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Michal Bauer
Julie Chytilová
Eric Ochieng

CERGE-EI
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Michal Bauer, Julie Chytilová and Eric Ochieng*

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Abstract

Animosity towards followers of other faiths fuels inter-group conflicts. In order to study the role of religious leaders in shaping pro-sociality within their churches, we directly elicit a rich set of in-group-out-group biases among pastors (N=200) and members of their churches (N=800) in Kenya, using controlled allocation tasks. We document remarkable heterogeneity in preferences across religious leaders, with one type treating all recipients equally independently of their religious beliefs and the second type severely discriminating against Muslims and non-religious individuals. In line with cultural transmission models, we find that: (i) pastors aim to instill their preferences in church members, (ii) church members follow leaders in an experiment that exogenously provides information about leaders' behavior, and (iii) preferences of church members are robustly positively related to the preferences of their religious leader, especially among those with greater exposure to the leader. Together, our findings suggest that differences in preferences of religious leaders spill over and create distinct social groups with contrasting moral views how to treat out-group members.

Keywords: Religious leaders, Tolerance, Parochialism, Discrimination, Social preferences, Cultural transmission

JEL Codes: C93, D74, J15, Z12

*Affiliations: Bauer: CERGE-EI (a joint workplace of Charles University in Prague and the Economics Institute of the Czech Academy of Sciences) and Institute of Economic Studies, Faculty of Social Sciences, Charles University. bauer@cerge-ei.cz; Chytilová: Institute of Economic Studies, Faculty of Social Sciences, Charles University, and CERGE-EI, chytilova@fsv.cuni.cz; Ochieng: Maseno University and IPA Kenya, eochieng@poverty-action.org.
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"We are made for goodness… We are made for togetherness… We are made to tell the world that there are no outsiders. All are welcome: black, white, red, yellow, rich, poor, educated, not educated, male, female, gay, straight, all, all, all." Archbishop Desmond Tutu

"Islam is of the Devil." "Muslims are welcome to worship with us, but we do not worship with them." Pastor Terry Jones

1. Introduction

World religions are often associated with large-scale cooperation and tolerance (Clingingsmith, Khwaja, and Kremer 2009; Henrich et al. 2010; Schulz et al. 2019; Purzycki et al. 2016; Caicedo, Dohmen, and Pondorfer 2023), but also with inter-group conflicts and violence (Huntington 1996; Purzycki and Gibson 2011). For all major religions, including Christianity, Islam, Buddhism, and Hinduism, plenty of anecdotal evidence exists documenting contrasting views about how to treat followers of other faiths and atheists, ranging from firm commitment to tolerance and helping others independently to their religious beliefs, to "parochial" views characterized by discriminatory preferences and hostility towards religious out-group members. Existing work in economics and related fields has shown that group identities may affect deep economic preferences (Akerlof and Kranton 2000; Tabellini 2008; Akerlof and Kranton 2010), creating boundaries in people's pro-sociality, and sometimes motivating them to act destructively towards religious or ethnic out-group members (Bernhard, Fischbacher, and Fehr 2006; Fershtman and Gneezy 2001; Berge et al. 2020; Bauer et al. 2018; Haushofer et al. 2023; Le Rossignol, Lowes, and Nunn 2023). While *individual-level* heterogeneity in people's attitudes to in-group vs. out-group members and their importance for social and political outcomes are well established (Kranton et al. 2020; Enke, Rodríguez-Padilla, and Zimmermann 2022a; Cappelen, Enke, and Tungodden 2023), little is known about sources of heterogeneity in religious parochialism, and in particular about the mechanisms that can give rise to systematic *community-level* differences. This is important, because when hostility against followers of other faiths is concentrated and collectively shared within coherent social groups, it may get re-enforced and can more easily lead to cleavages across religious boundaries.

In this paper, we focus on the preferences of religious leaders, motivated by recent theoretical and empirical advances in economics and cultural anthropology that point to the importance of influential individuals and social learning in formation of preferences and emergence of culturally heterogenous groups (Boyd and Richerson 2005; Bisin and Verdier 2001; Henrich 2015; Kosse et al. 2020; Chowdhury, Sutter, and Zimmermann 2022; Nunn 2022). To the best of our knowledge, this is the first study that deploys

controlled experiments to elicit economic preferences among a large sample of cultural leaders. We empirically test the idea that religious leaders vary in their pro-sociality and parochialism towards religious out-group members, and that this preference heterogeneity creates distinct types of religious communities, with some church communities being tolerant and treating religious in-group and out-group members equally[1], and other communities being parochial and consistently discriminating, even though all these communities share beliefs in the same God and follow similar rituals.

Religious leaders, such as priests, pastors, and imams, are high-status individuals who are often considered central figures who determine moral values and norms within the network of their religious communities. They act as intermediaries between God and laypeople and provide church or mosque members with moral teaching and advice. Survey evidence shows that religious leaders are considered the most trusted societal leaders in virtually all countries in Sub-Saharan Africa, the setting we study, and beyond.[2] In contrast to altruism towards co-religionists, which is unambiguously described as a desirable trait, the holy scripts of major world religions do not provide clear guidance on whether to be tolerant or hostile to religious out-group members.[3] Thus, this may be subject to the interpretations of religious leaders. Despite the potential centrality of religious leaders in affecting the composition of preferences in their communities, either by direct preference transmission or by making one's church attractive to different behavioral types, virtually nothing is known empirically about in-group out-group biases in pro-sociality (aka religious parochialism) of religious leaders.

The unique aspect of this paper is *direct* elicitation of pro-sociality among a sample of religious leaders, designed to provide a rich insight into the prevalence, nature and individual heterogeneity in

[1] In this paper we focus on the strong form of out-group bias in behavior that goes beyond differences in altruism (as studied, for example, in important work on moral universalism/particularism by Enke, Rodríguez-Padilla, and Zimmermann (2022a)), by also measuring unambiguously hostile behavior towards religious out-group members, i.e. causing financial harm without financial benefit to self or one's own group. Thus, following the work of Choi and Bowles (2007) on parochialism and inter-group conflict, we refer to individuals that are either less altruistic or more destructive towards religious out-group members than to in-group members as being "parochial" and to those individuals who do not condition their behavior as "tolerant."

[2] In Afrobarometer, 69% of respondents from Sub-Saharan Africa report that they trust religious leaders. This is a substantially higher level of trust than towards any other societal leaders, including traditional leaders (54%), the president (52%), elected government councilors (39%), or judges (51%). In addition, the high level of trust in religious leaders is not specific to Sub-Saharan Africa -- according to GfK Verein (2018), 72% of the US population reported completely trusting religious leaders.

[3] Some of the passages highlight the importance of universal pro-sociality ("Love your neighbor as yourself. There is no commandment greater than these" (The New Testament, The Great Commandment, Mark 12:31); "Humankind shall pursue the highest good for self and others, and thereby fulfills the purpose of creation in service and worship of God" (The Qur'an, 51:56)). On the other hand, other passages imply that pro-sociality should not extend to religious out-group members ("Be ye not unequally yoked together with unbelievers: for what fellowship hath righteousness with unrighteousness? And what communion hath light with darkness?" (Corinthians 6:14); "Muslims must not take the infidels as friends." (Qur'an 3:28))

religious parochialism. Our sample are Catholic priests and Protestant pastors (N=200) and members of their churches (N=800) in Western Kenya, a setting with high levels of religiosity and religious participation. We implement consequential allocation tasks designed to identify how people condition their social behavior towards religious in-group members and different types of religious out-group members. Building on Kranton et al. (2020) and Enke, Rodríguez-Padilla, and Zimmermann (2022b), we use a within-subject design that allows us to identify preferences to discriminate at the individual level.[4] We pursue the following questions. (i) Is the pro-sociality of religious leaders (RLs) tolerant or parochial, leading to discrimination against religious out-group members? (ii) What type of religious out-group members are most heavily discriminated against? (iii) Is there systematic individual heterogeneity in religious parochialism? (iv) Do religious leaders aim to change the preferences of their congregants and do people follow the behavior of RLs? (v) Does pro-sociality and parochialism of RLs affect the composition of preferences among followers, giving rise to distinct church community types with systematic differences in the preferences of both RLs and church members?

Kenya is an apt setting to address the research questions. First, religious participation and the reported importance of religion are high and are comparable to much of Sub-Saharan Africa. Second, many different churches are concentrated within a relatively narrow geographical area, allowing us to study heterogeneity in the preferences of RLs and their church members within localities that are unlikely to differ much in terms of local social norms, economic conditions, institutions, and relations between religious groups. Finally, Kenya offers a religious landscape characterized by religious plurality and diversity of different Christian denominations, similar to many countries in Sub-Saharan Africa, Latin America, and the US. Hence, we can test whether the connection between the preferences of religious leaders and church members holds across a variety of churches that differ in terms of specific religious beliefs, rituals, church size.

In each church, we invited one leader (84% agreed to participate) whom our local team[5] identified as the most actively involved in serving masses, preaching sermons, leading prayers, and providing mentorship and spiritual support to church members. The RLs in our sample are, on average, 48 years old, have served 14 years as pastors or priests. To measure their pro-social and anti-social preferences towards

[4] Controlled measures of lower altruism and trust towards out-group members relative to in-group members (based on ethnicity, religion, nationality, immigrant status, etc.) have been shown to be highly predictive of a range of relevant behaviors and political attitudes, including whether people predominantly donate to local or to more global causes, support redistribution, affirmative action, and foreign aid, or support anti-migration policies and vote for xenophobic parties (Bartoš et al. 2021; Enke, Rodríguez-Padilla, and Zimmermann 2022b, 2022a).

[5] We collaborated on this project with IPA Kenya, which has more than twenty years of experience collecting data in Western Kenya, and is in a unique position to involve difficult-to-access subject pools, due to their extensive local knowledge and contacts (Baird et al. 2016).

different recipients, RLs made a series of choices in controlled allocation tasks that combine features of the well-established Dictator game and the Joy of Destruction game. They could increase (pro-social action) or decrease (hostile action) rewards to a set of anonymous passive recipients that were similar in terms of education, income, and location of their residence but, importantly, differed in terms of their religion and denomination, which was experimentally manipulated. Thus, the design allows us to uncover whether and how RLs condition their allocations based on a recipient's religious affiliation. We compare allocations to religious in-group members (an anonymous person who shares a religious denomination with the decision-maker) with allocations to different types of religious out-group members. Taking advantage of the within-subject design, for each religious leader we can identify three types of religious biases in behavior: (i) a bias against people who are also Christians but do not share the same denomination, (ii) a bias against people with a different religion (Muslims, who represent the second largest faith in Kenya) and (iii) a bias against non-religious people.

In the first part of the paper, we describe the nature of pro-sociality among religious leaders. We find that RLs treat religious out-group members less favorably: the average allocation to recipients who are non-religious, Muslim, or from a different Christian denomination is significantly lower than the allocation to recipients from the same Christian denomination. The unfavorable behavior is particularly severe against Muslims and non-religious people: while the religious in-group members receive on average KSh 152 (of a possible KSh 200), Muslim recipients are allocated KSh 130, and the allocation further drops to KSh 114 for recipients who are non-religious. Further, we show that the reduced allocations to Muslims and non-believers reflect not only reduced pro-sociality, but also greater hostility: while 0% of RLs chose to destroy all rewards to recipients who are religious in-group members, 3% did so when the recipient was a Muslim, and 10% when the recipient was non-religious. Finally, we show that the documented preference to discriminate in the religious domain does not extend to the ethnic domain. We compare allocations to recipients of the same and of a different ethnicity than the participant and find virtually no evidence of ethnic bias in allocations among religious leaders (in contrast to church members), in line with work in cultural psychology (Henrich 2020) which suggests that, throughout history, Christian institutions have aimed to eradicate tribal-based group identity among their followers and to replace it with religion-based identity.

Importantly, the average allocations mask substantial heterogeneity in religious parochialism (resp. tolerance) across individual RLs. We identify two common preference types: Tolerant RLs, who allocate the same amounts to religious out-group and in-group members, and Parochial RLs, who allocate systematically less to religious out-group members than to religious in-group members. The measured discriminatory bias among Parochial RLs is large in magnitude and does not go hand in hand with greater

pro-sociality towards religious in-group members. Thus, we conclude that religious boundaries constrain the pro-sociality of Parochial RLs, giving rise to discriminatory preferences against religious out-group members without increasing their pro-sociality towards in-group members.

Next, we examine whether religious leaders shape preferences of church members. First, we conducted an information provision experiment with church members, in order to causally test whether church members follow RLs' behavior. Before making their last allocation, which measures generalized pro-sociality (the allocation affected the rewards to an anonymous person who lives anywhere in Kenya), a randomly selected half of the church members were informed about allocation made by one RL in the same task, while the other half did not receive such information. We find that this information indeed affects allocations, especially among those who attend church more frequently.

Second, using additional measures gathered among RLs, we show that RLs desire to be moral leaders in their communities. We asked RLs to provide recommendations about how their church members should decide in allocation tasks and elicited their beliefs about experimental allocations made by one randomly selected member of their church. RLs have relatively accurate beliefs about church members' pro-sociality, but many want to change members' behavior in the experiments. Interestingly, both Parochial and Tolerant RLs recommend allocations that closely follow their own individual decisions rather than what they believe is the preferred course of action of their church members.

Third, we estimate the association between church members' and religious leaders' preferences to study how religious biases are linked within individual churches. We find a strong, positive relationship: religious bias of church members increases with the religious bias of their RL. We find a similar relationship for the overall level of pro-sociality. The link is robust to controlling for a large set of individual and family characteristics, and economic conditions. It is also robust to controlling for various measures of religious practices, beliefs, and church characteristics, and it holds when estimated separately for traditional Christian churches and Renewal churches, suggesting that it is unlikely to arise due to differences in rituals and practices that may be associated with the RL's preferences. Further, we find that religious parochialism of both members and RLs is not related to distance to the closest mosque and the preference link is robust to controlling for this measure. Thus, it is unlikely the link would be due to a community-level response to potentially antagonistic attitudes of members of different religious groups.

We address in detail the concern that the observed link might be due to differences in social norms across localities. We show that the link is robust to controlling for the average preferences of other members of the same church, average preferences of people living in the same locality as the decision-maker, and granular location fixed effects. Next, we show that churches of both Parochial and Tolerant RLs are spread

across the region and are not concentrated in certain localities. Further, in a series of "placebo" tests, we take advantage of data on the location of individual churches and (approximate) locations of respondents' homes, which allows us to show that participants' preferences are related only to the preferences of those RLs that they are actually exposed to in their church, but not to the preferences of other RLs who serve in the same locality. In one such test, we create a "placebo" religious leader for each participant by linking participants to the closest church other than their own. We find that individual preferences are not associated with the preferences of "placebo" RLs, in contrast to the preferences of actual RLs.

Further, we explore which mechanism can best explain the relationship between preferences of leaders and members within individual churches and, thus, why similar behavioral types are concentrated in particular churches. In line with the evidence from the information provision experiment and stated desire of religious leaders to act as moral leaders described above, one mechanism is that RLs are seen as role models and directly influence perceptions of social norms and preferences within their communities. An alternative mechanism is matching since believers may choose to attend churches in which the religious leaders have similar social preferences to their own. Several patterns in the heterogeneity analysis of the observed preference link between RLs and members are consistent with the interpretation that religious leaders directly shape the social behavior of others. We find the link to be concentrated among participants who have been more exposed to their religious leader, measured by church attendance and length of affiliation with the same church. At the same time, we find less empirical support for matching based on preferences. The estimated link is similar for sub-samples of those who switched church in the past as compared to those have not. In addition, the link is also similar for those who live in areas in which it is arguably easier to switch churches and to potentially find a RL with similar preferences, as measured by the density of and distance to alternative churches.

Finally, we build on the analysis of time, risk, and social preference clusters within families (Chowdhury, Sutter, and Zimmermann 2022) and explore whether it is possible to empirically identify types of churches that differ with respect to the level of pro-sociality and parochialism of both religious leaders and individual church members. Our estimations identify two prototypical clusters of churches. One cluster (61% of churches) is relatively more tolerant and more pro-social towards all types of religious out-group members we study. The second cluster (39%) is characterized by substantially greater parochialism among RLs and church members. We find that both clusters are common across the studied region. Most observable characteristics do not predict the church type, including church size, religious practices, or whether it is located in rural or urban areas. The only exception is that traditional denominations (Catholic and Anglican) are more likely to be classified into the cluster with more parochial leaders and members than the "Pentecostal" churches.

1.1 Related literature

Our paper is related to several streams of literature. First, our findings relate to work in cultural anthropology, and more recently in economics, that have argued that many peoples' values and preferences are socially learned from others (Boyd and Richerson 2005; Henrich 2015), especially from individuals who hold prestige (Henrich and Gil-White 2001; Chudek et al. 2012). In economics, the first generation of cultural transmission models focused on the transmission of preferences within families (Bisin and Verdier 2000, 2023) and suggested that parental socialization and parental assortative matching can give rise to persistent heterogeneity in values and preferences within individual societies. The importance of families in the formation of preferences has received systematic empirical support in studies documenting a strong positive link between the economic preferences of parents and children (Dohmen et al. 2011; Kosse et al. 2020; Chowdhury, Sutter, and Zimmermann 2022). More recently, economic models of cultural transmission have started to take seriously also the role of cultural leaders (Bisin and Verdier 2023; Verdier and Zenou 2015; Hauk and Mueller 2015), assuming that cultural leaders can affect the preferences of followers and form coherent groups characterized by distinct preferences and norms. To the best of our knowledge, our paper is the first to directly test this assumption empirically, by focusing on an essential type of cultural leaders (priests and pastors) and eliciting preferences of cultural leaders and followers within the same well-defined social structure (churches).

Second, the paper contributes to literature exploring the link between religion and pro-sociality. Previous research has shown that beliefs in moralizing and monitoring supernatural agents (as in Christianity, Islam, Hinduism, and Buddhism) increase pro-social behavior toward co-religionists (Henrich et al. 2010; Purzycki et al. 2016; Caicedo, Dohmen, and Pondorfer 2023; Shariff and Nornezayan 2007; Shariff et al. 2016; Duhaime 2015). These findings can help explain variation in pro-sociality *across* religions: between atheists and religious people, and also between followers of different faiths that vary in terms of type of God (moralizing as in modern big religions vs. morally whimsical in traditional religions). Our paper focuses on a novel mechanism that has so far escaped rigorous empirical inquiry and suggests that differences in the pro-sociality of individual religious leaders matters too, and the heterogeneity in their preferences can explain community-level variation in pro-sociality even *within* individual religions. Another difference from existing work is our focus on the domain of pro-sociality that may underpin inter-group conflicts. While most of the earlier empirical work studied the effects on pro-sociality towards co-religionists, relatively less is known about whether religion fuels discrimination (Henning, Vollan, and Balafoutas 2022; Purzycki and Gibson 2011). Our results indicate that religious participation might be associated with both tolerance and religious parochialism, depending on the preference type of church leader. Furthermore, our paper is also related to existing experiments that explore how people condition

social behavior based on religion and ethnicity of the counterpart. While recent experiments have made progress in understanding the prevalence of ethnic biases in sub-Saharan Africa (e.g., Blouin and Mukand (2019); Berge et al. (2020); Bauer, Chytilová, and Miguel (2020); Haushofer et al. (2023)), there is much less work investigating how people condition social behavior based on religious identity and beliefs. Le Rossignol, Lowes, and Nunn (2023) document systematically less pro-social behavior towards people who hold traditional religious beliefs in DRC, while Vicente and Vilela (2022) study behavior of Muslims towards Christians in Mozambique.

