026 [0.030] (0.021) | -0.016 [0.018] (0.026) | -0.053 [0.031]* (0.021)* | -0.046 [0.018]** (0.026)** | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | | |
| Respondents | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | |
| Mean Dep. Var. | 1.097 | 1.097 | 1.520 | 1.520 | 1.951 | 1.951 | 2.395 | 2.395 | 2.893 | 2.893 | 3.810 | 3.810 | 3.323 | 3.323 | 2.902 | 2.902 | 2.463 | 2.463 | 2.084 | 2.084 | 1.831 | 1.831 | |
| SD Dep. Var. | 0.450 | 0.450 | 0.771 | 0.771 | 0.847 | 0.847 | 0.788 | 0.788 | 0.655 | 0.655 | 0.515 | 0.515 | 0.872 | 0.872 | 1.007 | 1.007 | 1.148 | 1.148 | 1.243 | 1.243 | 1.267 | 1.267 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with traditional beliefs as a 1 to 4 variable. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B17: DG Appropriate to Send [...] CF: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs: Rural Sample

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------------------|---|---|--|---|------------------------------|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--|--|--|------------------------------|------------------------------|------------------------------|------------------------------|--|--|------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.050 [0.038] (0.035) | 0.052 [0.035] (0.049) | 0.027 [0.081] (0.052) | 0.023 [0.050] (0.070) | -0.013 [0.097] (0.060) | -0.014 [0.058] (0.082) | 0.011 [0.088] (0.056) | 0.013 [0.054] (0.077) | 0.037 [0.069] (0.050) | 0.037 [0.050] (0.070) | -0.033 [0.056] (0.050) | -0.026 [0.050] (0.071) | -0.127 [0.089] (0.072) | -0.125 [0.072] [*] (0.102) [*] | 0.004 [0.112] (0.076) | 0.005 [0.075] (0.106) | 0.005 [0.127] (0.082) | -0.000 [0.081] (0.115) | -0.117 [0.143] (0.078) | -0.128 [0.078] (0.111) | -0.020 [0.149] (0.083) | -0.018 [0.082] (0.117) | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.023 [0.027] (0.027) | 0.104 [0.068] (0.068) | 0.194 [0.080] ^{**} (0.080) ^{**} | 0.202 [0.077] ^{**} (0.076) ^{***} | 0.161 [0.061] ^{***} (0.062) ^{***} | 0.030 [0.041] (0.042) | -0.155 [0.074] ^{**} (0.074) ^{**} | -0.046 [0.095] (0.094) | 0.023 [0.107] (0.107) | 0.024 [0.119] (0.119) | -0.007 [0.124] (0.124) | | | | | | | | | | | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong × Strong or Very Strong | 0.062 [0.049] (0.046) | 0.063 [0.045] (0.064) | 0.075 [0.096] (0.063) | 0.077 [0.060] (0.086) | 0.116 [0.111] (0.070) | 0.109 [0.068] (0.096) | 0.065 [0.103] (0.065) | 0.053 [0.064] (0.090) | -0.005 [0.082] (0.060) | -0.007 [0.059] (0.084) | -0.070 [0.059] (0.058) | -0.077 [0.107] (0.087) | -0.046 [0.107] (0.123) | -0.043 [0.087] (0.090) | -0.199 [0.131] (0.127) ^{**} | -0.198 [0.089] ^{**} (0.098) | -0.156 [0.150] (0.138) | -0.150 [0.097] (0.094) | -0.066 [0.166] (0.133) | -0.056 [0.094] (0.099) | -0.201 [0.172] (0.139) ^{**} | -0.210 [0.098] (0.139) ^{**} | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | |
| Sample FE | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | |
| Observations | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | 1,192 | | |
| Respondents | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | 596 | |
| Mean Dep. Var. | 1.097 | 1.097 | 1.520 | 1.520 | 1.951 | 1.951 | 2.395 | 2.395 | 2.893 | 2.893 | 3.810 | 3.810 | 3.323 | 3.323 | 2.902 | 2.902 | 2.463 | 2.463 | 2.084 | 2.084 | 1.831 | 1.831 | |
| SD Dep. Var. | 0.450 | 0.450 | 0.771 | 0.771 | 0.847 | 0.847 | 0.788 | 0.788 | 0.655 | 0.655 | 0.515 | 0.515 | 0.872 | 0.872 | 1.007 | 1.007 | 1.148 | 1.148 | 1.243 | 1.243 | 1.267 | 1.267 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B18: DG Appropriate to Send [...] CF: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs: Both Samples

| | | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------|---|--------------------|------------------|--------------------|-------------------|---------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | | | |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) | |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.005 [0.016] | 0.005 [0.017] | 0.014 [0.039] | 0.002 [0.027] | -0.019 [0.046] | -0.011 [0.030] | -0.002 [0.046] | -0.004 [0.027] | 0.017 [0.037] | -0.002 [0.024] | 0.003 [0.026] | -0.014 [0.026] | -0.025 [0.041] | -0.011 [0.033] | 0.023 [0.052] | 0.033 [0.035] | -0.036 [0.063] | -0.005 [0.040] | -0.027 [0.073] | -0.015 [0.043] | -0.015 [0.078] | -0.039 [0.045] | | |
| | (0.016) (0.023) | | (0.028) (0.039) | | (0.033) (0.042) | | (0.030) (0.039) | | (0.027) (0.034) | | (0.034) (0.023) | | (0.036) (0.033) | | (0.047) (0.047) | | (0.038) (0.050) | | (0.045) (0.056) | | (0.050) (0.061) | | (0.053) (0.063) | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.002 [0.014] | | 0.023 [0.033] | | 0.028 [0.038] | | 0.039 [0.039] | | 0.043 [0.033] | | 0.025 [0.021] | | -0.015 [0.035] | | 0.032 [0.044] | | -0.006 [0.044] | | 0.018 [0.061] | | 0.035 [0.065] | | | |
| | (0.014) (0.026) | | | | (0.031) | | | (0.032) | | | (0.028) | | (0.019) | | | (0.031) | | | (0.044) | | | (0.052) | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.007 [0.006] | 0.008 [0.006] | 0.007 [0.012] | 0.011 [0.009] | 0.017 [0.014] | 0.017 [0.010]* | 0.007 [0.014] | 0.011 [0.009] | -0.001 [0.011] | 0.007 [0.008] | -0.012 [0.008] | -0.007 [0.008] | -0.009 [0.013] | -0.012 [0.010] | -0.027 [0.016]* | -0.029 [0.011]*** | -0.006 [0.020] | -0.015 [0.012] | -0.015 [0.022] | -0.019 [0.013] | -0.021 [0.024] | -0.015 [0.013] | | |
| × Integer Measure, 1-4 | | | | | | | | | | | | | | | | | | | | | | | | |
| (0.006) (0.008) | | | (0.009) (0.012) | | (0.010) (0.010) | | (0.013)* (0.010) | | | (0.012) (0.008) | | (0.011) (0.008) | | (0.011) (0.011) | | (0.015) (0.010) | | (0.012)* (0.014) | | (0.017) (0.017) | | (0.016) (0.018) | | (0.019) (0.016) |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | | |
| Sample FE | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | | |
| Observations | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | | | |
| Respondents | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | | | |
| Mean Dep. Var. | 1.069 | 1.069 | 1.469 | 1.469 | 1.914 | 1.914 | 2.363 | 2.363 | 2.846 | 2.846 | 3.788 | 3.788 | 3.415 | 3.415 | 3.038 | 3.038 | 2.624 | 2.624 | 2.285 | 2.285 | 2.056 | 2.056 | | |