Third, our findings speak to the literature on the persistence of religious participation observed in many parts of the world, including Sub-Saharan Africa (Iannaccone 1998; Iyer 2016). The existing work has focused on documenting the benefits of religious participation.[6] Our paper complements this work by providing direct evidence of the high social costs associated with being non-religious in a highly religious setting such as Kenya. Specifically, 20% of participants chose to destroy all earnings of recipients who were non-religious, even though there were no personal pecuniary benefits of such destructive action. Such severe stigma associated with being seen as non-religious person can help to explain stability of religious commitment observed in highly religious societies.

Finally, in terms of methods, this paper pushes the frontier in measuring economic preferences among difficult-to-access subject pools. To better understand heterogeneity in preferences and their formation, economists now commonly deploy controlled elicitation of social preferences and fairness views among disadvantaged populations (Henrich et al. 2001; Bauer et al. 2016; Haushofer et al. 2023), children and adolescents (Fehr, Bernhard, and Rockenbach 2008; Almas et al. 2010; Chowdhury, Sutter, and Zimmermann 2022) and nationally representative samples (Almas, Cappelen, and Tungodden 2020; Enke, Cappelen, and Tungodden 2023). However, the experimental toolbox has so far not been used among samples of cultural and political leaders, and the researchers have instead relied on indirect proxies of their values and preferences, using text data (Enke 2020), group attributes, or inferences based on behavioral patterns observed among followers (Alquezar-Yus 2022).[7] This paper makes two contributions. First, it demonstrates the feasibility of collecting experimental measures of preferences among one important type of cultural leaders and provides an important insight that religious leaders are not a homogenous cultural

[6] Growing scholarship in economics has documented that religious beliefs and practices affect a range of economic outcomes, such as economic growth (McCleary and Barro 2006; Campante and Yanagizawa-Drott 2015; Montero and Yang 2022), human capital (Becker and Woessmann 2009; Bryan, Choi, and Karlan 2021), insurance uptake (Auriol et al. 2020) or investments (Butinda et al. 2023).

[7] The paper is also related to empirical work documenting the importance of leaders and their characteristics more generally, mostly within firms and in politics, in determining various types of group-level outcomes (e.g., Bertrand and Schoar 2003; Alan, Corekcioglu, and Sutter 2023).

force aiming to instill a uniform ideal of pro-sociality. Second, we demonstrate that recent advances in studying preference similarity between parents and children, leading to preference clusters within families (Dohmen et al. 2011; Chowdhury, Sutter, and Zimmermann 2022), can be fruitfully used also to understand the formation of preference clusters within broader social units that are, similarly as families, characterized by moral education, socialization and frequent interactions between moral leaders and members.

The remainder of the paper proceeds as follows. Section 2 provides background information, introduces the sample of participants from 200 churches and describes the experimental design to elicit pro-sociality and religious parochialism. Section 3 presents the results focusing on the nature and heterogeneity in religious parochialism among religious leaders and church members. Section 4 studies the association between RLs' and church members' preferences and its robustness. We also use statistical methods to identify distinct clusters of churches that differ in the pro-sociality and religious parochialism of their members. In Section 5, we discuss plausible mechanisms of the preference link between leaders and members and describe additional measures, analyses, and an information provision experiment, suggesting that the link is mainly driven by the influence of leaders on the behavior of members rather than by assortativity of church members and leaders. Section 6 concludes the paper.

2. Experimental design

2.1 Background about religion in Kenya

Kenya is a highly religious country, similarly to other countries in Sub-Saharan Africa. The likelihood of reporting religion as being very important in one's own life is 87%, as compared to 89% in Sub-Saharan Africa as a whole (Panel A of Figure A1). The likelihood of attending church every week is 81% in Kenya and 79% in Sub-Saharan Africa (Panel B). Religious leaders are trusted by a vast majority of people - 73% in Kenya and 69% in Sub-Saharan Africa (Figure A2). The density of churches is high, as documented by the map in Figure A3 which displays location of churches in our sample.

Most Kenyans (86%) are Christians. The second largest faith is Islam which represents 11% of the Kenyan population. Around 2% of Kenyans belong to other religions (Hindu, traditional) and 1.6% are non-religious (2019 Kenya Population and Housing Census). In addition, there is lot of diversity within Christianity. Kenya has experienced a move away from more established forms of Christian denomination (Catholic and Anglican) to the emerging Pentecostal or Pentecostal-like churches (Alfonsi et al. 2024), which is arguably among the most important global religious dynamics of the last half century (The Pew

Forum on Religion and Public Life, 2006).[8] Pentecostal Churches are characterized by beliefs in the active and miraculous role of God and spirits in everyday life, including the power to alleviate hardship (Gifford 2016).

The proportion of people who report to be non-religious is negligible, atheists tend to be often stigmatized and struggle to coexist with other members of the society (Guardian 2023). Although Kenya is a secular state, there have been raising concerns about blurring of the line between church and state. For example, the government elected in 2022 held prayer services at the official residence of the President, and a former member of the Parliament filed a petition in court seeking to suspend the registration of an atheist society, claiming the registration violated the constitution.

There have also been numerous reports of religious violence in the last two decades, mostly between Christian and Muslim segments of the population. The Somalia-based terrorist group al-Shabaab carried out attacks in Kenya and extremists have singled out Christian civilians for execution. The group argues that the Kenyan government has marginalized and abused Muslim communities in everyday injustices (Tony Blair Institute for Global Change 2014). The Kenyan government has responded by counter-terrorism activities disproportionately affecting Muslims, including alleged extrajudicial killings, enforced disappearances and arbitrary arrests (US Deparment of State 2022).

2.2 Sample

Selection. The data was collected in 2022 in Western Kenya, the Busia county.[9] The total sample size is 1,000 individuals who attend 200 different churches. Since we are interested in the role of religious leaders in the formation of church members' preferences, the sample is, by design, structured such that it includes both religious leaders and church members. Specifically, for each of the 200 churches, there is one religious leader and four church members. To implement the study, we partnered with IPA Kenya, a leading survey

[8] Out of two billion self-identified Christians globally, around half a billion are currently members of churches that can be classified as Pentecostal or Pentecostal-like (sometimes also referred to as "Charismatic" or "Renewal" churches). The movement's growth has predominantly taken place during the last three decades, and Sub-Saharan Africa has been one of the main areas experiencing exploding growth (with Latin America being another one), although there are rising numbers in scores of countries. At the current rate of growth, some researchers predict there will soon be one billion followers (McClung 2006), replacing Catholicism as the world's largest Christian denomination in terms of followers. For more background information about Pentecostal churches and their rapid growth in Western Kenya, see Alfonsi et al. (2024).

[9] There are 47 counties in Kenya. Out of the total population of 53 million in the country, around 0.9 million live in the Busia county. The participants were sampled in all seven sub-counties of the Busia county. We have deliberately focused on relatively narrow region in order to hold constant aspects that can correlate with pro-sociality at the regional level, such as institutions or ethnic composition. This allows us to more credibly isolate the role of religious leaders in explaining heterogeneity in preferences.

company with unparalleled experience in implementing large-scale data collections in the region and approaching hard-to-access populations.

To capture the diversity of religious denominations that characterize the rich religious landscape in Kenya and many other African countries, we sampled participants from 25 Catholic churches, 25 Anglican churches, and 150 churches of other Christian denominations, mostly Pentecostal or Pentecostal-like churches. The diversity of churches in our sample allows us to test whether there are systematic differences in biases in social preferences among religious leaders across traditional Christian denominations (Catholic and Anglican) and the dynamically growing "Pentecostal" denominations.

In the first step, since there is, to the best of our knowledge, no official database of churches, we created a list of all churches in Busia county based on search and local knowledge of the IPA team members and conversations with local leaders. From this list, the specified number of churches in the three targeted categories (Catholic, Anglican, Pentecostal) was randomly selected. For each church, the first participant interviewed was the religious leader. The enumerators were instructed to select the person most actively involved in serving masses, leading prayers, and providing mentorship and spiritual support to church members. In most cases, this was a pastor or a priest and, in some cases, a catechist.[10] The willingness to participate was high: 84% of religious leaders agreed to take part. Next, for each church, four congregants were selected. The enumerators approached households through a random walk procedure and, during a roaster, enquired which church the household members attended. They invited individuals to participate until they filled the quota for having four church members for each church in the sample. From each household, they sampled one adult at maximum.

Since we are interested how religious leaders shape social norms and behavior within their churches, it was important to design the sampling strategy such that religious leaders could not affect the selection of specific church members into the survey, for example, those with similar preferences, and could not affect the answers of church members in the survey. We took several steps to achieve this. First, the enumerators did not discuss the sampling strategy with the religious leaders in any way, i.e., they did not ask them for a list of church members, or for any information related to church members' identities or addresses. During the survey, the religious leaders only learned that four church members from their church also participated in the survey, but they did not know who these people were and whether they had already

[10] A catechist takes on the role of being the main teacher of the faith in a church in the priest's absence. Historically, catechists in Africa have been of particular importance since priests have not been able to visit different parts of the large geographical parishes frequently. Even now, despite the growing number of priests, most local congregations depend on the pastoral leadership of catechists who lead the worships, attend parish meetings, collect donations, etc. Therefore, they are often recognized as pastoral leaders and have similar role as priests (Buckley, James J., Bauerschmidt, and Pomplu 2010; Ilo 2022). Catechists can be both male and female.

taken part or would take part later on. Second, in most cases, church members were interviewed on the same day or the day following the survey of their religious leader (81.9%). At the church level, all four church members were surveyed on the same day or on the day following the survey of their religious leader in 70.5% of cases. The average number of days between a church member's and their religious leader's interview is 0.92. Thus, religious leaders could not discuss the topics from the survey during a religious service and could not attempt to provide guidance on how to answer for those who might participate later on. Given the timing of the surveys and the fact that the participants did not know the identity of other participants, it is also unlikely that church members would discuss the study with others before their participation.

Characteristics of Religious Leaders. Table A1 contains summary statistics for the sample of religious leaders (N=200). On average, the religious leaders are 48 years old and served 14 years as pastors or priests. They typically provide three religious services per week, and the reported number of church members who regularly attend them is 81 (the median is 40). This indicates substantial experience in their role as religious leaders. The map in Figure A3 shows the location of the sampling region and that the churches in our sample are scattered all across the region, both in urban and rural areas.

The sample captures substantial heterogeneity in terms of individual characteristics, church characteristics, and religious practices. As noted above, by design, the sample includes churches from different Christian denominations: Catholic (12.5%), Anglican (12.5%), and "Pentecostal" churches (75%). Since in the overall Kenyan population, 20% are Catholics (2019 Kenya Population and Housing Census), we somewhat under-sample Catholics and over-sample the "Pentecostal" churches.[11] Next, there is substantial variation in the education levels of the religious leaders (35% completed primary school, 20% secondary school, and 38% tertiary education) and their age (27-70 years). There is also a diversity in using different religious practices associated with the "Pentecostal" movement in Christianity in the religious services. While a non-negligible proportion of religious leaders reported that their religious services include these practices frequently or always (34% for speaking in tongues, 17% for prophesying, 45% for prayers for divine healing, and 24% for signs of spirit), others never use them (34%, 43%, 19%, 39%, respectively). While these practices are typically adopted by religious leaders from Pentecostal churches, some Catholic and Anglican religious leaders also report that prayers for divine healing and signs of spirit are frequently a part of their religious services (20% for divine healing and 8% for signs of spirit). This diversity will allow us to test whether pro-sociality and religious biases are linked with a particular Christian denominations, religious practices or religious leader's characteristics.

[11] The data from the census do not allow us to compare the proportion of Anglicans.

Characteristics of Church Members. Table A2 provides summary statistics for the sample of church members (N=800). The level of religiosity is high - 82% of church members reported having attended the church in the week preceding the survey. In terms of other characteristics, the average age is 39 years, varying between 20 and 74 years. 61% of respondents are female. Regarding education levels, 39% completed primary school, 26% secondary school, and 15% tertiary education, compared to 50%, 25%, and 10%, respectively, according the 2019 Census data for the whole country. There is also diversity in terms of ethnicity; 57% of respondents are Luhya, 19% Teso and 24% are from other ethnic groups (mostly Luo and Kikuyu). 77% of the respondents are married and have four children on average. Most of the respondents (75%) work as farmers.

2.3 Measuring pro-social and anti-social behavior

To measure pro-social and anti-social preferences towards different recipients, we administered a controlled allocation task labeled the Help-or-Harm task (HHT) (Bartoš et al. 2021). HHT combines features of the well-established Dictator game and the Joy of Destruction game (Abbink and Sadrieh 2009). The participants were asked to increase or decrease rewards to a set of anonymous, passive recipients with different characteristics. If participants decided not to make any change, the payment to the recipient was KSh 100 (approximately USD 0.85 at the time of the data collection). The participants could change the payment to any multiple of KSh 20 between KSh 0 and KSh 200. There were no pecuniary costs for the participants when they decided to change the payment for the recipient. Thus, the choices in the allocation tasks should not be affected by considerations of own income by the respondents.

This allocation task allows us to identify the prevalence of pro-social and anti-social preferences towards the recipients. We consider allocations pro-social when subjects choose to increase the reward above KSh 100, revealing that they care positively about the recipient. We consider allocations anti-social when subjects choose to destroy a part of the recipient's payment, i.e., to reduce the payment below KSh 100. This is because such action causes financial harm with no pecuniary benefit to the respondent and thus cannot be explained by selfish motivations. Since the recipient was passive, negative reciprocity cannot motivate it either. The instructions also made it clear that the participants could not be recipients, to avoid the potential role of indirect reciprocity.

In line with an extensive literature showing the predictive power of experimental measures of pro-sociality and group biases (Bartoš et al. 2021; Enke, Rodríguez-Padilla, and Zimmermann 2022a) [12], we

[12] Bartoš et al. (2024) provide validation of the Help-or-Harm (HHT) in the Czech Republic and document intuitive correlations between allocations in HHT towards discriminated groups and numerous policy views, including voting

find that the choices in the allocation tasks are predictive of real-life behavior in the social domain. We explore the link between allocation to a recipient attending the same church as the respondent and monthly church cash donations reported by the church members in the survey. Indeed, the correlation is positive (0.11) and statistically significant (p-value = 0.002).

2.4 Identifying religious biases in preferences

Each participant made a series of choices in the allocation tasks that allows us to identify (i) the religious biases, (ii) the ethnic bias, and (iii) the level of pro-sociality.

Religious bias. To uncover whether and how participants condition their decisions based on the recipient's religious affiliation, we experimentally manipulated information about the recipient's religion and denomination. Specifically, each participant made seven decisions affecting payment to a recipient who attends a Catholic church, an Anglican church, a church of Assemblies of God (a large Pentecostal church), a small protestant church like God Harvest Church or Miracle Church, the same church as the respondent, a recipient who is a Muslim and a recipient who is non-religious. This allows us to compare behavior to an anonymous religious in-group member, measured as the allocation to an anonymous recipient who shares the same religious denomination with the respondent, with behavior to religious out-group members, measured as the average of the allocations to the following three recipients: a Christian who has a different religious denomination than the respondent, a Muslim, and a non-religious person. We refer to this difference as the overall religious bias in allocations.

Further, to get a richer picture of religious biases, in some of the analyses, we go beyond measuring the average bias in allocations and distinguish three types of religious biases, depending on the type of religious out-group member: the bias against people who are also Christians but have different denomination than the respondent, the bias against people with a different religion (Muslims) and the bias against non-religious people. The biases are defined as the difference between the allocation to a corresponding type of a religious out-group member and the allocation to a religious in-group member. Thus, negative values indicate a bias against an out-group member. The religious in-group member is, in all three cases, a recipient who is a Christian and shares the religious denomination with the respondent. When calculating "denominational bias", the religious out-group member is also a Christian but with a different denomination than the recipient. When calculating "bias against Muslims", the out-group member

for extremist political parties or support for EU exit. Enke, Rodríguez-Padilla, and Zimmermann (2022a) validate a redistributive task between different types of in-group members and a random stranger and show that people with stronger in-group bias are more prone to donate locally than globally and more likely to exhibit home bias in financial and educational investments.

is a Muslim and when calculating "bias against non-religious", the out-group member is a recipient who is non-religious. In the analysis, we compare the relative size of these three religious biases, each reflecting a different type of group boundary.

To make participants think about recipients as being very similar to each other, except for their religious attributes, they were informed that all recipients worked as farmers, had similar education, income, and other characteristics, and lived in a different village than the respondent. This design feature should mitigate possible concern that participants may associate the group attributes we manipulated with other characteristics of the recipients and make their choices based on these other characteristics.

Ethnic bias. We complement the measures of biases in social behavior in the religious domain with biases in the ethnic domain, in order to compare their relative size and test whether religious biases in preferences among RLs are domain specific. To identify the ethnic bias, the participants made two additional allocation choices. We compare choices affecting the payoff of a person of a different ethnicity than the respondent's and of a person of the same ethnicity as the respondent. Following Bauer, Chytilová, and Miguel (2020), we communicated the ethnicity of the recipient indirectly by referring to the location of one's ancestors and not directly to ethnicity. Specifically, the respondents decided about an allocation to a recipient from the respondent's ancestral home area and about an allocation to a recipient from a different Kenyan region than the respondent's ancestral home area.

Level of pro-sociality. To measure the overall level of pro-social behavior, we construct a pro-sociality index as the average from the allocations we use to define religious and ethnic biases. Specifically, it is an average of allocations to a religious in-group recipient (a person with the same Christian denomination as the respondent), three religious out-group recipients (a person with a different Christian denomination, a Muslim, a non-religious person), a person with the same ethnicity, a person with different ethnicity and a recipient attending the same church as the respondent.[13]

Within-subject design and individual-level heterogeneity. The fact that we implemented the allocation tasks using a within-subject design is a crucial feature of the experimental design. It allows us to measure religious biases not only at the aggregate level but also at the individual level. This is important for understanding whether there is heterogeneity in these preferences across participants. Specifically, we can identify different types of respondents and study what proportion of religious leaders are "Tolerant", i.e. un-biased, and what proportion are "Parochial". Importantly, this feature also allows us to study whether

[13] The allocation to a recipient attending the same church as the respondent is included in the pro-sociality index, however we do not use it when constructing measures of religious biases because the choice is likely to be affected not only by the religious affiliation/denomination of the recipient, but would be confounded by the fact that the respondent personally knows the recipient and lives in the same locality.

different types of group biases in preferences are correlated "within" an individual and how religious leaders' biases are related to church members' preferences.

At the same time, there are two potential concerns related to using the within-subject design compared to the between-subject design. First, in general, the choices made by respondents in the allocation tasks implemented earlier may affect their choices in the allocation tasks implemented later. To mitigate this concern, the order of the tasks was randomized and subjects were paid for one of their randomly selected allocation. In the regression analysis, we control for the order. Second, the fact that each respondent made multiple choices in the allocation tasks can potentially affect the size of the estimated biases if participants realized the purpose of the study.[14] To test the relevance of this issue, we take advantage of the fact that the order of the allocation tasks was randomized. In Table A3, we compare choices made as the first ones (i.e. mimicking the between-subject design) and choices made later on (as second-tenth ones). Reassuringly, the choices are very similar - the differences are not statistically significant except for two allocation tasks where the difference is significant at a 10% level. In addition, if the biases arose because of demand effects, we would not expect to observe any relationship between biases of the religious leaders and congregants, unless susceptibility to demand effects is correlated within churches. In contrast, we observe a strong relationship for all types of religious biases we define. Thus, we believe that social desirability bias and experimenter demand effects are unlikely to drive the observed biases in social preferences. In line with this interpretation, Haushofer et al. (2023) directly measure experimenter demand effects in the Dictator game among low-income individuals in Kenya, using recently developed method that actively reveals expectations of the experimenter Quidt, Haushofer, and Roth (2018), and find no evidence of demand effects.