| SD Dep. Var. | 0.373 | 0.373 | 0.720 | 0.720 | 0.797 | 0.797 | 0.782 | 0.782 | 0.669 | 0.669 | 0.509 | 0.509 | 0.802 | 0.802 | 0.963 | 0.963 | 1.134 | 1.134 | 1.262 | 1.262 | 1.333 | 1.333 | | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with traditional beliefs as a 1 to 4 variable. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B19: DG Appropriate to Send [...] CF: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs: Both Samples

| | OLS, Dep. Var.: Appropriate to Send [...] CF to the Other Player, 1-4 | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----------------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------------|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------------|--------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------|
| | 0 CF | | 100 CF | | 200 CF | | 300 CF | | 400 CF | | 500 CF | | 600 CF | | 700 CF | | 800 CF | | 900 CF | | 1000 CF | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) | |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.031 [0.022] (0.021) | 0.032 [0.021] (0.030) | 0.045 [0.059] (0.041) | 0.042 [0.040] (0.057) | 0.010 [0.071] (0.045) | 0.008 [0.044] (0.062) | -0.025 [0.069] (0.040) | -0.019 [0.039] (0.055) | 0.016 [0.059] (0.037) | 0.016 [0.036] (0.051) | -0.033 [0.042] (0.036) | -0.026 [0.036] (0.051) | -0.062 [0.064] (0.050) | -0.058 [0.050] (0.070) | -0.041 [0.079] (0.054) | -0.039 [0.054] (0.076) | -0.047 [0.094] (0.056) | -0.048 [0.056] (0.079) | -0.100 [0.107] (0.061) | -0.099 [0.060] (0.085) | -0.113 [0.114] (0.065) | -0.106 [0.065] (0.092) | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.022 [0.017] (0.017) | 0.046 [0.049] (0.049) | 0.110 [0.058]* (0.058)* | 0.097 [0.058]* (0.058)* | 0.122 [0.050]** (0.050)** | 0.023 [0.031] (0.031) | -0.043 [0.054] (0.054) | -0.042 [0.067] (0.067) | 0.008 [0.079] (0.080) | -0.026 [0.090] (0.090) | -0.026 [0.095] (0.096) | | | | | | | | | | | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | | | | | | | | | | | | |
| Strong or Very Strong | 0.036 [0.030] (0.028) | 0.035 [0.028] (0.040) | 0.046 [0.070] (0.048) | 0.045 [0.047] (0.067) | 0.099 [0.081] (0.052) | 0.095 [0.051]* (0.072)* | 0.105 [0.079] (0.047) | 0.093 [0.045]** (0.064)** | 0.020 [0.067] (0.043) | 0.018 [0.043] (0.061) | -0.063 [0.049] (0.042) | -0.070 [0.042]* (0.059)* | -0.075 [0.076] (0.059) | -0.077 [0.059] (0.084) | -0.104 [0.093] (0.063) | -0.106 [0.062]* (0.088)* | -0.106 [0.110] (0.067) | -0.088 [0.066] (0.094) | -0.088 [0.124] (0.070) | -0.073 [0.069] (0.098) | -0.077 [0.132] (0.074) | -0.096 [0.107] (0.104) | -0.107 [0.073] |
| Strong or Very Strong × Strong or Very Strong | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | N Y | Y Y | | | |
| Player 1 FE | | | | | | | | | | | | | | | | | | | | | | | |
| Sample FE | | | | | | | | | | | | | | | | | | | | | | | |
| Observations | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | 2,090 | | | |
| Respondents | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | 1,045 | | | |
| Mean Dep. Var. | 1.069 | 1.069 | 1.469 | 1.469 | 1.914 | 1.914 | 2.363 | 2.363 | 2.846 | 2.846 | 3.788 | 3.788 | 3.415 | 3.415 | 3.038 | 3.038 | 2.624 | 2.624 | 2.285 | 2.285 | 2.056 | | |