2.5 Procedures

All surveys were implemented in a private and quiet space, in most cases at the respondents' homes, for some religious leaders in their church. The enumerators ensured nobody else was present and could not observe the participants' answers. The choices in HHT were made anonymously – before each choice, an enumerator handed a tablet to the respondent to record their decision and turned around.

In order to maximize participants' understanding of the tasks, the surveys were implemented with each participant separately, in a one-on-one fashion. When describing the tasks, the enumerators referred

[14] Specifically, if differential treatment of people with different religious affiliation or ethnicity was perceived as socially inappropriate, social desirability biases could reduce the estimated levels of the biases. The experimenter demand effect may, in principle, affect choices in the opposite direction if the participants thought the experimenters expected them to differentiate behavior.

to visual aids (an example is provided in Figure A4). Before they made choices in the allocation tasks, the respondents answered seven comprehension questions. The level of understanding was high. On average, the respondents answered 6.84 out of 7 questions correctly, and all answered at least four comprehension questions correctly.[15] The complete experimental protocol is available in the Online Appendix C.

The respondents were rewarded for participating with a fixed fee of KSh 100. The choices in the allocation tasks were payoff consequential. The participants were informed that one of their allocation decisions would be selected to be payoff-relevant. A recipient with the described characteristics got the money based on their decision.

3. Religious biases in pro-sociality: Nature and heterogeneity

This section studies the nature and heterogeneity of religious biases among religious leaders. We first explore (i) whether RLs treat religious out-group members less favorably than religious in-group members, (ii) what type of religious out-group members are treated most unfavorably, and (iii) whether the bias in behavior against religious out-group members is an outcome of lacking pro-sociality or whether it also involves a more profound antagonism and unambiguous hostility. Next, we take advantage of the within-subject design to deconstruct religious biases and study individual heterogeneity. We find substantial and robust individual differences; roughly half of RLs consistently respond to religious group boundaries by treating unfavorably religious out-group members, while the rest are tolerant and do not discriminate. We show that the individual heterogeneity in discriminatory response holds robustly across three different types of religious group boundaries (denomination, religion, non-believers).

3.1. Religious leaders

Religious out-group bias in preferences. Religious leaders systematically condition their allocations in the Help-or-Harm task on the recipient's religion and treat religious out-group members less favorably. On average, they allocate KSh 152 to a religious in-group member (recipient with the same religious denomination). In contrast, the mean allocation to religious out-group members (recipient with a different Christian denomination, recipient who is a Muslim, recipient who is non-religious) is KSh 130 (Panel A of

[15] The number of respondents who answered 4, 5, 6 and 7 comprehension questions correctly was 11, 15, 98 and 876, respectively.

Figure 1 and Column 1 of Table 1), the difference being highly statistically significant (p-value<0.001). Consequently, the religious bias against out-group members is KSh 22.

Next, we explore what type of religious out-group members are most discriminated against. We find that the unfavorable behavior is particularly severe against Muslims and non-religious people. Muslim recipients are allocated KSh 130, and the allocation drops to KSh 114 for non-religious recipients. Thus, compared to the average allocation to a recipient who shares the same religious denomination with the decision-maker, the average allocation to a Muslim is KSh 22 lower and to a non-religious recipient is KSh 38 lower (p-value<0.001 for both groups). The estimated differences in behavior are robust to various specifications in which we control for individual and family characteristics, religious practices and beliefs, church characteristics, and location fixed effects (Table A4). The observed reduced allocations to Muslims and non-believers reflect not only reduced pro-sociality but also greater hostility. We consider destroying all recipients' earnings an unambiguous manifestation of hostile behavior. We find that while 0% of RLs chose to destroy the whole reward of a religious in-group member, 3% did so when the recipient was a Muslim and 10% when the recipient was a non-religious person (Column 1 of Table A5).

The bias against people who are also Christian but belong to a different denomination (denominational bias) is substantially smaller as compared to the biases against Muslims and non-religious individuals. Recipients with other Christian denominations receive KSh 145. Thus, the allocation reduction, compared to recipients with the same religious denomination, is KSh 7 (Column 1 of Table 1). This allocation is significantly higher than amounts allocated to Muslims and non-religious individuals. Furthermore, we do not detect hostile behavior against recipients from different Christian denominations (Column 1 of Table A5). Thus, we conclude that RLs' preference bias and hostility are centered almost exclusively against individuals who do not share a belief in the same God.

To summarize, religious leaders exhibit systematic bias in social behavior against religious out-group members, especially against Muslims and non-religious individuals. Despite ongoing competition for congregants between different Christian denominations, the bias in behavior against Christians who do not share the same denomination is relatively small.[16]

[16] This conclusion is also supported by a priming experiment, designed to estimate the impact of the exogenous increase in salience of competition between religious denominations on pro-social behavior of religious leaders. The religious leaders were randomly assigned to one of the following conditions. In the *Competition_salient* condition, before making choices in the allocation tasks, they answered a set of questions designed to make competition salient, e.g. whether the number of people who attend their church regularly had been increasing or decreasing. In the *Competition_notsalient*, they also answered this set of questions, but they did so at the end of the survey. We do not find any meaningful or statistically significant differences in RLs' choices across the conditions (Table A6).

Individual heterogeneity and preference types. As a next step, we test whether the bias against religious out-group members is an outcome of a widespread and similarly-sized bias characterizing most RLs or whether there are different types of RLs, specifically those who are tolerant and treat people with different religious beliefs similarly, and those who exhibit a strong bias against religious out-group members.

We find substantial individual-level differences in preference biases among RLs (Figure A5 shows the distribution of religious bias). 38.5% of RLs do not condition their social behavior based on the recipient's religious beliefs and give the same amount to religious in-group members as to religious out-group members (average allocation to recipients with a different denomination, a different religion, and non-believers). In the following text, we refer to this group of RLs as "Tolerant RLs". 49.5% of RLs are biased against religious out-group members since they allocate a lower amount to them than to religious in-group members. We refer to this group of RLs as "Parochial RLs". The remaining 12% of RLs give more money to out-group members than in-group members.

Next, we show that biases in behavior against Muslims, non-religious people, or recipients with different denominations are driven by the same RLs rather than being specific in the sense that different RLs would discriminate against different types of religious out-group members. We find very strong positive correlations between the individual measures of denominational bias, bias against Muslims, and bias against non-religious people – all three correlations are larger than 0.5 and highly statistically significant (Panel A of Table 2). These patterns suggest that unfavorable treatment of different types of religious out-group members has a common preference underpinning characterizing an individual preference type, with one type of RLs being biased against different types of religious out-group members and the second type without such a bias.

The bias among Parochial RLs against religious out-group members is substantial (Panel A of Figure 2 and Column 1 of Table A7). Their allocation to religious out-group members (KSh 108) is by KSh 53 (33%) lower than their allocation to in-group members (KSh 162). Looking at different types of religious out-group members separately, we find that their denominational bias is KSh 25 (16%), the bias against Muslims is KSh 52 (32%), and the bias against non-believers is KSh 82 (51%). Put differently, Parochial RLs allocate less than half of the amount to non-believers (KSh 79) relative to what they allocate to religious in-group members. All these differences are highly significant statistically.

The bias in behavior among Parochial RLs does not reflect greater pro-sociality towards religious in-group members but predominantly lower pro-sociality (or stronger hostility) towards out-group members, as compared to Tolerant RLs. Specifically, there are virtually no differences in allocations to religious in-group members between Parochial RLs and Tolerant RLs. Tolerant RLs allocate KSh 158 to

religious in-group members as well as religious out-group members. In contrast, Parochial RLs allocate a similar amount as Tolerant RLs to religious in-group members, but their allocations sharply drop when making decisions affecting religious out-group members (Panel A of Figure 3). Thus, we conclude that the bias against religious out-group members is not compensated by higher pro-sociality towards the in-group members among Parochial RLs.

In Table A8, we study whether RLs' individual characteristics predict the bias against religious out-group members. Except for religious denomination, RLs' individual characteristics, including age, education, ethnicity, years of serving as RL, or church size are not predictive of the bias. RLs with traditional Christian denominations (Catholic and Anglican) exhibit a somewhat greater bias than those from Pentecostal and other Renewal churches.

To summarize, we find much individual-level heterogeneity in RLs' preferences to discriminate against religious out-group members and identify two common preference types. The first type (Tolerant RLs) does not treat unfavorably religious out-group members. The second type (Parochial RLs) harbors discriminatory bias in preferences against religious out-group members. The bias is large in magnitude, affects behavior towards various types of religious out-group members, and is not compensated by a greater pro-sociality towards religious in-group members.

Ethnic bias in preferences. Next, we study ethnic bias in social preferences and test whether the documented biases are specific to the religious domain. This analysis speaks to a long-standing hypothesis from cultural psychology (Henrich 2020) that has proposed that throughout history, Christian institutions, and the Catholic church in particular, have tried to eradicate kinship-based and ethnicity-based group identity among their followers. If that's the case, we should see little ethnic bias among RLs, in contrast to religious biases. Alternatively, the observed religious biases could reflect a more general antagonism against any type of out-groups.

We don't find evidence of ethnic bias in preferences among RLs (Panel A of Figure 1 and Column 1 of Table 1). RLs allocate KSh 146 to a recipient of the same ethnicity, while they allocate 143 to a recipient of a different ethnicity, and the difference is not statistically significant at conventional levels (p-value = 0.3). A similar picture arises when we analyze the sub-sample of Parochial RLs (Column 1 of Table A7). Finally, in Table 2, we show that religious bias is not correlated with ethnic bias (the p-value of pairwise correlations is 0.84). Hence, we conclude that although religious boundaries strongly constrain the pro-sociality of many religious leaders, this does not hold for boundaries based on shared ethnicity.

3.2 Church members

This sub-section describes the nature and heterogeneity of religious biases among church members. We find that church members are generally less pro-social than RLs, while the properties of religious biases are very similar among RLs and church members. On average, church members allocate KSh 128, while religious leaders allocate KSh 141 (Column 2 of Table 1). The difference in allocations can be seen across all allocation decisions, and it is highly statistically significant for the overall pro-sociality index (p-value < 0.0001) and most of the allocation decisions.

Religious biases. We find systematic biases in social behavior against religious out-group members (Panel B of Figures 1, Panel B of Figure 2, and Column 2 of Table 1). The allocation to religious in-group members is KSh 140, while the average allocation to religious out-group members is only KSh 110 (p-value < 0.001). Church members are most biased against non-believers who receive KSh 84 (KSh 56 difference, p-value < 0.001), then against Muslims who receive KSh 114 (KSh 26 difference, p-value < 0.001), and the smallest bias is against recipients with a different denomination who receive KSh 134 (KSh 6 difference, p-value < 0.001). The estimated differences in behavior are robust when we control for individual, family, church and RL's characteristics, religious practices, and location fixed effects (Table A9). We find that a non-negligible proportion of participants decided to act in an unambiguously hostile way, i.e., to destroy all recipient's earnings, towards non-religious recipients (24%), and to a lesser extent also towards Muslims (6%). In contrast, virtually none of the participants was hostile towards Christian recipients, both with the same and a different denomination (Column 2 of Table A5). Such profound hostility against non-religious people, among RLs as well as church members, suggests that there may be severe social costs for people to become secular in Kenyan society. Consequently, this form of religious bias in social preferences may be one of the mechanisms why secularization does not take place in many highly religious societies and why religious participation remains very high.

Individual heterogeneity and preference types. We find substantial individual heterogeneity in religious biases among church members (Figure A6), again mimicking the nature of religious biases observed among RLs. First, 63% of church members are Parochial, i.e., they allocate, on average, less to religious out-group members than to in-group members. 19% of church members are Tolerant, and the remaining 18% allocate a higher amount to out-group than to in-group members. The size of the bias among Parochial church members is substantial: they allocate only 38% and 66% of the amount given to in-group members to non-religious and Muslim recipients, respectively (Panel B of Figure 2). Second, individual biases to different types of religious out-group members are strongly positively correlated (Panel B of Table 2, all pairwise correlations are above 0.5), suggesting that they reflect a common preference underpinning. Third, Parochial and Tolerant participants allocate very similar amounts to religious in-group members, and the difference in allocations between these groups is specific for choices that impact religious out-group

members (Panel B of Figure 3 and Columns 4-6 of Table A7). Based on this, we conclude that the individual biases in social behavior among Parochial participants are primarily driven by reduced pro-sociality towards religious out-group recipients rather than by greater altruism towards in-group members, echoing the pattern observed among RLs. Finally, in Table A10, we find that members of the traditional religious denominations (Catholic and Anglican) have stronger religious biases than members of other denominations, similarly to RLs. We find no systematic relationship with gender, education, wealth, earnings, or family characteristics.

Ethnic bias in preferences. In contrast to religious leaders, we find evidence of ethnic bias in preferences among church members, in line with recent work documenting ethnic biases in Kenya (Bauer, Chytilová, and Miguel 2020; Haushofer et al. 2023). The participants allocate KSh 140 to a co-ethnic and 125 to a person with a different ethnicity (p-value < 0.0001) (Panel B of Figure 1 and Column 2 of Table 1). Interestingly, at the individual level, the ethnic bias is only weakly positively correlated with religious biases, suggesting that the ethnic and religious biases have mostly different sources.

4. Religious leaders, preference transmission, and community types

After establishing the systematic individual heterogeneity in religious biases among the RLs and the church members, we explore the association between RLs' and church members' preferences to gauge whether RLs matter and contribute to the creation of religious *community types*. We proceed as follows. First, in Section 4.1, we document that people's pro-sociality and biases are robustly positively correlated with the pro-sociality and group biases of their RL. Next, in Section 4.2, we provide several patterns consistent with the interpretation that the link between RLs' and church members' preferences is primarily driven by the influence of RLs on church members rather than by assortative matching. Further, in Section 4.3, we conduct statistical cluster analysis that implies there are two main types of church communities characterized by similar preferences of RLs and church members: the first one is relatively pro-social and tolerant, and the second one is less-prosocial and more discriminatory against religious out-group members. In Section 5, we build on these patterns in "mechanism" experiments and explore (i) whether RLs aim to be moral role models and want the church members to follow their social behavior (Section 5.1) and (ii) whether church members follow social behavior of RLs when they exogenously receive information about it (Section 5.2).

4.1 Relationship between religious leaders' and church members' preferences

In this sub-section, we examine the association between church members' and religious leaders' preferences to study how pro-sociality and religious biases are linked within individual churches and potentially transmitted from religious leaders to church members. For this purpose, we regress a church member's measure of pro-sociality (resp. religious bias) on their religious leader's measure of pro-sociality (resp. religious bias). We find a strong, positive and highly statistically significant relationship between RLs' and church members' preferences (Table 3). Higher pro-sociality of RLs is associated with higher pro-sociality of church members (Panel A). Similarly, the bias against religious out-group members among church members increases with the religious bias of their RL (Panel B). When we disaggregate the religious bias into its three components, we find a positive relationship between church members' and RLs' preferences for all three types of religious biases – denominational, against Muslims, and against non-religious (Panels C-E). The relationships are statistically significant at a 1% level. Further, we find no link for ethnic bias (Panel F), in line with the observation that RLs have no or slight ethnic bias in preferences and are predicted not to aim to transmit biases in the ethnic domain, in contrast to the religious domain (Henrich 2020).

Next, we show that the observed link between RLs' and members' preferences is robust to controlling for a large set of individual background variables, characteristics of the churches and RLs, and locality fixed effects. Figure 4 shows the estimated coefficient for RL's preference for various regression specifications, which we discuss in the following text, separately for the pro-sociality index (Panel A) and the religious bias (Panel B) as the dependent variable. In Column 1 of Table 3, we report the association without controlling for any individual characteristic. The estimated relationship holds when we add controls for a host of observable characteristics such as age, gender, education, ethnicity, occupation, and wealth (Column 2) and when we add controls for family characteristics including marital status, number of children, number of siblings, parental education and household earnings (Column 3). Interestingly, the observed link with RL's religious bias contrasts with the general lack of predictive power of individual socio-economic characteristics -- none of the background variables is a significant predictor of the bias, suggesting that education and socio-economic conditions have relatively little influence on how people treat religious out-group members (Table A11). Hence, we conclude that the close relationship between RLs' and church members' preferences is unlikely due to socio-economic characteristics determining both the preferences and exposure to a certain type of religious leader.

Second, we examine the potential role of individual religious practices, beliefs, or church characteristics that may be correlated with RLs' preferences. In Column 4, we control for religious denomination, church attendance, individual church donations, and a set of specific individual religious beliefs (e.g., being saved, belief in God granting material prosperity, etc.). We find that this set of control variables has virtually no influence on the estimated leader-member relationship in the level of pro-

sociality. The point estimate of the link with religious bias is slightly reduced but still statistically significant (p-value < 0.001), reflecting the observation that both RLs and members of traditional (Catholic and Anglican) religious denominations are more likely to have religious biases in social preferences than those in Pentecostal churches, as we have shown in Tables A8 and A10. In Table 5 (Columns 1 and 2), we estimate the relationship with RL's preferences separately for members of traditional denominations and newer Christian denominations and find that the estimated relationship is similar for both sub-samples, suggesting that the link in preferences is not specific for certain Christian denominations. Next, in Columns 5 and 6 of Table 3, we show that the leader-member link in preferences is robust to controlling for a host of characteristics of individual churches and religious leaders, such as church size, overall donation levels, RL's seniority, number of religious services per week or specific religious practices common in RL's service. This set of results suggests that the estimated link between leaders' and members' pro-sociality and biases is unlikely to be explained by differences in individual religious practices, beliefs, or characteristics of individual churches. Next, we consider the possibility that the link in religious bias might reflect the common response to potentially hostile attitudes of parishes of other religions. For example, if a closeby mosque preaches hostility towards non-believers, then Christian churches (that we study) might find tolerance one-sided. This explanation does not find support in our data. We find that religious parochialism (as well as bias in behavior towards Muslims specifically) is not related to distance to the closest mosque (Columns 2-4 of Tables A8 and A10), and the preference link is robust to controlling for the distance to the closest mosque (Column 5 of Table 3).

Third, we address in detail the possibility that the relationship may be picking differences in social norms and religious biases across localities that shape the pro-sociality of both RLs and church members rather than the influence of religious leaders. We provide several tests. Figure A7 shows that Tolerant and Parochial RLs are not concentrated in certain specific localities, as both types are spread across the studied region. Next, to test the potential influence of local social norms on both leaders and members within a narrowly defined localities, we show that the link holds when controlling for the average preference of the other three members of the same church (Column 7 of Table 3).[17] Furthermore, even when we control for ward fixed effects and thus exploit only the within-ward variation in preferences, the link is still robust (Column 8). Column 9 shows the results when we control for all the variables controlled for in Columns 2-8 in a single regression.

[17] We arrive to the same conclusion when we construct the average ward preference for the pro-sociality and religious bias measures. To do so, we calculate the average for all participants in the given ward, excluding the participant themselves and their RL. When we control for average ward preference, the positive association between RLs' and church members' preferences is robust.

Next, importantly, we show that participants' preferences are not related to the preferences of *any* RLs who live close to their home but only to the preferences of RLs they are exposed to in their church. To do so, we identify two types of "placebo" religious leaders for each participant. The "placebo" religious leaders are those who live closest to the respondent's home, excluding the respondent's actual RL. We consider "placebo" religious leaders from (i) any Christian church and (ii) a church with the same denomination as the respondent's church. Interestingly, we find that approximately half of participants do not attend the closest church and the average distance to their church is 1.1 km, while the average distance to the nearest church other than their church is 0.6 km. Thus, if the heterogeneity of preferences of religious leaders were a pure reflection of differences in local social norms, we should observe the positive correlation also for "placebo" RLs. Importantly, we find that church members' preferences are not associated with preferences of either "placebo" RLs, in contrast to preferences of actual RLs (Table 4). Furthermore, we show that controlling for preferences of "placebo" RLs has virtually no influence on the estimated association with preferences of the actual RL (Columns 4-5, 9-10), both for the level of pro-sociality (Panel A) and religious bias (Panel B).