| SD Dep. Var. | 0.373 | 0.373 | 0.720 | 0.720 | 0.797 | 0.797 | 0.782 | 0.782 | 0.669 | 0.669 | 0.509 | 0.509 | 0.802 | 0.802 | 0.963 | 0.963 | 1.134 | 1.134 | 1.262 | 1.262 | 1.333 | | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the DG. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Send [...] CF to Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. All columns present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B20: CYD Appropriate to Choose Player: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| OLS, Dep. Var.: Appropriate to Choose Player, 1-4 | | | | | | | | | | | | |
|--|------------------------------------|------------------------------------|------------------------------------|-------|------------------------------------|------------------------------------|------------------------------------|-------|------------------------------------|------------------------------------|------------------------------------|------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.377 [0.055]*** (0.073)*** | -0.390 [0.057]*** (0.087)*** | | | -0.237 [0.056]*** (0.067)*** | -0.250 [0.058]*** (0.078)*** | | | -0.292 [0.040]*** (0.050)*** | -0.308 [0.041]*** (0.059)*** | | |
| Strong or Very Strong | | -0.836 [0.082]*** (0.119)*** | -0.837 [0.085]*** (0.138)*** | | | -0.577 [0.087]*** (0.107)*** | -0.576 [0.088]*** (0.122)*** | | | -0.688 [0.061]*** (0.080)*** | -0.688 [0.062]*** (0.092)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.089 [0.045]** (0.056)** | | | | 0.044 [0.044] (0.051) | | | | -0.008 [0.032] (0.038) | | | |
| Strong or Very Strong | | -0.088 [0.063] (0.071) | | | | 0.057 [0.065] (0.069) | | | | 0.003 [0.046] (0.050) | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.034 [0.017]** (0.023)*** | 0.034 [0.018]* (0.027)* | | | -0.023 [0.017] (0.020) | -0.024 [0.018] (0.024) | | | 0.000 [0.012] (0.015) | 0.001 [0.013] (0.018) | | |
| Strong or Very Strong × Strong or Very Strong | | 0.170 [0.097]* (0.137)* | 0.173 [0.099]* (0.158)* | | | -0.236 [0.099]** (0.121)** | -0.235 [0.100]** (0.139)** | | | -0.065 [0.070] (0.091) | -0.063 [0.071] (0.105) | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | |
| Sample FE | N | N | N | N | N | N | N | N | Y | Y | Y | |
| Observations | 1,796 | 1,796 | 1,796 | 1,796 | 2,384 | 2,384 | 2,384 | 2,384 | 4,180 | 4,180 | 4,180 | |
| Respondents | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 1,045 | 1,045 | 1,045 | |
| Mean Dep. Var. | 3.076 | 3.076 | 3.076 | 3.076 | 2.811 | 2.811 | 2.811 | 2.811 | 2.925 | 2.925 | 2.925 | |
| SD Dep. Var. | 0.984 | 0.984 | 0.984 | 0.984 | 1.125 | 1.125 | 1.125 | 1.125 | 1.075 | 1.075 | 1.075 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are four observations per respondent, one corresponding to each person that they could choose between for the two rounds of the CYD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Choose Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B21: JOD Appropriate to Increase: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| OLS, Dep. Var.: Appropriate to Increase the Endowment of other Player, 1-4 | | | | | | | | | | | | |