To summarize, we document a robust positive association between religious group biases (and overall pro-sociality) of religious leaders and members of their churches and provide evidence suggesting that the relationship is unlikely to be spurious. The preference link is robust to controlling for individual and family characteristics and differences in religious beliefs and practices across individuals and churches. We also show that the link is unlikely due to differences in social norms across localities, as it is robust to detailed controlling for location fixed effects and not related to preferences of "placebo" RLs who live close to the respondents.

4.2 Discussion

There are two plausible mechanisms for how differences in personality types of religious leaders can give rise to heterogeneous community types, where church members and religious leaders have similar preferences. First, since many people consider religious leaders to be an important moral authority, RLs can directly influence perceptions of social norms and preferences within their communities, in line with the literature on transmission of preferences. An alternative plausible mechanism is assortative matching -- believers may choose to attend those churches where the religious leaders have similar social preferences to their own. In the following sub-section, we perform heterogeneity analysis and provide additional results that speak to this question.

First, we find that the positive relationship between RLs' and church members' preferences is driven by participants with higher exposure to their RL. As proxies of exposure, we use church attendance and

length of affiliation with the same church. In Columns 3 and 4 of Table 5, we find that the association is high and statistically significant for the sub-sample of participants who reported to have attended the church in the week before the interview, while we find virtually no association for the sub-sample who reported not to have attended the church. For the level of pro-sociality, the difference in estimated coefficients is significant at the 5% level. In terms of religious bias, we observe a qualitatively similar pattern, but the difference in estimated coefficients is not statistically significant at the conventional level (p-value = 0.31). In Columns 5 and 6, we estimate the link separately for the participants who reported never changing their denomination, and thus those who were arguably more exposed to their RL, and the participants who reported to have changed their religious denomination in the past. If the preference link with RLs is driven by assortative matching and people's effort to find RLs with preferences similar to their own, we would expect the association to be concentrated among participants who changed their church in the past. In contrast, if the RL's direct influence on the preferences of church members is the primary mechanism, we would expect to observe the relationship mainly among those participants who have long stayed in the same church. The preference link is present and statistically significant for "always stayers". At the same time, the point estimate is somewhat smaller (though not statistically speaking) for those who changed their church in the past.

Second, we show that the link is not concentrated among participants for whom we would expect it to be easier to attend a church where the RL has similar preferences and thus to find a closer preference match. In Columns 7-8, we exploit the fact that the density of churches and their accessibility is higher in urban areas, especially in the district capital, Busia, compared to the more remote areas. We find that the relationship with RL's preferences holds both for participants who live below-median distance to the Busia center and for those who live in more remote areas. As another and more direct proxy of the potential ease of switching churches, we use the number of churches close to the respondent's home. Specifically, we calculate the number of churches (excluding the church attended by the respondent) in the radius of 1.13 km, the average distance between the respondents' homes and the church they attend in our sample of church members. We create two such measures, one when we include all churches in the area and one when we include only churches from the same denomination located in the area. In Columns 9-12, the results are very similar for the sub-sample of respondents who live in areas with above-median and below-median density of churches of both types. Finally, we arrive at similar conclusions in Columns 13-16, in which we use a direct measure of distance to the closest church that a participant does not attend (any church as well as a church from the same denomination) and find that the positive correlation with RLs preferences is very similar for the sub-sample of those who live relatively closer to an alternative church and those who live further away from alternative churches.

To summarize, we find that the link between RLs' and church members' preferences is stronger for participants with higher exposure to their RL, and at the same time, it is not driven by participants for whom it is easier to switch churches and thus to match to a RL with similar preferences. These results are consistent with the interpretation that RLs directly influence the preferences of their church members. Further evidence and an experiment testing this mechanism is described in Section 5.

4.3 Identifying community-level preference clusters

In the previous analysis, we have shown that, at the individual level, biases against different types of religious out-group members tend to go hand in hand. At the same time, these biases are negatively related to the level of pro-sociality. In addition, we have documented that the preferences of individual church members are consistently related to the preferences of their RLs. These patterns raise the question of whether the whole church communities can be systematically categorized into distinct clusters.

We take advantage of the structure of our sample, where each church community is represented by the RL and four church members, and study this question using cluster analysis. The main aim of the cluster analysis is to find out whether there are distinct groups of churches that are similar to each other in terms of pro-sociality and religious biases of all their members (RLs and church members) but at the same time differ substantially from other groups of churches. Cluster analysis identifies such clusters without having their characteristics defined ex-ante. In the analysis, we closely follow the approach of (Chowdhury, Sutter, and Zimmermann 2022), who used this approach to study preference clusters at the family level. For each church community, the inputs into the cluster analysis are the pro-sociality index and the set of three religious biases (denominational, against Muslims, against non-religious) for all five community members. More details about the cluster analysis are provided in Online Appendix B.

We find that the optimal number of clusters is two (Figure A8), which implies that our sample can be best described by classifying the church communities into two types in terms of their pro-sociality and religious biases. Seventy-seven communities are classified into Cluster 1 and 123 into Cluster 2. Table 6 provides a comparison of the averages for pro-sociality and religious biases of RLs and church members between the two clusters. It documents that the two clusters of religious communities are very different. Church communities in Cluster 1 are less pro-social and more biased against all three types of religious out-group members than communities in Cluster 2. The differences are large in magnitude and highly statistically significant for all four measures that enter the cluster analysis, both for RLs and church members. Specifically, respondents in Cluster 1 communities have, on average, denominational bias of more than KSh 20, bias against Muslims of more than 40 KSh, and bias against non-religious people of more than KSh 60 (63 for RLs and 81 for church members). At the same time, respondents in Cluster 2

communities do not have any denominational bias, and the biases against Muslims and non-religious are much smaller (about KSh 10 and KSh 30, respectively).

Next, we study whether there are any characteristics of the church communities that predict whether the community is classified to Cluster 1 or Cluster 2 (Table A12). We find that communities from Catholic and Anglican churches are more likely to be classified to Cluster 1. Other characteristics, such as the size of the church, length of RL's career, and religious practices used by RL during the religious services, are not predictive of the classification of the church communities into clusters.

5. Mechanism experiments

In this section, we explore whether RLs act and are considered moral role models who shape the preferences of others, a mechanism that could explain the formation of preference clusters. In Section 5.1, we study whether RLs *aim* to systematically change church members' social behavior and, if yes, whether they want to transmit their own preferences to church members. In Section 5.2, we test experimentally whether church members follow when they exogenously receive information about the behavior of a religious leader.

5.1 Do religious leaders aim to transmit their preferences to others?

Additional experimental tasks. After RLs made all their allocation decisions, we elicited three additional measures designed to shed light on whether RLs want to transmit their preferences to church members. First, we elicited RL's beliefs about the behavior of church members. Specifically, the religious leaders were told that four members of their church would make decisions in the same tasks and were asked to guess the choice of one randomly selected church member in each task.[18] Second, we asked what allocation they would *recommend* to their church members.[19] These measures allow us to shed some light on whether RLs provide recommendations that they expect to be in line with members' preferences or whether they aim to systematically change people's pro-sociality and act as moral leaders. In the latter case, they could, in principle, recommend choices that maximize social welfare and are more tolerant across religious

[18] The measures of beliefs were incentivized in the following way. We calculated the sum of the differences between the guess and the true choice of a randomly selected church member in all allocation tasks. Five RLs with the best guesses, i.e. the lowest sum of differences, received additional KSH 1,000.

[19] RLs were asked to imagine that a church member came to them for an advice about how to make decisions about the payments to different recipients. Then we asked them to specify how they would like a member of their church to decide.

boundaries, or they could consider themselves role models and recommend allocations that are close to their own allocations, including unfavorable treatment of religious out-group members.

Third, we elicited the willingness of the religious leaders to pay for imposing their preference and over-ruling the preference of an individual church member. Specifically, RLs chose whether they would like their recommended behavior to be implemented, instead of the original decision of the church member, or whether they would like the church members' decision to matter. They were given KSh 20, and if they preferred the first option, they had to spend the whole amount to make their choice payoff relevant. If they decided that the church members' decision would be payoff-relevant, they could keep the KSh 20 for themselves.

Results. We start by noting that RLs have remarkably accurate beliefs about pro-sociality and religious biases of church members. They are aware that church members are generally less pro-social as compared to their own preferences (Table A13) and that many church members treat substantially less favorably religious as well as ethnic out-group members as compared to in-group members. Specifically, across all allocations, RLs expect that church members allocate on average KSh 130, while the actual average allocation is KSh 128. Relative to actual allocations, RLs expect slightly higher allocations to recipients with the same denomination, non-religious recipients, and recipients with the same ethnicity, while their remaining beliefs are very close to actual allocations.

Next, we find that RLs want to change people's social behavior and recommend allocations that closely follow their own decisions, including the unfavorable treatment of religious out-group members. In terms of the average allocation across all tasks, we find that the church leaders allocate KSh 141 and recommend church members to allocate 144, and this difference is not statistically significant (Table A14). Regarding allocations to specific recipients, the difference in RLs recommended allocation and their actual allocation is relatively small and mostly not statistically significant (Column 4). Furthermore, the recommended allocations are systematically higher relative to the expected choices of church members, on average, by KSh 14 (Column 5). Thus, for all allocations, the recommended allocation is much closer to RL's own preferred allocation than the expected allocation of church members.[20]

Further, we show that different types of RLs recommend church members the allocations that align with their own type and that a non-negligible fraction of both types of RLs are willing to pay to make sure church members act based on the recommended allocations. Specifically, Tolerant RLs recommend

[20] We arrive to a similar conclusion when performing this analysis at the individual level: the pairwise correlation between recommended allocation and RL's own preferences is higher than the pairwise correlation between RL's recommended allocation and beliefs about church members preferred allocation (Columns 6 and 7).

allocations that either do not differentiate at all (or only very little) based on the recipient's religious beliefs, while, in contrast, Parochial RLs recommend allocations that discriminate against religious out-group members (Table A15). Finally, we find that 40% of RLs are willing to pay to over-rule the preference of individual church members so that the payoff for a recipient is distributed according to their recommended choice rather than the preference of an individual church member. Interestingly, the prevalence of these paternalistic preferences is similar for Tolerant RLs (40%) and Parochial RLs (39%).

To summarize, the evidence in this section reveals that RLs aim to change church members' social behavior and make them follow their example. This pattern is similar for both types (Tolerant and Parochial) of RLs.

5.2. Do people follow the behavior of religious leaders?

In this sub-section, we study whether church members take the views of RLs seriously and follow their behavior by testing the causal effect of providing information about religious leaders' behavior before the respondent's decision. To do so, we have implemented an information provision experiment after eliciting choices in the allocation tasks described in Section 2.

Experimental design. In an additional task, the subjects were asked to allocate money to a recipient living anywhere in Kenya. The religious affiliation and ethnicity of the recipient were not specified. Before making their choice, the respondents were randomly assigned either to a *RL_Information* condition or the *Control* condition. In the *RL_Information* condition, they were informed that other people in Busia county, including religious leaders, also participated in the survey and that a (to them anonymous) religious leader decided to allocate KSh 200 to a person living somewhere in Kenya. In the *Control* condition, no such information was provided. Table A16 reports balance tests and indicates that randomization was successful.

We note several additional aspects of this experimental design. First, since the subjects received information about the behavior of an anonymous church leader from their district, not of their own RL, we suspect the estimated effect is a lower bound of the influence of RL from one's church.[21] Second, the experiment took place shortly after participants made a series of similar decisions, including allocations to a recipient living in the same region in Kenya as the respondent and to a recipient living in a different

[21] We chose not to provide information about behavior of RLs from participants' own churches because making choices of individual RLs public would prevent us from describing their choices as being completely anonymous. In such a case, RL's choice would be harder to interpret (e.g., we would not be able to separate social image concerns) and we could not directly compare RL's choices with choices of church members. In practice, we informed subjects about actual choice of one RL with whom we pre-tested understanding of the protocol and survey instruments. Members of his church did not participate in the main study.

Kenyan region (Figure A9 shows the timeline of the information provision experiment). Hence, it might be relatively hard to change participants' social behavior by the provided information because their behavior might be anchored towards allocations they made in the preceding tasks. The advantage, on the other hand, is that we can control for baseline pro-sociality to people in Kenya by controlling for allocations to recipients living in different regions in Kenya.

While the virtue of the experimental design is that it allows us to causally interpret the differences in behavior across conditions, there are two potential concerns related to estimating the influence of RLs using an information-provision experiments. First, it could be argued that participants in the *RL_Information* condition could have been reminded of God and religious norms by reference to a religious leader, and such religious prime could, in principle, increase their allocation, independent of the reported allocation of a religious leader. We believe such priming is unlikely to play an important role in this experiment since, because participants in both the *RL_Information* and the *Control* conditions were repeatedly reminded of God and their religious identity shortly before information provision (by making choices in tasks involving allocations to recipients with different religious beliefs). Second, given that participants learned that a RL allocated KSh 200, they could, in principle, conjecture that the desired behavior is to act pro-socially and thus be subject to an experimenter demand effect. Several aspects attenuate this concern. As mentioned earlier, recent evidence from Kenya documents for a variety of experimental tasks that experimenter demand effects are weak or non-existent in social dilemma tasks (Haushofer et al. 2023). Next, while the experimenter demand effect can, in principle, explain the pattern in the information provision experiment, it cannot explain the link between the preferences of church members and their RLs, which we document in Section 4.1 above. We also note that to fully explain our findings, susceptibility to demand effects in the experiment would have to be larger among more religious individuals than less religious participants.

Results. The provided information matters. We find that the average allocation of participants is by KSh 8 (p-value = 0.07) higher in the *RL_Information* than in the *Control* condition (Column 1 of Table 7). The effects are also robust when we control for an extensive set of control variables (Columns 4-6). Next, recall that we find the preference link between religious leaders and church members to be driven by more religious church members, i.e., those who answered positively to a question whether they attended church last week (Columns 3 and 4 of Table 5). Thus, we split the sample in the same way, to explore whether more religious participants are more prone to follow behavior of religious leaders also in the experiment. Indeed, the treatment effect is concentrated and statistically significant among more religious participants, while the point estimate is small and not statistically significant for the participants who reported not having attended church last week (Columns 2 and 3 of Table 7).

6. Conclusions and Discussion

The question of why religion is often associated with large-scale cooperation but also with inter-group conflicts has long been a puzzle for social scientists. In this paper, we focus on the role of the preferences of religious leaders. Using unique direct measures of pro-sociality of religious leaders and members of their churches, we first document remarkable heterogeneity in religious parochialism (resp. tolerance) across individual RLs, indicating that religious leaders are not a homogenous group that aims to instill a uniform ideal of pro-sociality. Next, we show that this heterogeneity matters. RLs' preferences are robustly positively related to the preferences of church members: religious bias of the church members increases with higher religious bias of the RL from their church. Our estimations identify two prototypical types of churches: one type is relatively more tolerant and more pro-social towards various types of religious out-group members, whereas the second type is characterized by substantially greater parochialism and lower pro-sociality among RLs and church members. Finally, to shed light on the mechanism, we show that RLs aim to instill their preferences among church members and that church members tend to follow their behavior in an experiment that exogenously provides information about RL behavior. Together, the patterns we observe support the interpretation that RLs directly shape the social behavior of church members and that heterogeneity in the level and boundedness of RLs' pro-sociality gives rise to distinct types of whole religious communities, with some being tolerant towards religious out-group members and others being parochial.

We now discuss some implications of our findings and questions that remain open, which may provide fruitful avenues for future research.

Pro-sociality and God's intermediaries. One of the key insights of this paper is that pro-sociality and religious parochialism vary greatly across church communities, and they are closely tied to the preferences of their religious leaders. While previous work has established that specific religious rituals and beliefs, such as beliefs in rewarding supernatural agents, may motivate people to be more pro-social towards co-religionists (Shariff and Nornezayan 2007; Purzycki et al. 2016), our findings from Kenya complement this work and suggest that individual authority figures within religious organizations affect the *form* of pro-sociality that members of their churches exhibit; in particular, whether their pro-sociality is universal or parochial. The observation that religious parochialism is concentrated only within certain religious communities and that preferences of religious leaders are a reliable predictor of how whole communities behave has potentially important practical implications for conflict prevention and may inform efforts

aiming to identify extremist religious communities with a higher risk of engaging in inter-religious cleavages.

Inter-group conflicts. The observed patterns of group biases in pro-sociality have implications for understanding the types of inter-group cleavages that religious leaders might intensify or attenuate. Some religious leaders harbor strong biases in their social preferences against people who do not share their religious beliefs and identity (Muslims, and non-religious individuals), but they are generally not biased against people from different ethnic groups. This indicates that their parochialism is not an outcome of general "groupish" predisposition to discriminate against any dissimilar individual, but due to systematic bias that is specific against individuals who are dissimilar in the religious domain. At face value, these patterns imply that the parochialism of Christian religious leaders in the setting we study can contribute to conflicts and hostility towards Muslims and atheists, but not to conflicts based on ethnicity.

Generalizability. A natural open question is how far the patterns we observe generalize to other settings. Although Kenya bears many similarities, in terms of religiosity and organization of individual churches, with a wide range of settings in Sub-Saharan Africa, Latin America, and beyond, a natural open question for future research is whether the main patterns hold in other settings, especially for other major world religions beyond Christianity, i.e., Hinduism, Islam, and Buddhism.

"Teachers" and preference heterogeneity. From the outset of the research agenda focusing on sources of individual heterogeneity in people's preferences and perceptions of norms, "teachers" -- broadly defined -- have long been thought to play a crucial role.[22] Guided by early economic cultural transmission models (Bisin and Verdier 2001) and models of the formation of non-cognitive skills (Heckman 2006), economists have focused on socialization from parents and school teachers. Large-scale data collection efforts within families and in schools have helped to generate important insights about the roles of parental background and preferences, and education policies in shaping economic preferences, grit, trust, competitiveness, and fairness views (Dohmen et al. 2011; Almås et al. 2015; Kosse et al. 2020; Cappelen et al. 2020; Chowdhury, Sutter, and Zimmermann 2022). In anthropology and, more recently, in economic models (Verdier and Zenou 2015, 2018), priests and other religious leaders have been thought to act as "moral teachers," who are able to shape people's fundamental preferences, values, and beliefs. However, similar empirical progress in terms of data collection among religious leaders and their followers has thus far been lacking. We hope our findings will inspire a new research agenda directly measuring preferences of religious (and

[22] H.G. Wells, in his book "The Salvaging of Civilization" puts this bluntly: "The teacher, whether mother, priest, or schoolmaster, is the real maker of history."

other cultural) leaders and testing how they shape the behavior of followers across various domains, to build an empirically grounded understanding of their role in economic development.