|--|------------------------------|-------------------------------|-------------------------------|-------|---------------------------------|--------------------------------|-------------------------------|-------|------------------------------|---------------------------------|---------------------------------|------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.030 [0.060] (0.051) | -0.076 [0.051] (0.072) | | | 0.033 [0.070] (0.049) | -0.002 [0.047] (0.067) | | | 0.006 [0.049] (0.036) | -0.032 [0.035] (0.049) | | |
| Strong or Very Strong | | -0.112 [0.084] (0.067)* | -0.120 [0.068]* (0.097) | | | -0.125 [0.111] (0.078) | -0.135 [0.076]* (0.107) | | | -0.122 [0.072]* (0.053)** | -0.127 [0.052]** (0.073)* | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.010 [0.051] (0.045) | | | | 0.022 [0.058] (0.049) | | | | 0.016 [0.040] (0.034) | | | |
| Strong or Very Strong | | -0.021 [0.066] (0.066) | | | | -0.132 [0.087] (0.089) | | | | -0.086 [0.057] (0.058) | | |
| Interactions between Pl. 1 & Pl. 2 Tradi. Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.001 [0.019] (0.015) | 0.011 [0.015] (0.022) | | | -0.035 [0.021]* (0.015)** | -0.031 [0.015]** (0.021) | | | -0.021 [0.015] (0.011) | -0.014 [0.011] (0.015) | | |
| × Integer Measure, 1-4 | | | | | | | | | | | | |
| Strong or Very Strong | | 0.043 [0.098] (0.078) | 0.043 [0.078] (0.110) | | | -0.127 [0.128] (0.091) | -0.115 [0.088] (0.125) | | | -0.053 [0.084] (0.062) | -0.049 [0.060] (0.085) | |
| × Strong or Very Strong | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | |
| Observations | 898 | 898 | 898 | 898 | 1192 | 1192 | 1192 | 1192 | 2090 | 2090 | 2090 | |
| Respondents | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 1045 | 1045 | 1045 | |
| Mean Dep. Var. | 3.653 | 3.653 | 3.653 | 3.653 | 3.253 | 3.253 | 3.253 | 3.253 | 3.424 | 3.424 | 3.424 | |
| SD Dep. Var. | 0.657 | 0.657 | 0.657 | 0.657 | 0.968 | 0.968 | 0.968 | 0.968 | 0.871 | 0.871 | 0.871 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the JOD. All columns include fixed effects for Player 2 characteristics: sex, educational attainment, grew up in rural area, strength of belief in Christian God, and same tribe as Player 1. Odd-numbered columns include fixed effects for the equivalent Player 1 characteristics. Even-numbered columns include Player 1 fixed effects. *Appropriate to Increase the Endowment of other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9 and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11 and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * p < 0.1; ** p < 0.05; *** p < 0.01

Table B22: JOD Appropriate to Increase: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| OLS, Dep. Var.: Choice in JOD | | | | | | | | | | | | |
|--|------------------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|----------------------------------|------------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|----------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.030 [0.060] (0.051) | -0.076 [0.051] (0.072) | | | 0.033 [0.070] (0.049) | -0.002 [0.047] (0.067) | | | 0.006 [0.049] (0.036) | -0.032 [0.035] (0.049) | | |
| Strong or Very Strong | | | -0.112 [0.084] (0.067) | -0.120 [0.068]* (0.097)* | | | -0.125 [0.111] (0.078) | -0.135 [0.076]* (0.107)* | | | -0.122 [0.072]* (0.053)* | -0.127 [0.052]** (0.073)** |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.010 [0.051] (0.045) | | | | 0.022 [0.058] (0.049) | | | | 0.016 [0.040] (0.034) | | | |
| Strong or Very Strong | | | -0.021 [0.066] (0.066) | | | | -0.132 [0.087] (0.089) | | | -0.086 [0.057] (0.058) | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.001 [0.019] (0.015) | 0.011 [0.015] (0.022) | | | -0.035 [0.021]* (0.015)* | -0.031 [0.015]** (0.021)** | | | -0.021 [0.015] (0.011) | -0.014 [0.011] (0.015) | | |
| × Integer Measure, 1-4 | | | | | | | | | | | | |
| Strong or Very Strong | | | 0.043 [0.098] (0.078) | 0.043 [0.078] (0.110) | | | -0.127 [0.128] (0.091) | -0.115 [0.088] (0.125) | | | -0.053 [0.084] (0.062) | -0.049 [0.060] (0.085) |
| × Strong or Very Strong | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | Y |
| Observations | 898 | 898 | 898 | 898 | 1,192 | 1,192 | 1,192 | 1,192 | 2,090 | 2,090 | 2,090 | 2,090 |
| Respondents | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 1,045 | 1,045 | 1,045 | 1,045 |
| Mean Dep. Var. | 3.653 | 3.653 | 3.653 | 3.653 | 3.253 | 3.253 | 3.253 | 3.253 | 3.424 | 3.424 | 3.424 | 3.424 |
| SD Dep. Var. | 0.657 | 0.657 | 0.657 | 0.657 | 0.968 | 0.968 | 0.968 | 0.968 | 0.871 | 0.871 | 0.871 | 0.871 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the JOD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Increase the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B23: JOD Appropriate to do Nothing: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| OLS, Dep. Var.: Choice in JOD | | | | | | | | | | | | |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|------------------------------|------------------------------|--------------------------------|----------------------------------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.015 [0.070] (0.052) | 0.009 [0.047] (0.067) | | | 0.036 [0.046] (0.038) | 0.041 [0.038] (0.054) | | | 0.031 [0.039] (0.031) | 0.030 [0.030] (0.042) | | |
| Strong or Very Strong | | | 0.045 [0.096] (0.062) | 0.053 [0.061] (0.086) | | | 0.059 [0.073] (0.058) | 0.061 [0.058] (0.082) | | | 0.057 [0.059] (0.042) | 0.059 [0.042] (0.059) |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.060 [0.058] (0.049) | | | | 0.022 [0.041] (0.037) | | | | 0.046 [0.034] (0.030) | | | |
| Strong or Very Strong | | | 0.091 [0.081] (0.083) | | | 0.024 [0.064] (0.065) | | | 0.070 [0.050] (0.051) | | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.006 [0.021] (0.015) | -0.002 [0.013] (0.019) | | | -0.016 [0.015] (0.012) | -0.019 [0.012] (0.017) | | | -0.013 [0.012] (0.009) | -0.013 [0.009] (0.013) | | |
| × Integer Measure, 1-4 | | | | | | | | | | | | |
| Strong or Very Strong | | | -0.041 [0.109] (0.067) | -0.054 [0.066] (0.093) | | | -0.128 [0.086] (0.067) | -0.133 [0.067]** (0.095)** | | | -0.097 [0.068] (0.048)** | -0.103 [0.048]** (0.067)** |
| × Strong or Very Strong | | | | | | | | | | | | |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | |