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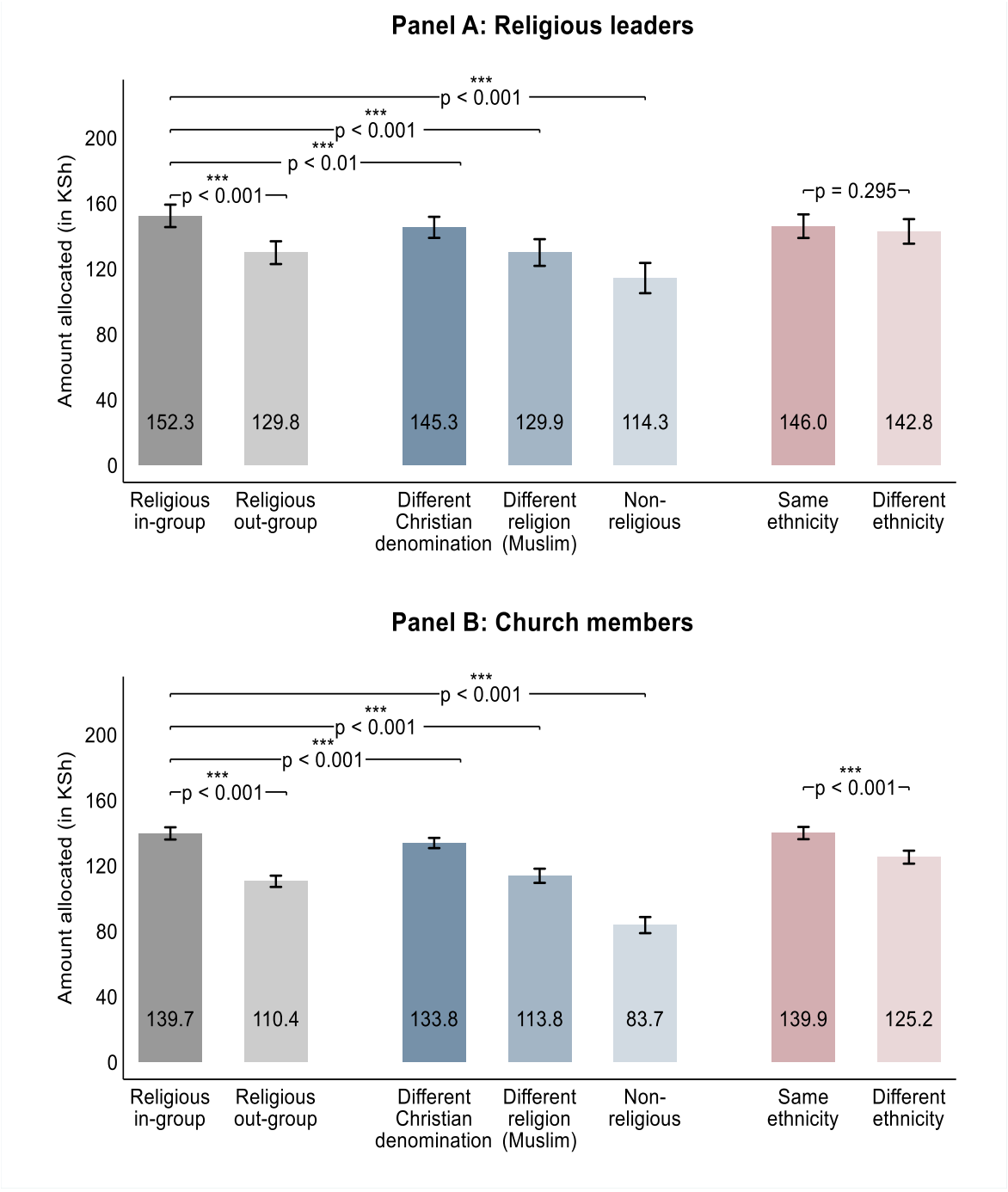
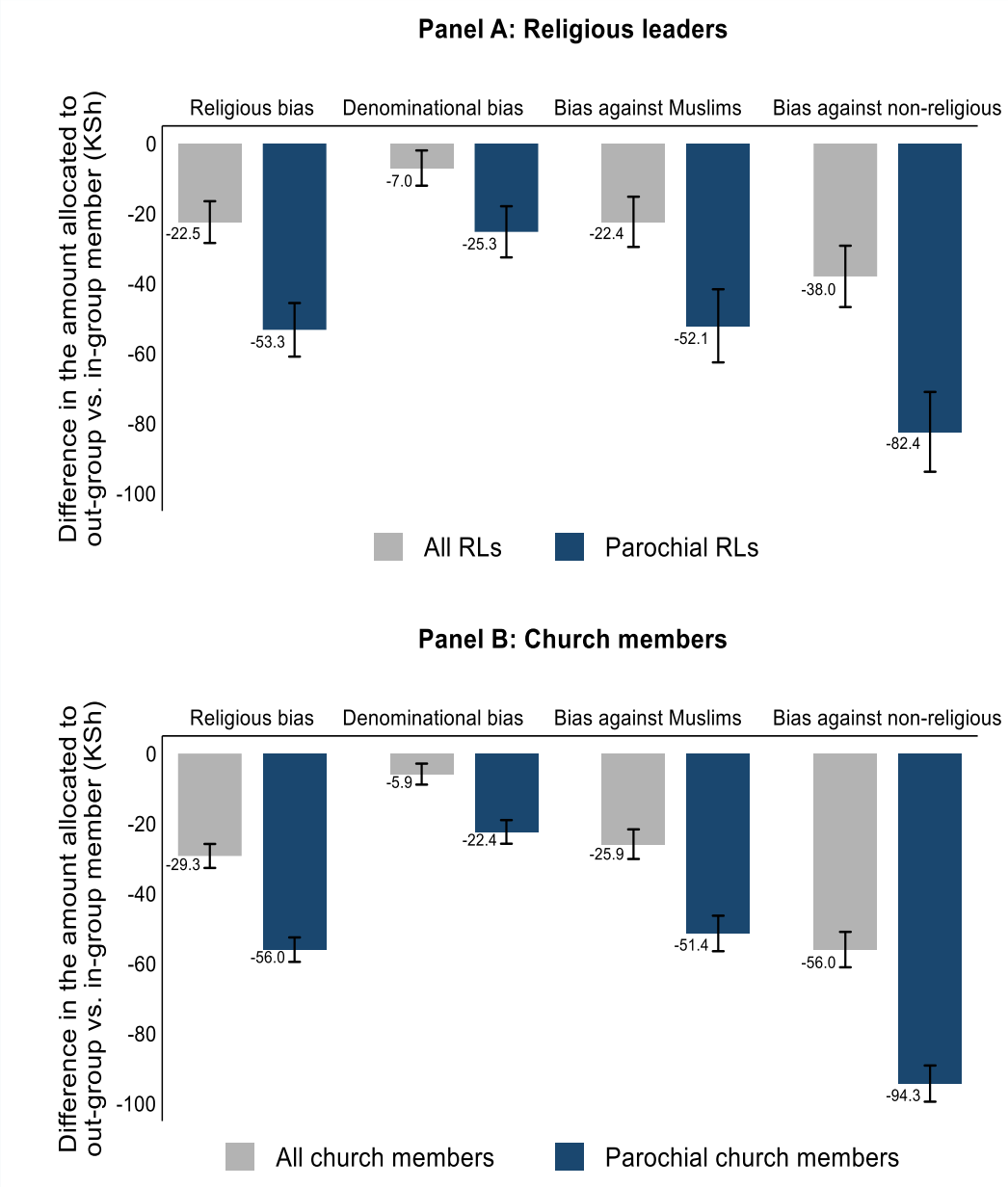
Figure 1: Average amounts allocated in HHT, based on religion and ethnicity of recipients



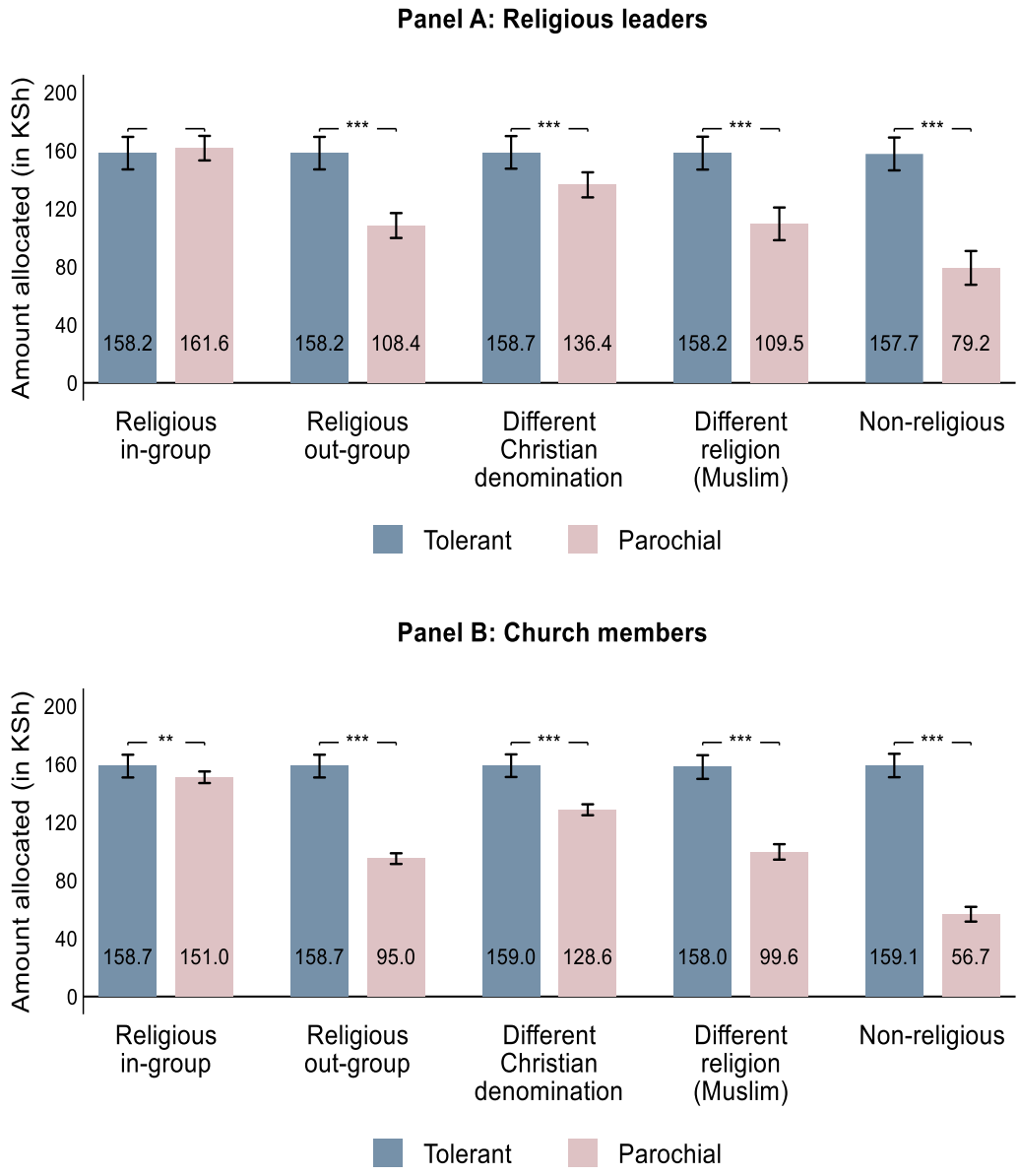
Notes: The bars display the average allocations in the Help-or-Harm task (in KSh) to recipients by their religious denomination and ethnicity. Panel A displays the results for the sample of religious leaders (N=200), Panel B for the sample of church members (N=800). The first two bars display the average allocations to the following recipients: "Religious in-group" -- a Christian with the same religious denomination as the respondent; "Religious out-group" -- average allocation to a Christian with different religious denomination than the respondents (displayed in the third bar), to a Muslim (displayed in the fourth bar) and to a non-religious person (displayed in the fifth bar). The whiskers denote the 95% confidence intervals. The stars and p-values report the results of the t-test for equality. * p<0.10; ** p<0.05; *** p<0.01.

Figure 2: Biases against out-group members, all and Parochial participants



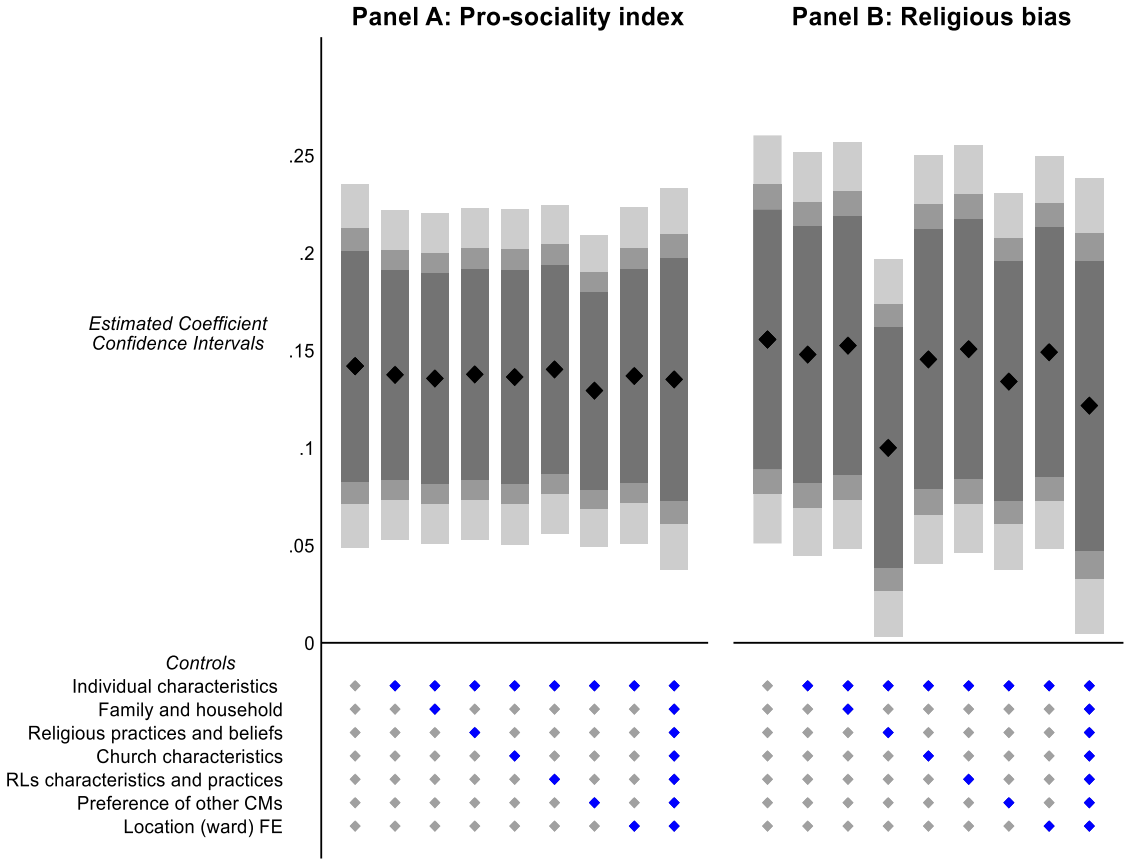
Notes: The bars display the religious bias and its three components. Panel A displays the results for the sample of religious leaders, Panel B for the sample of church members. The grey bars display the average biases for the whole sample (N=200 for RLs, N=800 for church members). The blue bars display the average biases for the sub-sample of Parochial participants (N=99 for RLs, N=501 for church members). Parochial participants are, those who allocate a lower amount to a religious out-group recipient (average allocation to a Christian with a different religious denomination, to a Muslim and a non-religious person) than to a religious in-group recipient (a Christian with the same religious denomination). "Religious bias" is the difference in allocations to a religious out-group recipient and to a religious in-group recipient. "Denominational bias" is the difference in allocations to a Christian recipient with a different denomination and to a Christian recipient with the same denomination. "Bias against Muslims" is the difference in allocations to a Muslim recipient and to a Christian recipient with the same denomination. "Bias against non-religious" is the difference in allocations to a non-religious recipient and to a Christian recipient with the same denomination. The biases have negative value when a respondent allocates less money to a religious out-group recipient than a religious in-group recipient. The whiskers denote the 95% confidence intervals.

Figure 3: Comparison of Tolerant and Parochial participants: Average amounts allocated in HHT, based on religion of recipients



Notes: The bars display average allocations in the Help-or-Harm task (in KSh) to recipients, by their religious denomination. Panel A displays the results for the sample of religious leaders, Panel B for the sample of church members. The blue bars display the average allocations for the sub-sample of Tolerant participants (N=77 for RLs, N=153 for church members). The red bars display the average allocations for the sub-sample of Parochial participants (N=99 for RLs, N=501 for church members). Tolerant participants are those who allocate the same amount to a religious out-group recipient (average allocation to a Christian with different religious denomination, to a Muslim and to a non-religious person) as to a religious in-group recipient (a Christian with the same religious denomination). Parochial participants are those who allocate lower amount to a religious out-group recipient than to a religious in-group recipient. The whiskers denote the 95% confidence intervals. The stars indicate the significance of the difference in allocations between Tolerant and Parochial religious leaders, based on the Wilcoxon rank-sum test. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Figure 4: The link between preferences of religious leaders and church members: robustness



Notes: This specification chart plots the estimated coefficient for the preference of the religious leader in regressions where the dependent variable is the respondent's preference. Panel A displays the results for the pro-sociality index, and Panel B displays the results for the religious bias. The sample of church members (N=800). Markers show the estimated coefficient. The dark, medium-dark, and light whiskers denote the 90%, 95%, and 99% confidence intervals, respectively, based on standard errors clustered at the respondent level. We report a range of OLS specifications by sequentially adding sets of control variables. Individual characteristics include respondent's age, gender, education (4 categories), ethnicity (Luhya, Teso, and others), being a farmer, and wealth index. Family and household characteristics include variables indicating whether the respondent is the household head, marital status, number of children, number of siblings, father's and mother's education, and household earnings (3 categories). Religious practices and beliefs include variables indicating religious denomination (3 categories), ever changing denomination, church attendance, church donations, speaking in tongues, signs of spirit in religious services, having experienced divine healing, having experienced a prophecy, having experienced the devil being driven out of a person, believing one is saved and agreeing that God grants material prosperity. Church characteristics (reported by the religious leader) include number of church members, cash donations and other donations raised by the church, and distance to the closest mosque in km. RL's characteristics and practices include age and gender of the religious leader, number of services per week, length of career, and frequency of speaking in tongues, prophesying, prayers for divine healing, and signs of spirit in services. The preference of other church members is the average preference of the other three members of the church attended by the respondent. We control for location (ward) fixed effects by a set of 19 dummy variables.