| Observations | 898 | 898 | 898 | 898 | 1,192 | 1,192 | 1,192 | 1,192 | 2,090 | 2,090 | 2,090 | |
| Respondents | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 1,045 | 1,045 | 1,045 | |
| Mean Dep. Var. | 3.385 | 3.385 | 3.385 | 3.385 | 3.608 | 3.608 | 3.608 | 3.608 | 3.512 | 3.512 | 3.512 | |
| SD Dep. Var. | 0.696 | 0.696 | 0.696 | 0.696 | 0.680 | 0.680 | 0.680 | 0.680 | 0.695 | 0.695 | 0.695 | |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the JOD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to do Nothing to the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B24: JOD Appropriate to Decrease: Interaction Between Player 1's Traditional Beliefs and Player 2's Traditional Beliefs

| OLS, Dep. Var.: Choice in JOD | | | | | | | | | | | | |
|--|-------------------------------|---------------------------------|---------------------------------|---------|------------------------------|-----------------------------|-------------------------------|---------|-----------------------------|---------------------------------|-----------------------------------|---------|
| | Urban Sample | | | | Rural Sample | | | | Both Samples | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.086 [0.049]* (0.042)* | 0.102 [0.043]** (0.061)** | | | 0.010 [0.056] (0.047) | 0.023 [0.051] (0.073) | | | 0.036 [0.039] (0.033) | 0.054 [0.035] (0.050) | | |
| Strong or Very Strong | | 0.131 [0.071]* (0.056)* | 0.133 [0.057]** (0.081)** | | | 0.136 [0.097] (0.077) | 0.142 [0.078]* (0.110)* | | | 0.133 [0.062]** (0.050)** | 0.137 [0.050]*** (0.070)*** | |
| Player 1's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | 0.039 [0.036] (0.033) | | | | -0.009 [0.048] (0.044) | | | | 0.005 [0.032] (0.029) | | | |
| Strong or Very Strong | | 0.016 [0.048] (0.047) | | | | 0.059 [0.075] (0.075) | | | 0.032 [0.047] (0.047) | | | |
| Interactions between Player 1's & Player 2's Traditional Beliefs: | | | | | | | | | | | | |
| Integer Measure, 1-4 | -0.015 [0.015] | -0.017 [0.013] | | | 0.028 [0.018] | 0.026 [0.016] | | | 0.011 [0.012] | 0.008 [0.011] | | |
| × Integer Measure, 1-4 | | | (0.013) | (0.019) | | | (0.015) | (0.022) | | | (0.010) | |
| Strong or Very Strong | | -0.043 [0.083] | -0.042 [0.066] | | | 0.126 [0.113] | 0.128 [0.091] | | | 0.055 [0.073] | 0.056 [0.058] | |
| × Strong or Very Strong | | | (0.066) | (0.094) | | | (0.091) | (0.128) | | | (0.059) | (0.083) |
| Player 1 FE | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y |
| Sample FE | N | N | N | N | N | N | N | Y | Y | Y | Y | Y |
| Observations | 898 | 898 | 898 | 898 | 1,192 | 1,192 | 1,192 | 1,192 | 2,090 | 2,090 | 2,090 | 2,090 |
| Respondents | 449 | 449 | 449 | 449 | 596 | 596 | 596 | 596 | 1,045 | 1,045 | 1,045 | 1,045 |
| Mean Dep. Var. | 1.239 | 1.239 | 1.239 | 1.239 | 1.538 | 1.538 | 1.538 | 1.538 | 1.410 | 1.410 | 1.410 | 1.410 |
| SD Dep. Var. | 0.556 | 0.556 | 0.556 | 0.556 | 0.886 | 0.886 | 0.886 | 0.886 | 0.776 | 0.776 | 0.776 | 0.776 |

Notes: Robust standard errors in []. Standard errors clustered at the individual level in (). The data are stacked so that there are two observations per respondent for the two rounds of the JOD. All columns include fixed effects for player 2 characteristics: gender, educational attainment, grew up in a rural area, strength of belief in Christian God, and same tribe as player 1. Odd-numbered columns include fixed effects for the equivalent player 1 characteristics. Even-numbered columns include player 1 fixed effects. *Appropriate to Decrease the Endowment of Other Player* is a 1 to 4 variable, where (1) is very socially inappropriate, (2) is somewhat socially inappropriate, (3) is somewhat socially appropriate, and (4) is very socially appropriate. *Traditional Beliefs* is a variable from 1 to 4, where (1) is weak traditional beliefs, (2) neither weak nor strong traditional beliefs, (3) strong traditional beliefs, and (4) very strong traditional beliefs. Columns 1, 2, 5, 6, 9, and 10 present the results with traditional beliefs as a 1 to 4 variable. Columns 3, 4, 7, 8, 11, and 12 present the results with an indicator variable that equals 1 if an individual has strong or very strong traditional beliefs, where the omitted category is weak traditional beliefs or neither weak nor strong traditional beliefs. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure B10: Heterogeneity of Estimates by Player 1 Characteristics: With Player 1 Fixed Effects

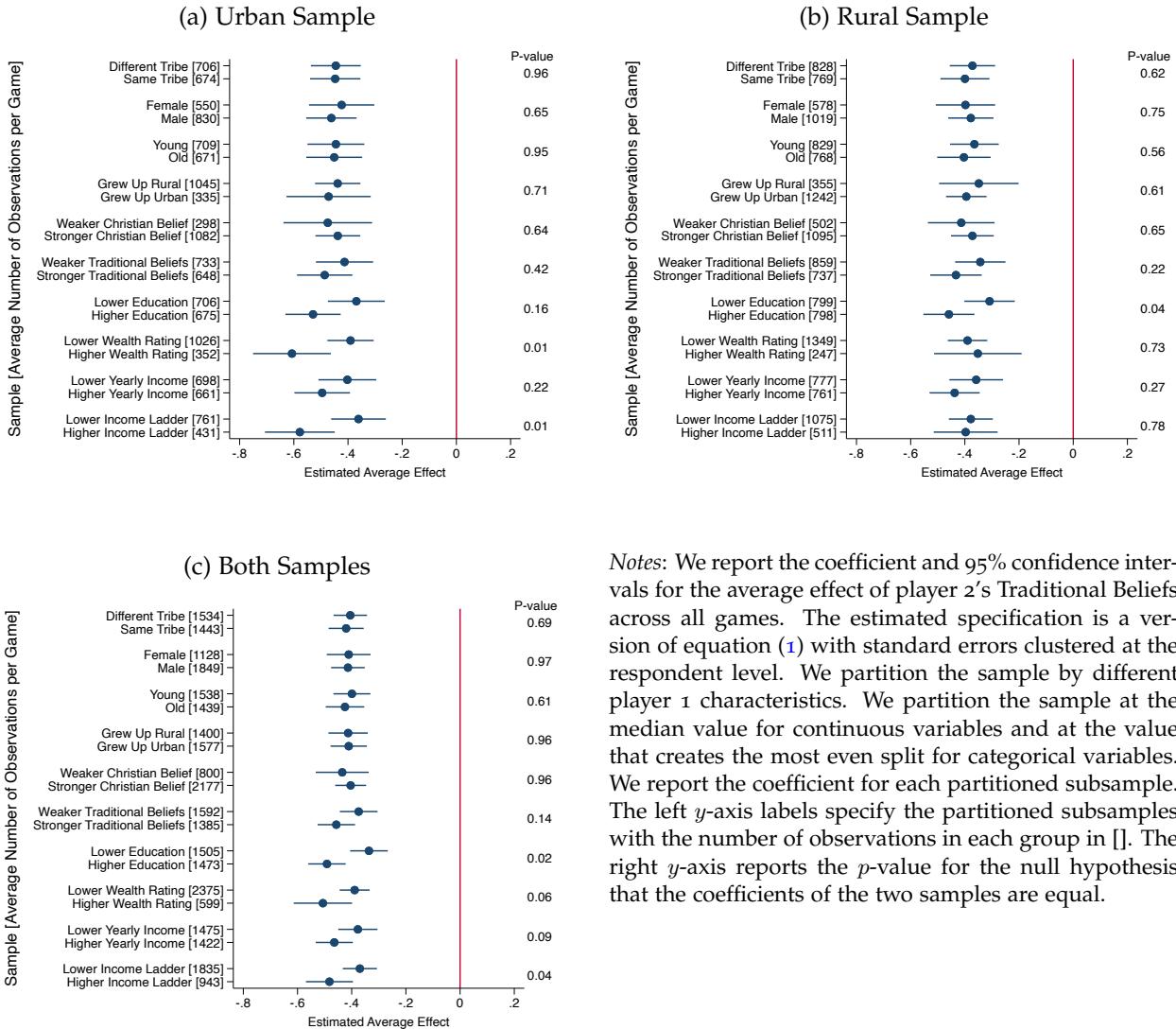
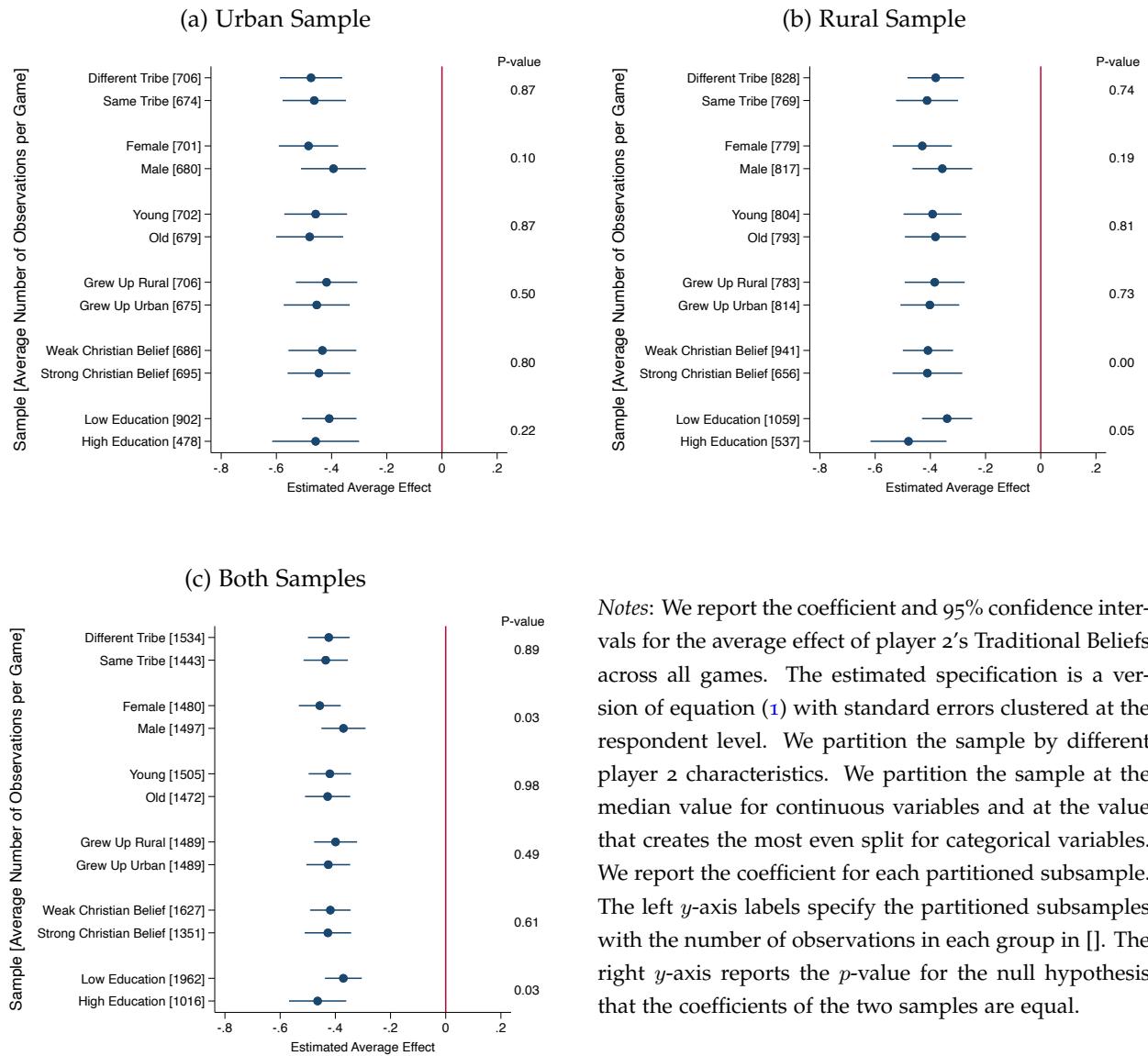
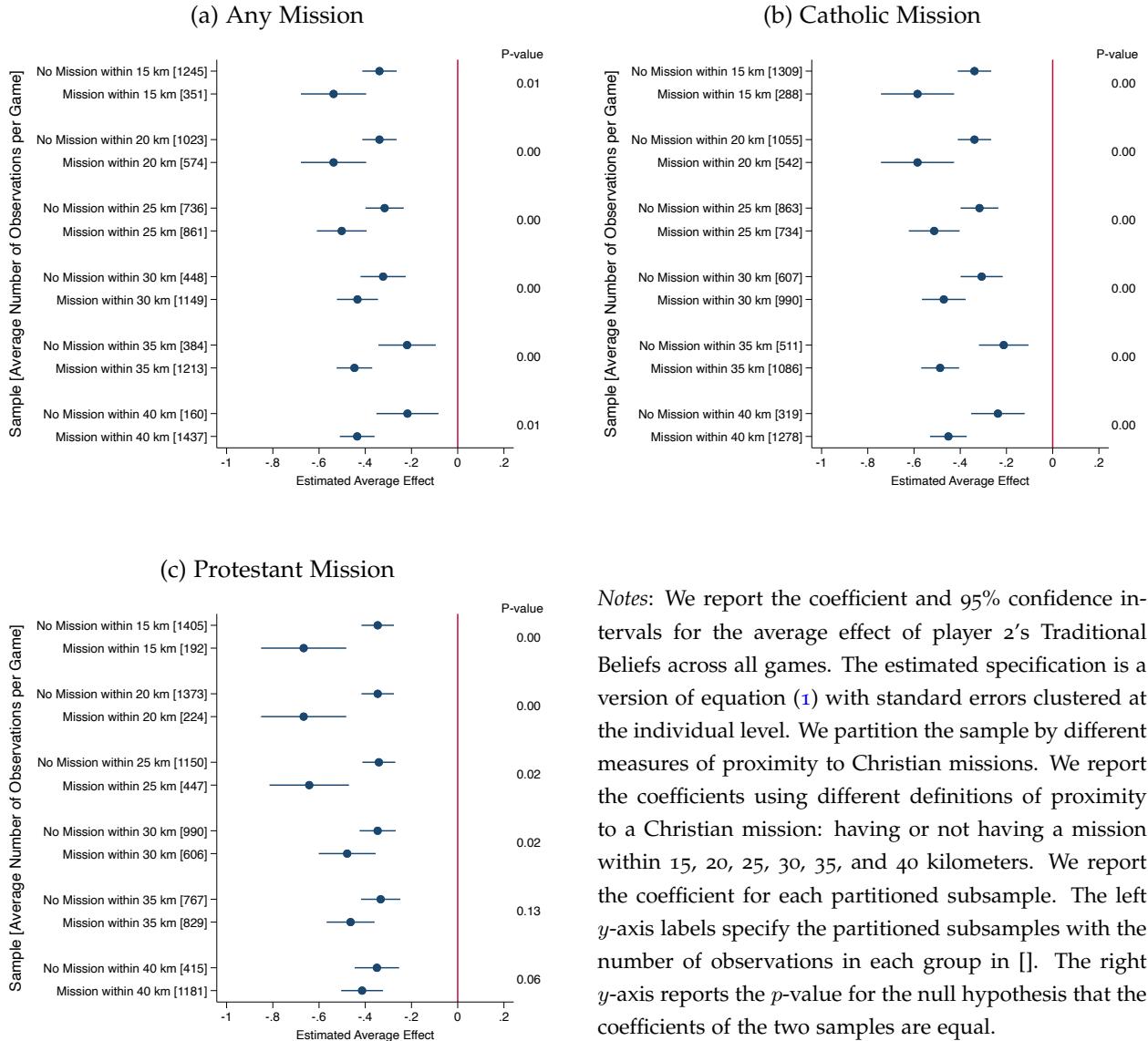


Figure B11: Heterogeneity of Estimates by Player 2 Characteristics: With Player 1 Fixed Effects



Notes: We report the coefficient and 95% confidence intervals for the average effect of player 2's Traditional Beliefs across all games. The estimated specification is a version of equation (1) with standard errors clustered at the respondent level. We partition the sample by different player 2 characteristics. We partition the sample at the median value for continuous variables and at the value that creates the most even split for categorical variables. We report the coefficient for each partitioned subsample. The left *y*-axis labels specify the partitioned subsamples with the number of observations in each group in []. The right *y*-axis reports the *p*-value for the null hypothesis that the coefficients of the two samples are equal.

Figure B12: Heterogeneity of Estimates by Player 1's Exposure to Christian Missions: With Player 1 Fixed Effects



Notes: We report the coefficient and 95% confidence intervals for the average effect of player 2's Traditional Beliefs across all games. The estimated specification is a version of equation (1) with standard errors clustered at the individual level. We partition the sample by different measures of proximity to Christian missions. We report the coefficients using different definitions of proximity to a Christian mission: having or not having a mission within 15, 20, 25, 30, 35, and 40 kilometers. We report the coefficient for each partitioned subsample. The left y -axis labels specify the partitioned subsamples with the number of observations in each group in []. The right y -axis reports the p -value for the null hypothesis that the coefficients of the two samples are equal.