Table 1: Religious leaders: Average amounts allocated in HHT, based on religion and ethnicity of recipients

	Religious leaders (1)	Church members (2)	Diff. (2)-(1) [p-value] (3)
Religious in-group			
(a) Recipient: same Christian denomination	152.30	139.70	-12.60***
	(49.26)	(53.77)	[0.00]
Religious out-groups			
(b) Recipient: religious out-group member (average (c),(d),(e))	129.82	110.43	-19.39***
	(50.08)	(49.54)	[0.00]
(c) Recipient: different Christian denomination	145.27	133.82	-11.44***
	(46.18)	(44.92)	[0.00]
(d) Recipient: different religion (Muslim)	129.90	113.80	-16.10***
	(58.59)	(62.37)	[0.00]
(e) Recipient: non-religious	114.30	83.68	-30.63***
	(66.12)	(70.97)	[0.00]
Religious bias (b)-(a)	*-22.48****	*-29.27****	-6.79**
	(42.79)	*(49.41)*	[0.04]
Denominational bias (c)-(a)	*-7.03****	*-5.88****	1.16
	(36.05)	*(43.22)*	[0.87]
Bias against Muslims: (d)-(a)	*-22.40****	*-25.90****	-3.50
	(51.57)	*(60.99)*	[0.68]
Bias against non-religious (e)-(a)	*-38.00****	*-56.02****	-18.02***
	(62.83)	*(72.93)*	[0.00]
Ethnicity			
(f) Recipient: same ethnicity	146.00	139.90	-6.10
	(51.82)	(53.89)	[0.14]
(g) Recipient: different ethnicity	142.80	125.18	-17.63***
	(53.73)	(57.09)	[0.00]
Ethnic bias (g)-(f)	*-3.20*	*-14.72****	-11.53***
	(43.12)	*(61.19)*	[0.01]
Other measures			
Recipient: same church	159.30	157.07	-2.23
	(44.98)	(49.04)	[0.88]
Pro-sociality index (average allocation)	141.41	127.59	-13.82***
	(42.90)	(39.95)	[0.00]

Notes: The table reports the means of (i) the allocations in the Help-or-Harm task (in KSh) to recipients by their religious denomination and ethnicity, (ii) the religious bias and its three components, and (iii) the ethnic bias. Standard deviations are reported in parentheses. Column 1 reports the means for the sample of religious leaders (N=200), and Column 2 for the sample of church members (N=800). Column 3 reports the differences between Columns 2 and 1; in square brackets, it reports p-values of the Wilcoxon rank-sum test. The stars in Columns 1 and 2 indicate whether the religious and ethnic biases are significantly different from zero, based on the t-test. * p<0.10; ** p<0.05; *** p<0.01. "Pro-sociality index" is calculated as the average of allocations to a religious in-group recipient (a person with the same Christian denomination as the respondent), three religious out-group recipients (a person with a different Christian denomination, a Muslim, a non-religious person), a person with the same ethnicity, a person with different ethnicity and a recipient attending the same church as the respondent. "Religious bias" is the difference in allocations to a religious out-group recipient and to a religious in-group recipient. "Denominational bias" is the difference in allocations to a Christian recipient with a different denomination and to a Christian recipient with the same denomination. "Bias against Muslims" is the difference in allocations to a Muslim recipient and to a Christian recipient with the same denomination. "Bias against non-religious" is the difference in allocations to a non-religious recipient and to a Christian recipient with the same denomination. "Ethnic bias" is the difference in allocations to a recipient of a different ethnicity and to a recipient of the same ethnicity as the decision-maker. The biases have negative value when a respondent allocates less money to a religious out-group recipient than a religious in-group recipient.

Table 2: Correlations between different types of biases (within individuals)

	Denominational bias	Bias against Muslims	Bias against non-religious	Religious bias	Ethnic bias
Panel A: Religious leaders					
Religious biases					
Denominational bias	1.00				
Bias against Muslims	0.64***	1.00			
	(0.00)				
Bias against non-religious	0.60***	0.54***	1.00		
	(0.00)	(0.00)			
Religious bias	0.83***	0.85***	0.87***	1.00	
	(0.00)	(0.00)	(0.00)		
Ethnic bias	-0.01	-0.02	-0.01	-0.01	1.00
	(0.92)	(0.82)	(0.87)	(0.84)	
Panel B: Church members					
Religious biases					
Denominational bias	1.00				
Bias against Muslims	0.56***	1.00			
	(0.00)				
Bias against non-religious	0.53***	0.54***	1.00		
	(0.00)	(0.00)			
Religious bias	0.78***	0.84***	0.87***	1.00	
	(0.00)	(0.00)	(0.00)		
Ethnic bias	0.01	0.13***	0.12***	0.12***	1.00
	(0.81)	(0.00)	(0.00)	(0.00)	

Notes: The table reports pairwise correlations between different types of biases. P-values in parentheses. The definitions of the biases are described in the notes to Table 1. Panel A reports the results for the sample of religious leaders (N=200), and Panel B reports the results for the sample of church members (N=800). * p<0.10; ** p<0.05; *** p<0.01.

Table 3: The link between preferences of religious leaders and church members

	Preference of the church member								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Pro-sociality index									
Preference of the religious leader	0.14***	0.14***	0.14***	0.14***	0.14***	0.14***	0.13***	0.14***	0.14***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
Average preference of other church members							0.06		-0.05
							(0.08)		(0.09)
Observations	800	800	799	799	800	800	800	800	798
Panel B: Religious bias									
Preference of the religious leader	0.16***	0.15***	0.15***	0.10***	0.15***	0.15***	0.13***	0.15***	0.12***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Average preference of other church members							0.10		-0.13
							(0.07)		(0.09)
Observations	800	800	799	799	800	800	800	800	798
Panel C: Denominational bias									
Preference of the religious leader	0.18***	0.16***	0.17***	0.08*	0.16***	0.16***	0.12***	0.12**	0.07
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
Average preference of other church members							0.27***		0.02
							(0.07)		(0.09)
Observations	800	800	799	799	800	800	800	800	798
Panel D: Bias against Muslims									
Preference of the religious leader	0.13***	0.13***	0.14***	0.12***	0.14***	0.14***	0.12***	0.15***	0.15***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.05)
Average preference of other church members							0.12		-0.06
							(0.07)		(0.09)
Observations	800	800	799	799	800	800	800	800	798
Panel E: Bias against non-religious									
Preference of the religious leader	0.11***	0.10**	0.10***	0.06	0.09**	0.09**	0.09**	0.09**	0.07
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
Average preference of other church members							0.08		-0.10
							(0.07)		(0.08)
Observations	800	800	799	799	800	800	800	800	798
Panel F: Ethnic bias									
Preference of the religious leader	0.02	0.02	0.01	0.02	0.02	0.03	0.01	-0.01	-0.02
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.06)	(0.06)
Average preference of other church members							0.16**		0.01
							(0.08)		(0.08)
Observations	800	800	799	799	800	800	800	800	798
Control variables									
Individual characteristics (age, gender, education, ethnicity, farmer, wealth)		✓	✓	✓	✓	✓	✓	✓	✓
Family and household (hh head, married, children, siblings, parental education, earnings)			✓						✓
Religious practices and beliefs (religious denomination, ever changed religion, church attendance, donations, speaks in tongues,…)				✓					✓
Church characteristics (size, donations, distance to mosque)					✓				✓
Religious leader's characteristics and practices						✓			✓
Preference of other church members							✓		✓
Location (ward) fixed effects								✓	✓
Order of choices	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of church members (N=800). The table reports the estimated coefficients for the preference of the religious leader in regressions where the dependent variable is the respondent's preference. In each regression, the religious leader's and respondent's preferences are the same type. Panel A displays the results for the pro-sociality index, Panels B-F for the religious bias, its' three components, and the ethnic bias, respectively. The definitions of the pro-sociality index and the biases are described in the notes to Table 1. In Column 1, we control for the order of choices in the HHT task (30 dummy variables). In Columns 2-8, we add sets of controls as indicated in the bottom part of the table. In Column 9, we include all the controls in a single regression. Individual characteristics include respondent's age, gender, education (4 categories), ethnicity (Luhya, Teso, and others), being a farmer, and wealth index. Family and household characteristics include variables indicating whether the respondent is the household head, marital status, number of children, number of siblings, father's and mother's education, and household earnings (3 categories). Religious practices and beliefs include

variables indicating religious denomination (3 categories), ever changing denomination, church attendance, church donations, speaking in tongues, signs of spirit in religious services, having experienced divine healing, having experienced a prophecy, having experienced the devil being driven out of a person, believing one is saved and agreeing that God grants material prosperity. Church characteristics (reported by the religious leader) include number of church members, cash donations and other donations raised by the church, and distance to the closest mosque in km. RL's characteristics and practices include age and gender of RL, number of services per week, length of career, and frequency of including speaking in tongues, prophesying, prayers for divine healing and signs of spirit in services. The preference of other church members is the average preference of the other three members of the church attended by the respondent. Location (ward) fixed effects include a set of 19 dummy variables. T-test (two-sided) p-values reported as * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table 4: The link between preferences of "placebo" religious leaders and church members

	Preference of church member									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Pro-sociality index										
Preference of own religious leader	0.14***			0.14***	0.14***	0.14***			0.14***	0.14***
	(0.03)			(0.03)	(0.03)	(0.04)			(0.04)	(0.04)
Preference of RL from closest different church		-0.02		-0.04			-0.06		-0.07*	
		(0.03)		(0.03)			(0.04)		(0.04)	
Preference of RL from closest different church with the same denomination			-0.03		-0.04			-0.06*		-0.07*
			(0.03)		(0.03)			(0.03)		(0.03)
Observations	800	800	800	800	800	798	798	798	798	798
Panel B: Religious bias										
Preference of own religious leader	0.15***			0.15***	0.15***	0.12**			0.12***	0.12**
	(0.04)			(0.04)	(0.04)	(0.05)			(0.05)	(0.05)
Preference of RL from closest different church		0.00		-0.00			0.03		0.04	
		(0.04)		(0.04)			(0.05)		(0.05)	
Preference of RL from closest different church with the same denomination			0.01		-0.01			0.00		0.01
			(0.04)		(0.04)			(0.05)		(0.05)
Observations	800	800	800	800	800	798	798	798	798	798
Control variables										
Individual characteristics (age, gender, education, ethnicity, farmer, wealth)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Family and household (hh head, married, children, siblings, parental education)						✓	✓	✓	✓	✓
Religious practices and beliefs (religious denomination, ever changed religion, church attendance, donations, speaks in tongues,…)						✓	✓	✓	✓	✓
Church characteristics (size, donations, distance to mosque)						✓	✓	✓	✓	✓
Religious leader's characteristics and practices						✓	✓	✓	✓	✓
Preference of other church members						✓	✓	✓	✓	✓
Location (ward) fixed effects						✓	✓	✓	✓	✓
Order of choices	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of church members (N=800). The table reports the estimated coefficients for the preference of the religious leader (own or "placebo") in regressions where the dependent variable is respondent's preference. In each regression, the religious leader's preference and respondent's preference is of the same type. Panel A displays the results for the pro-sociality index, Panel B for the religious bias. The definitions of the pro-sociality index and of the religious bias are described in the notes to Table 1. In Columns 1 and 6, the explanatory variable of interest is the preference of the religious leader from the church attended by the respondent ("own" religious leader). In Columns 2 and 7, the explanatory variable of interest is the preference of a "placebo" religious leader from the church closest to respondent's home (excluding respondent's own church if that is the closest one). In Columns 3 and 7, the explanatory variable of interest is the preference of a "placebo" religious leader from the closest church with the same denomination as respondent's church (excluding respondent's own church if that is the closest one). To identify churches of the same denomination, we distinguish three types of religious denominations: Catholic, Anglican and other. In Columns 4, 5, 9 and 10, we control for the preference of "own" religious leader and of a "placebo" religious leader in a single regression. In Columns 1-5, we control for the order of choices in the HHT task and for a set of individual characteristics as in Column 2 of Table 3. In Columns 6-10, we control for a full set of controls as in Column 9 of Table 3. T-test (two-sided) p-values reported as * p<0.10; ** p<0.05; *** p<0.01.

Table 5: The link between preferences of religious leaders and church members, heterogeneity analysis

	Denomination		Exposure to religious leader				Ease of switching churches									
	Catholic or Anglican		Attended church last week		Always the same denomination		Close to Busia town		High density of churches		High density of churches with same denomination		Close to another church		Close to another church with same denomination	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Pro-sociality index																
Preference of the religious leader	0.10	0.14***	0.17***	0.01	0.21***	0.10**	0.17***	0.11**	0.13***	0.15***	0.14***	0.16***	0.11**	0.16***	0.14***	0.14***
	(0.07)	(0.04)	(0.04)	(0.09)	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.06)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
	[0.80]		[0.05]**		[0.14]		[0.29]		[0.74]		[0.84]		[0.63]		[0.92]	
Observations	200	600	655	145	378	422	400	400	514	286	478	322	401	399	400	400
Panel B: Religious bias																
Preference of the religious leader	0.15*	0.11**	0.16***	0.04	0.18***	0.12*	0.11**	0.19***	0.18***	0.12**	0.13*	0.18***	0.14**	0.15**	0.14**	0.18***
	(0.07)	(0.05)	(0.04)	(0.10)	(0.05)	(0.06)	(0.05)	(0.07)	(0.06)	(0.05)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
	[0.98]		[0.31]		[0.21]		[0.27]		[0.46]		[0.96]		[0.99]		[0.85]	
Observations	200	600	655	145	378	422	400	400	514	286	478	322	401	399	400	400

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The table reports the estimated coefficients for the preference of the religious leader in regressions where the dependent variable is respondent's preference. Panel A displays the results for the pro-sociality index, Panel B for the religious bias. The definitions of the pro-sociality index and the religious bias are described in the notes to Table 1. The table reports the results of heterogeneity analysis, where the sample of church members (N=800) is split into sub-samples based on the following variables. In Columns 1-2, we split the sample based on religious denomination. Column 1 shows the results for the sub-sample of respondents who are Catholic or Anglican, Column 2 for the respondents with any other religious denomination. In Columns 3-4, we split the sample based on respondents' answer to the question "Did you attend church last week?". In Columns 5-6, we split the sample based on respondents' answer to the question "Have you ever changed your religion or denomination?" In Columns 7-8, we report the results for those with below-median and above-median distance between their home and the center of Busia town, respectively. The median distance is 9.64 km. In Columns 9-10, we report the results for those with above-median (3 or more) and below-median (0-2) number of churches (excluding their own church) located within a radius of 1.13 km from their home, respectively. 1.13 km is the average distance between respondents' home and the church they attend in our sample of church members. In Columns 11-12, we report the results for those with above-median (2 or more) and below-median (0-1) number of churches with the same denomination as the church they attend located within a radius of 1.13 km from their home, respectively. To identify churches of the same denomination, we distinguish three types of religious denominations: Catholic, Anglican and other. In Columns 13-14, we report the results for those with below-median and above-median distance between respondent's home and the closest church (excluding their own church), respectively. The median distance is 0.40 km. In Columns 15-16, we report the results for those with below-median and above-median distance between respondent's home and the closest church with the same denomination (excluding their own church), respectively. The median distance is 0.64 km. In all Columns, we control for the order of choices in the HHT task and for a set of individual characteristics (respondent's age, gender, education (4 categories), ethnicity (Luhya, Teso and other), being farmer and wealth index). T-test (two-sided) p-values reported as * p<0.10; ** p<0.05; *** p<0.01. The square brackets report p-values from separate regressions for a coefficient for an interaction term between the preference of the religious leader and a dummy variable based on which we split the sample into two sub-samples.

Table 6: Comparison of pro-sociality and parochialism across Cluster 1 and Cluster 2

	Cluster 1 (1)	Cluster 2 (2)	Diff. (1)-(2) (3)	p-value (4)
Inputs into the cluster analysis				
Prosociality index (average allocation)				
Religious leaders	128.95	149.21	-20.25***	0.00
Church members	122.99	130.47	-7.48**	0.04
Denominational bias				
Religious leaders	-21.47	2.01	-23.48***	0.00
Church members	-22.49	4.53	-27.01***	0.00
Bias against Muslims				
Religious leaders	-42.08	-10.08	-32.00***	0.00
Church members	-48.90	-11.50	-37.39***	0.00
Bias against non-religious				
Religious leaders	-62.86	-22.44	-40.42***	0.00
Church members	-80.91	-40.45	-40.46***	0.00
Other measures of biases				
Religious bias				
Religious leaders	-42.14	-10.17	-31.96***	0.00
Church members	-50.76	-15.81	-34.96***	0.00
Ethnic bias				
Religious leaders	-4.42	-2.44	-1.98	0.99
Church members	-19.29	-11.87	-7.42	0.13
Allocations				
Recipient: same Christian denomination				
Religious leaders	153.77	151.38	2.38	0.86
Church members	150.58	132.89	17.70***	0.00
Recipient: religious out-group member				
Religious leaders	111.63	141.21	-29.58***	0.00
Church members	99.82	117.08	-17.26***	0.00
Recipient: different Christian denomination				
Religious leaders	132.29	153.39	-21.09***	0.00
Church members	128.10	137.41	-9.32***	0.01
Recipient: different religion (Muslim)				
Religious leaders	111.69	141.30	-29.61***	0.00
Church members	101.69	121.38	-19.69***	0.00
Recipient: non-religious				
Religious leaders	90.91	128.94	-38.03***	0.00
Church members	69.68	92.44	-22.76***	0.00
Recipient: same ethnicity				
Religious leaders	131.69	154.96	-23.27***	0.00
Church members	136.62	141.95	-5.33	0.17
Recipient: different ethnicity				
Religious leaders	127.27	152.52	-25.25***	0.00
Church members	117.34	130.08	-12.74***	0.00
Recipient: same church				
Religious leaders	155.06	161.95	-6.89	0.52
Church members	156.95	157.15	-0.21	0.83
N religious leaders	77	123		
N church members	308	492		

Notes: The table reports the means of (i) the pro-sociality index and three components of the religious bias (inputs to the cluster analysis), (ii) the religious bias and the ethnic bias, and (iii) the allocations in the Help-or-Harm task (in KSh) to recipients, by their religious denomination and ethnicity. The definitions of the pro-sociality index and the biases are described in the notes to Table 1. For each measure, means are reported separately for religious leaders and church members. Column 1 reports the means for the sub-sample of participants assigned in the cluster analysis to Cluster 1 (religious leaders N=77, church members N=308), and Column 2 for the sub-sample assigned to Cluster 2 (religious leaders N=123, church members N=492). Column 3 reports the differences between Columns 1 and 2; the stars indicate the significance of the differences. * p<0.10; ** p<0.05; *** p<0.01. Column 4 reports the p-values of the Wilcoxon rank-sum test.

Table 7: Church members: Effect of information about choice of a religious leader on allocation to a recipient from Kenya

Dependent variable	Allocation to a person from Kenya					
Sample	All	Attended church last week	Did not attend church last week	All	Attended church last week	Did not attend church last week
	(1)	(2)	(3)	(4)	(5)	(6)
RL_Information	8.17**	9.02**	2.20	8.86**	9.79**	-0.94
	(3.98)	(4.29)	(10.28)	(3.93)	(4.36)	(12.71)
Observations	800	655	145	798	653	145
Control mean	130.73	131.82	125.71	130.73	131.82	125.71
Control variables						
Baseline pro-sociality	✓	✓	✓	✓	✓	✓
Individual characteristics (age, gender, education, ethnicity, farmer, wealth)	✓	✓	✓	✓	✓	✓
Family and household (hh head, married, children, siblings, parental education)				✓	✓	✓
Religious practices and beliefs (religious denomination, ever changed religion, church attendance, donations, speaks in tongues,…)				✓	✓	✓
Church characteristics (size, donations, distance to mosque)				✓	✓	✓
Religious leader's characteristics and practices				✓	✓	✓
Location (ward) fixed effects				✓	✓	✓

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The table reports the effects of the *RL_Information* condition as opposed to the *Control* condition. In the *RL-Information* condition, respondents were informed that other people in the Busia county, including religious leaders, also participated in the survey and that a (to them anonymous) religious leader decided to allocate KSh 200 to a person living somewhere in Kenya. In the *Control* condition, no such information was provided. The dependent variable is the allocation in the Help-or-Harm task (in KSh) to a recipient living anywhere in Kenya (religious denomination and ethnicity were not specified). Columns 1 and 4 report the results for the full sample of church members (N=800). Columns 2 and 5 report the results for the sub-sample of church members who reported to have attended church in the week prior to the interview. Columns 3 and 6 report the results for the sub-sample of church members who reported not to have attended church in the week prior to the interview. In all Columns, we control for the respondent's allocations in the Help-or-Harm task to a recipient from respondent's ancestral home area and to a recipient from a different Kenyan region than the respondent's ancestral home area. Because these two choices were made before the choice about the allocation to a recipient living anywhere in Kenya, by controlling for them we can control for respondents' baseline pro-sociality to people in Kenya. We control for sets of controls as indicated in the bottom part of the table and detailed in the notes to Table 3. T-test (two-sided) p-values reported as * p<0.10; ** p<0.05; *** p<0.01.

[FOR ONLINE PUBLICATION]

Preference Transmission within Churches: Religious Leaders and Clusters of (In)Tolerance

Michal Bauer, Julie Chytilová and Eric Ochieng*

September 1, 2024

Online Appendix

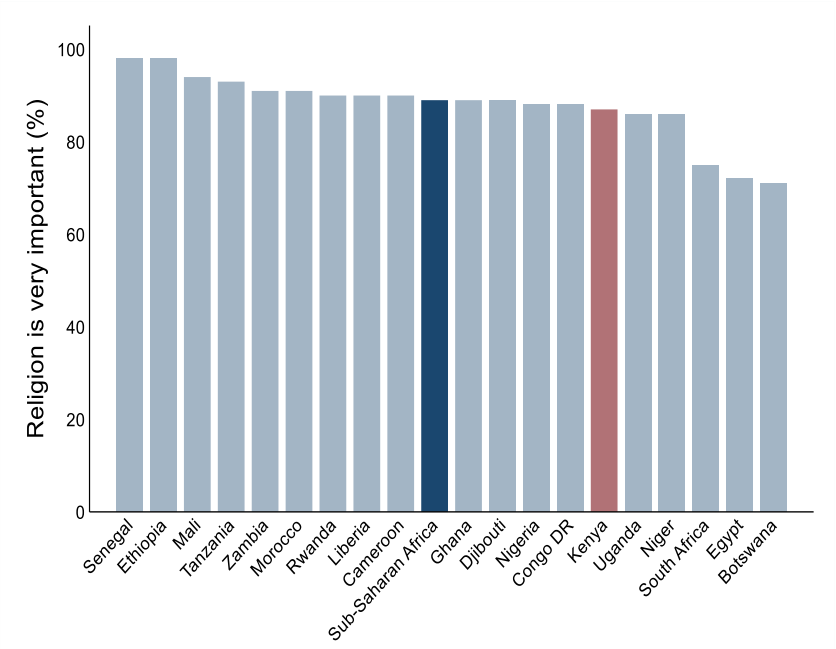
This file contains:

Appendix A. Appendix Figures and Tables p. 2
Appendix B. Details of cluster analysis p. 28

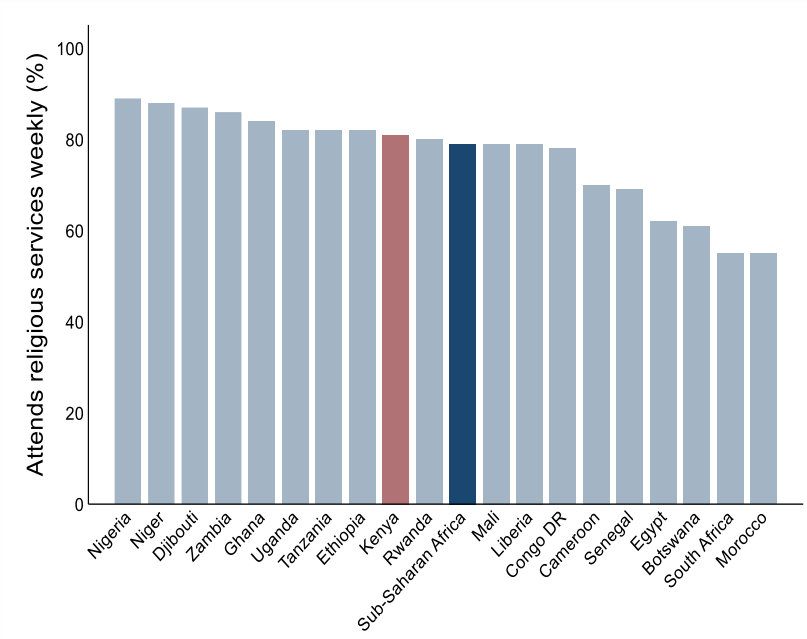
Online Appendix A. Appendix Figures and Tables

Figure A1: Comparison of importance of religion and church attendance across countries in Sub-Saharan Africa

Panel A

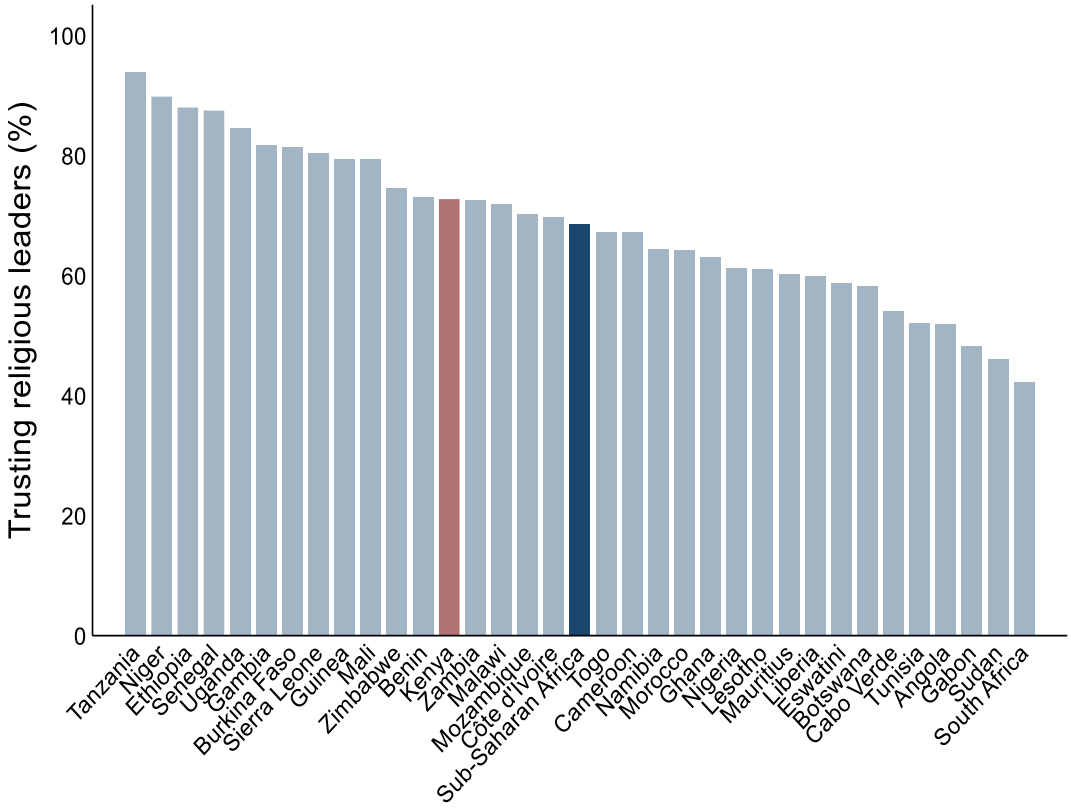


Panel B



Notes: The bars display the proportion of participants in 2008-2017 Pew Research Center surveys who reported that religion is very important in their lives (as opposed to somewhat important, not too important and not at all important) (Panel A) and that they attend religious services weekly (Panel B).

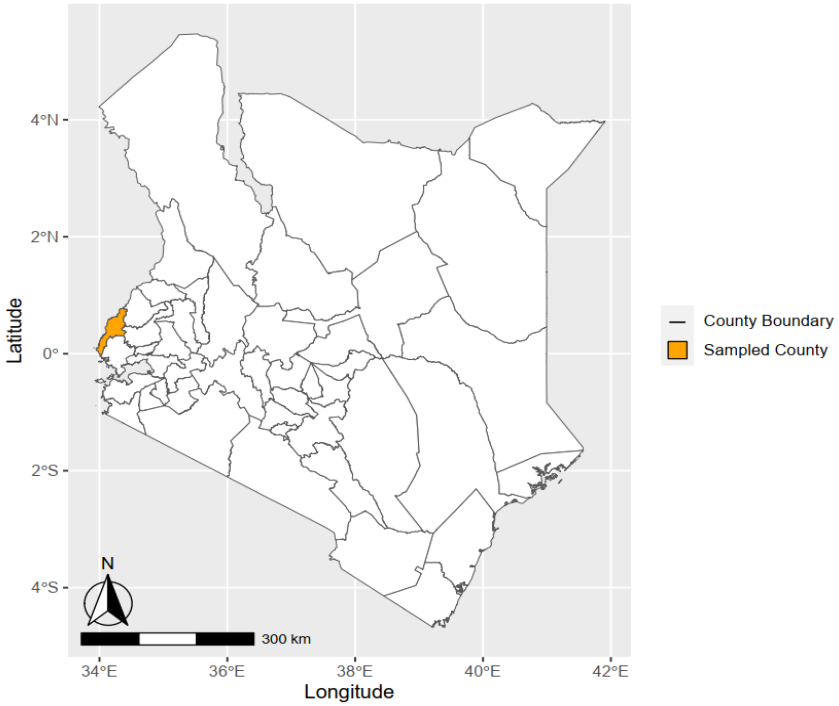
Figure A2: Comparison of trust in religious leaders across countries in Sub-Saharan Africa



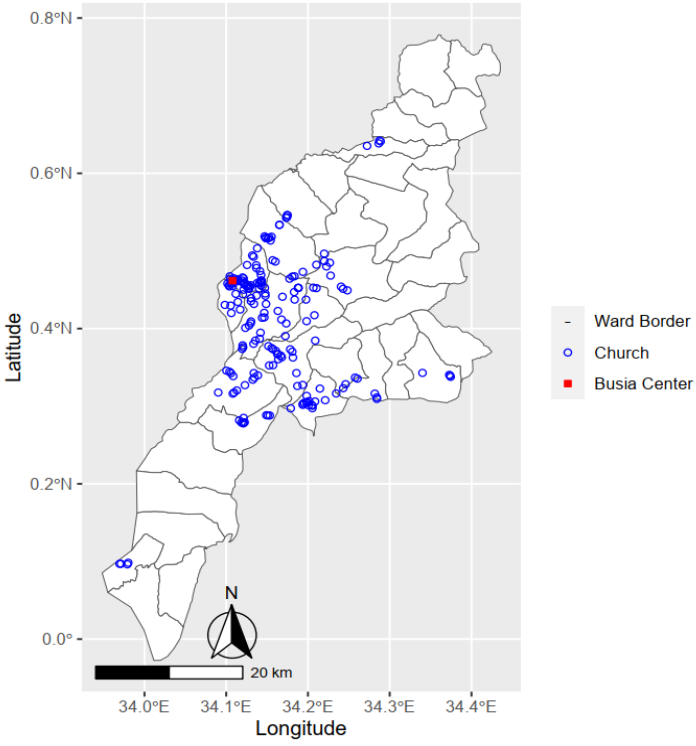
Notes: The bars display the proportion of participants in 2019 Afrobarometer survey who responded that they trust religious leaders a lot or somewhat (as opposed to not at all and just a little).

Figure A3: Map of Kenya showing sampling region and location of the churches in the sample

Panel A



Panel B



Notes: Panel A displays the map of districts in Kenya with the Busia district highlighted in orange color. Panel B displays the map of Busia district with the location of churches included in our sample (circles) and Busia center (red square, the County Government of Busia).

Figure A4: Example of a visual aid for an allocation task

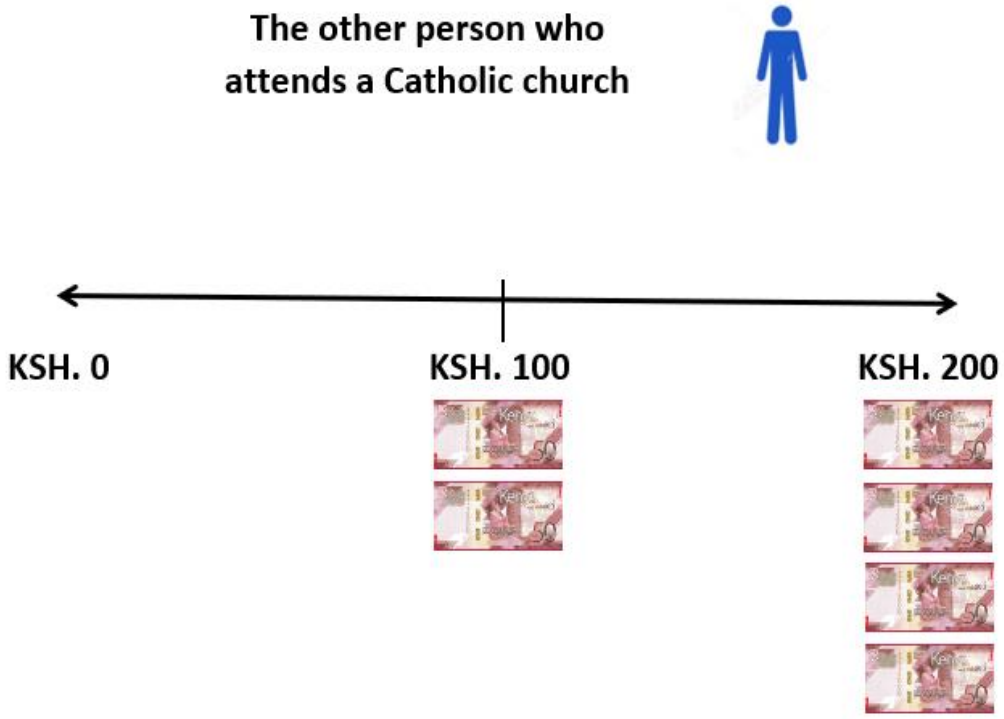
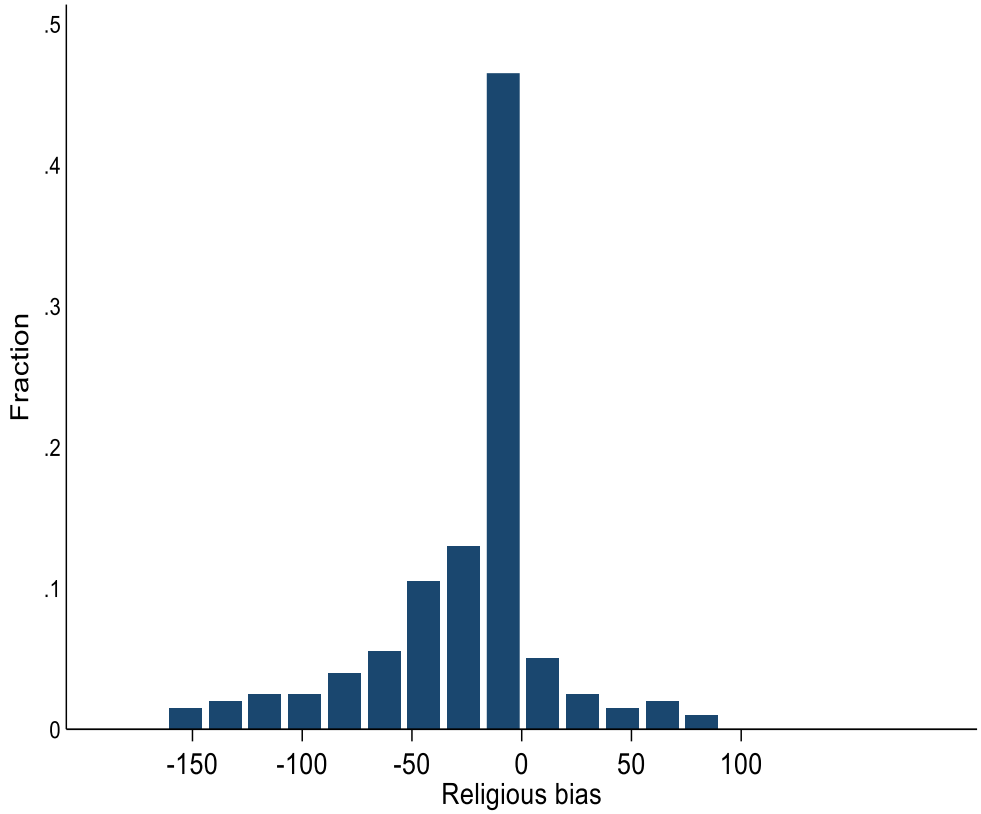
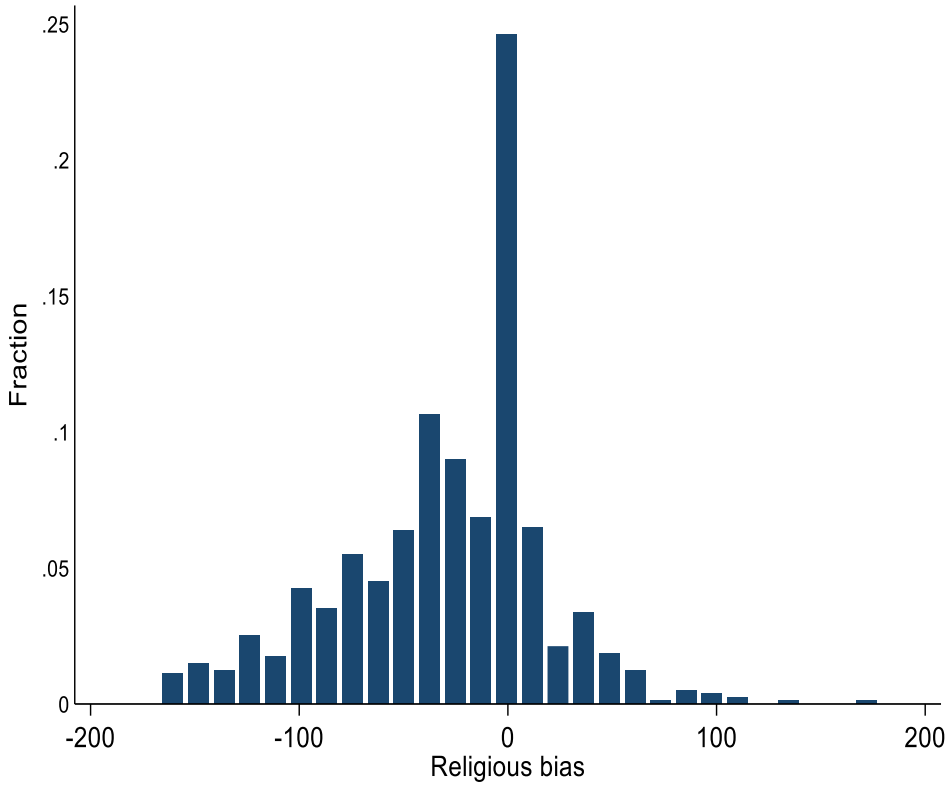


Figure A5: Religious leaders: Histogram of religious bias



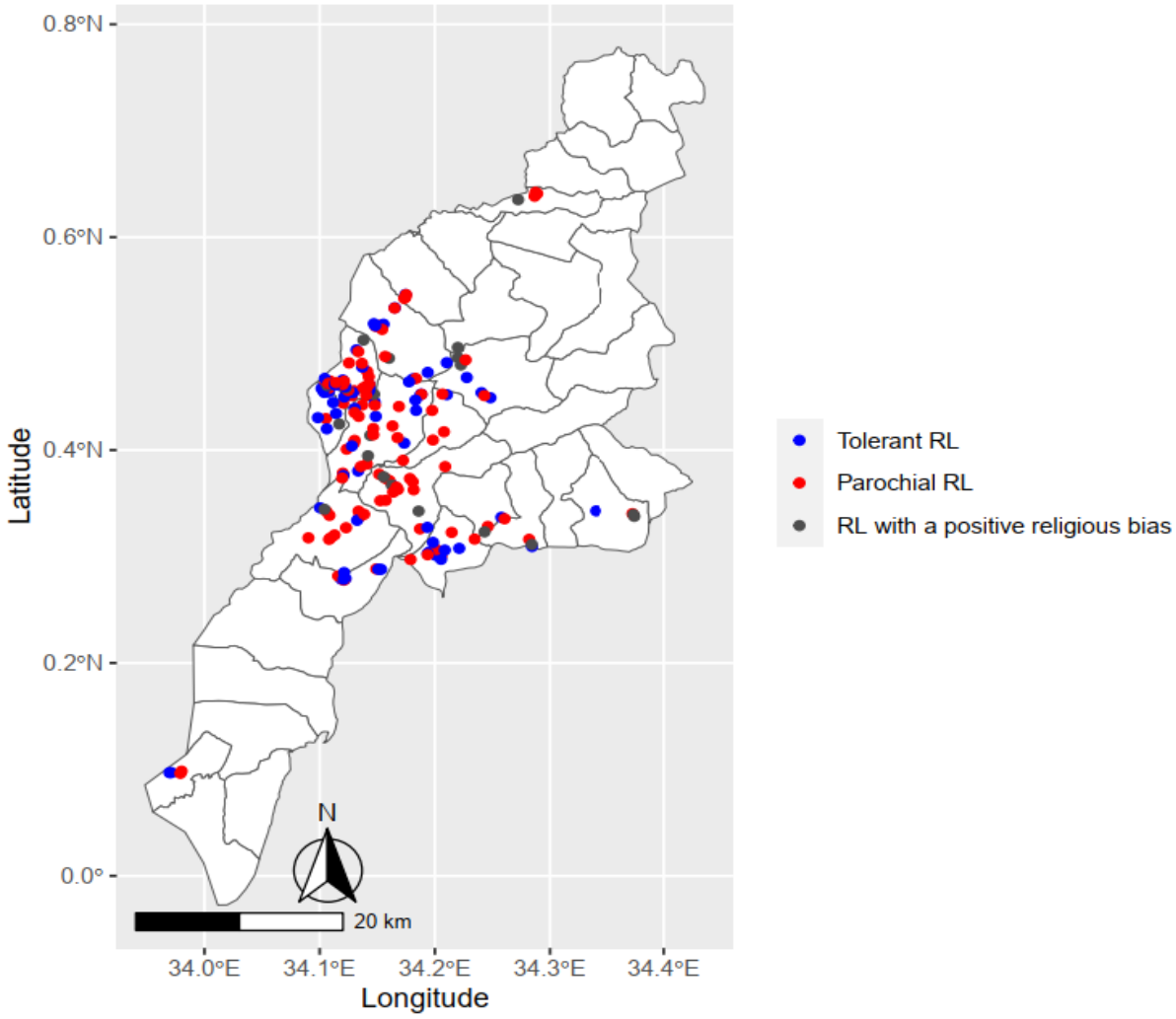
Notes: The sample of religious leaders (N=200). "Religious bias" is the difference in allocations to a religious out-group recipient and to a religious in-group recipient. The bias has negative value when a respondent allocates lower amount of money to a religious out-group recipient than to a religious in-group recipient.

Figure A6: Church members: Histogram of religious bias



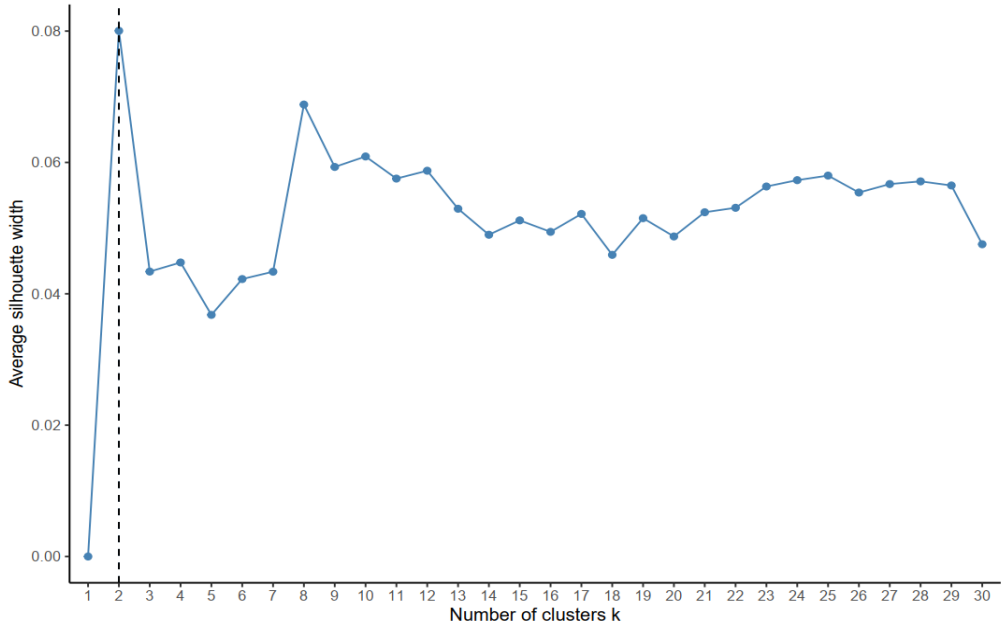
Notes: The sample of church members (N=800). "Religious bias" is the difference in allocations to a religious out-group recipient and to a religious in-group recipient. The bias has negative value when a respondent allocates lower amount of money to a religious out-group recipient than to a religious in-group recipient.

Figure A7: Location of churches with Tolerant and Parochial religious leaders



Notes: The map displays the Busia district and the location of churches in our sample with Parochial religious leaders (red circles), Tolerant religious leaders (green circles) and religious leaders with a positive religious bias (grey circles). Parochial religious leaders allocate lower amount to a religious out-group recipient (average allocation to a Christian with different religious denomination, to a Muslim and to a non-religious person) than to a religious in-group recipient (a Christian with the same religious denomination). Tolerant religious leaders allocate the same amount to a religious out-group recipient as to a religious in-group recipient. Religious leaders with a positive religious bias allocate higher amount to a religious out-group recipient than to a religious in-group recipient.

Figure A8: Optimal number of clusters



Notes: The figure depicts the average silhouette width (ASW) for different numbers of clusters based on four variables -- pro-sociality index, denominational bias, bias against Muslims and bias against non-religious. The definitions of the pro-sociality index and of the biases are described in the notes to Table 1. In practice, the number of variables is twenty because each variable can take five values (one for pastor and four for congregants). The ASW measures the difference between fitting data points to its own cluster with fitting data points to the next best cluster. The higher its value, the better data fit to the assigned cluster.

Figure A9: Timeline of the information provision experiment among church members

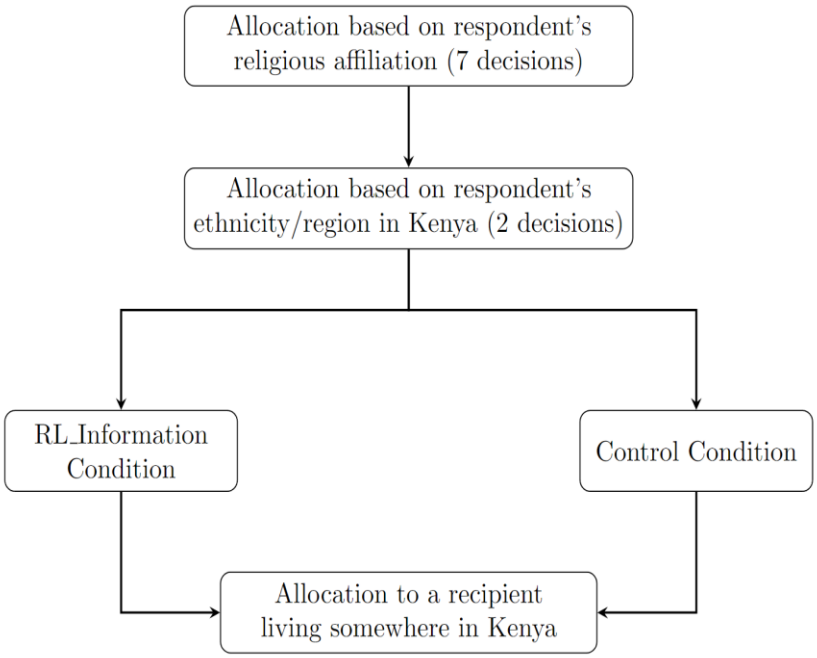


Table A1: Religious leaders: Summary statistics

	Mean (1)	SD (2)	Min (3)	Max (4)
Religious service, pracitices and beliefs				
Number of years working as a religious leader	13.69	9.71	0	44
Number of religious services per week	2.89	1.6	1	15
Religious denomination: Catholic	0.13	0.33	0	1
Religious denomination: Anglican	0.13	0.33	0	1
Religious denomination: other	0.75	0.43	0	1
Number of church members (estimate)	81	156.31	5	1500
Weekly cash donations to church in '000 KSh (estimate)	4.91	8.52	0	52
Weekly non-cash donations to church in '000 KSh (estimate)	2.01	3.84	0	30
Distance to the closest mosque (km)	3.8	2.86	0.04	12.79
Services frequently or always include speaking in tongues	0.34	0.48	0	1
Services frequently or always include prophecying	0.17	0.38	0	1
Services frequently or always include prayers for divine healing	0.45	0.5	0	1
Services frequently or always include signs of spirit	0.24	0.43	0	1
Ever changed denomination	0.52	0.5	0	1
Ever experienced or witnessed a divine healing	0.89	0.32	0	1
Ever given or interpreted prophecy	0.57	0.5	0	1
Ever experienced or witnessed the devil being driven out of a person	0.86	0.34	0	1
Is saved	0.98	0.12	0	1
Strongly agrees God grants material prosperity	0.81	0.4	0	1
Individual characteristics				
Age in years	48.11	9.62	27	70
Gender (female)	0.18	0.39	0	1
Education: not completed primary school	0.07	0.26	0	1
Education: completed primary school	0.35	0.48	0	1
Education: completed secondary school	0.2	0.4	0	1
Education: completed tertiary education	0.38	0.49	0	1
Ethnicity: Luhya	0.67	0.47	0	1
Ethnicity: Teso	0.17	0.38	0	1
Ethnicity: other	0.16	0.37	0	1

Notes: The table reports summary statistics for the sample of religious leaders (N=200). Column 1 reports means, Column 2 standard deviations, Column 3 minima and Column 4 maxima of the variables of interest.

Table A2: Church members: Summary statistics

	Mean (1)	SD (2)	Min (3)	Max (4)
Individual and household level characteristics				
Age in years	38.61	12.78	20	74
Gender (female)	0.61	0.49	0	1
Education: not completed primary school	0.2	0.4	0	1
Education: completed primary school	0.39	0.49	0	1
Education: completed secondary school	0.26	0.44	0	1
Education: completed tertiary education	0.15	0.36	0	1
Ethnicity: Luhya	0.57	0.49	0	1
Ethnicity: Teso	0.19	0.39	0	1
Ethnicity: other	0.24	0.43	0	1
Farmer	0.75	0.43	0	1
Wealth index	0	1.18	-3.85	3.71
Household head	0.46	0.5	0	1
Married	0.77	0.42	0	1
Number of children	3.92	2.97	0	24
Number of siblings	6.04	2.95	0	15
Father's education: primary or less	0.6	0.49	0	1
Father’s education: secondary or tertiary	0.4	0.49	0	1
Father’s education not known	0.17	0.38	0	1
Mother's education: primary or less	0.76	0.43	0	1
Mother’s education: secondary or tertiary	0.24	0.43	0	1
Mother’s education not known	0.12	0.33	0	1
Household earnings: low	0.41	0.49	0	1
Household earnings: medium	0.31	0.46	0	1
Household earnings: high	0.28	0.45	0	1
Religious behavior and practices				
Religious denomination: Catholic	0.13	0.33	0	1
Religious denomination: Anglican	0.13	0.33	0	1
Religious denomination: other	0.75	0.43	0	1
Ever changed religion/denomination	0.53	0.5	0	1
Attended church last week	0.82	0.39	0	1
Church donations in the past 30 days ('000 KSh)	1.23	2.64	0	42
Speaks in tongues at least once a month	0.23	0.42	0	1
Religious services include frequently or always signs of spirit	0.27	0.44	0	1
Ever experienced or witnessed a divine healing	0.87	0.33	0	1
Ever given or interpreted prophecy	0.17	0.37	0	1
Ever experienced or witnessed the devil being driven out of a perso	0.81	0.4	0	1
Is saved	0.91	0.28	0	1
Strongly agrees God grants material prosperity	0.9	0.3	0	1

Notes: The table reports summary statistics for the sample of church members (N=800). Column 1 reports means, Column 2 standard deviations, Column 3 minima and Column 4 maxima of the variables of interest.

Table A3: Robustness of choices in HHT: Comparison of first and later choices

	First choice	Later choice	Diff. (1)-(2) [p-value]
	(1)	(2)	(3)
Recipient: Catholic	127.08	138.59	-11.51
	(56.17)	(53.58)	[0.14]
	65	935	
Recipient: Anglican	133.33	140.94	-7.60*
	(53.95)	(49.84)	[0.07]
	168	832	
Recipient: member of a large Pentecostal church (Assemblies of God)	135.51	139.71	-4.20
	(56.09)	(51.07)	[0.64]
	98	902	
Recipient: member of a small Pentecostal church	138.81	132.74	6.07
	(55.62)	(54.32)	[0.16]
	168	832	
Recipient: Muslim	116.92	117.05	-0.13
	(57.88)	(63.04)	[0.99]
	214	786	
Recipient: non-religious	89.78	89.80	-0.02
	(66.33)	(72.46)	[0.71]
	231	769	
Recipient: same church	148.21	158.07	-9.86
	(51.70)	(48.00)	[0.24]
	56	944	

Notes: The table reports the mean allocations in the Help-or-Harm task (in KSh), based on the religious affiliation of the recipient. Standard deviations in parentheses. Numbers of observations are reported below the standard deviations. The sample of religious leaders and church members (N=1,000). In Column 1 only the first allocation of each respondent in the set of HHT tasks is considered. In Column 2 all allocations which were not done as the first ones are considered. Column 3 reports the differences between Columns 1 and 2; in square brackets it reports p-values of the Wilcoxon rank-sum test. * p<0.10; ** p<0.05; *** p<0.01. In this table, we report the raw choices of the respondents in seven HHT tasks, affecting payment to a recipient who attends a Catholic church, an Anglican church, a church of Assemblies of God (a large Pentecostal church), a small protestant church like God Harvest Church or Miracle Church, a recipient who is a Muslim, a recipient who is non-religious and a recipient who attends the same church as the respondent. In other tables, we report allocations to religious in-group and out-group members, which are calculated from these raw choices. Here, we are interested in the comparison of the choices which were made as the first ones with later choices, and thus we have to use the raw choices. Numbers of observations differ across the individual HHT tasks because the data collection platform used (SurveyCTO) did not allow full randomization of the order of the tasks. Instead, we manually coded thirty different orders of the seven choices, one of which was randomly assigned to respondents at the individual level.

Table A4: Religious leaders: Effect of recipients' religion and ethnicity on allocations in HHT, robustness

	Allocation to a recipient in HHT							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Religious bias (omitted category: religious in-group)								
Recipient: religious out-group (different Christian denomination, Muslim, non-religious)	-22.48***	-22.48***	-22.48***	-22.48***	-22.48***	-22.48***	-22.48***	-22.48***
	(3.08)	(3.10)	(3.12)	(3.13)	(3.11)	(3.11)	(3.14)	(3.21)
Observations	800	800	800	800	800	800	800	800
Panel B: Religious biases (omitted category: religious in-group)								
Recipient: different Christian denomination	-7.03***	-7.03***	-7.03***	-7.03***	-7.03***	-7.03***	-7.03***	-7.03**
	(2.60)	(2.62)	(2.63)	(2.64)	(2.62)	(2.63)	(2.65)	(2.71)
Recipient: Muslim	-22.40***	-22.40***	-22.40***	-22.40***	-22.40***	-22.40***	-22.40***	-22.40***
	(3.72)	(3.74)	(3.77)	(3.77)	(3.75)	(3.76)	(3.79)	(3.87)
Recipient: non-religious	-38.00***	-38.00***	-38.00***	-38.00***	-38.00***	-38.00***	-38.00***	-38.00***
	(4.53)	(4.56)	(4.59)	(4.60)	(4.57)	(4.58)	(4.61)	(4.72)
Observations	800	800	800	800	800	800	800	800
Panel C: Ethnic bias (omitted category: same ethnicity)								
Recipient: different ethnicity	-3.20	-3.20	-3.20	-3.20	-3.20	-3.20	-3.20	-3.20
	(3.17)	(3.21)	(3.26)	(3.27)	(3.23)	(3.24)	(3.29)	(3.46)
Observations	400	400	400	400	400	400	400	400
Control variables								
Individual characteristics (age, gender, education, ethnicity, farmer, wealth)		✓	✓	✓	✓	✓	✓	✓
Family and household (hh head, married, children, siblings, parental education, earnings)			✓					✓
Religious practices and beliefs (religious denomination, ever changed religion, church attendance, donations, speaks in tongues,…)				✓				✓
Church characteristics (size, donations, distance to mosque)					✓			✓
Religious leader's characteristics and practices						✓		✓
Location (ward) fixed effects							✓	✓
Order of choices	✓	✓	✓	✓	✓	✓	✓	✓

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of religious leaders (N=200). The dependent variable is the allocation in the Help-or-Harm task (in KSh). Panel A reports estimated effects of the recipient being from respondent's religious out-group as opposed to religious in-group. Panel B reports estimated effects of the recipient being from a specific religious out-group (as opposed to religious in-group), specifically of the recipient having different Christian denomination, being a Muslim and being a non-religious person. Panel C reports estimated effects of the recipient being of different ethnicity than the respondent as opposed to the recipient being of the same ethnicity as the respondent. In Panels A and B, we use four observations per respondent, specifically allocations to a recipient with the same Christian denomination (religious in-group), a recipient with different Christian denomination, a Muslim recipient and a non-religious recipient. In Panel C, we use two observations per respondent, specifically allocations to a recipient of the same and of different ethnicity. In Columns 1-8, we control for sets of controls as indicated in the bottom part of the table and detailed in the notes to Table 3. T-test p-values (two-sided) reported as *p<0.10; **p<0.05; ***p<0.01.

Table A5: Prevalence of hostile behavior, based on religion and ethnicity of recipients

	Religious leaders (1)	Church members (2)	Diff. (2)-(1) [p-value] (3)
Religious in-group			
(a) Recipient: same religion and denomination	0.00	0.01	0.01
	(0.00)	(0.11)	[0.13]
Religious out-group			
(b) Recipient: different religion or denomination (average (c),(d),(e))	0.04	0.10	0.06***
	(0.12)	(0.18)	[0.00]
(c) Recipient: same religion, different denomination	0.00	0.00	0.00
	(0.00)	(0.04)	[0.62]
(d) Recipient: different religion (Muslim)	0.03	0.06	0.03*
	(0.17)	(0.24)	[0.07]
(e) Recipient: non-religious	0.10	0.24	0.14***
	(0.30)	(0.43)	[0.00]
Religious bias (b)-(a)	*0.04***	*0.09***	0.05***
	(0.12)	*(0.20)*	[0.00]
Denominational bias (c)-(a)	*0.00*	*-0.01***	-0.01
	(0.00)	*(0.10)*	[0.16]
Bias against Muslims: (d)-(a)	*0.03***	*0.05***	0.02*
	(0.17)	*(0.26)*	[0.09]
Bias against non-religious (e)-(a)	*0.10***	*0.23***	0.13***
	(0.30)	*(0.44)*	[0.00]
Ethnicity			
(f) Recipient: same ethnicity	0.01	0.02	0.01
	(0.07)	(0.13)	[0.23]
(g) Recipient: different ethnicity	0.01	0.03	0.02
	(0.10)	(0.16)	[0.17]
Ethnic bias (g)-(f)	*0.01*	*0.01*	0.01
	(0.12)	*(0.17)*	[0.50]
Other measures			
Recipient: same church	0.00	0.00	0.00
	(0.00)	(0.06)	[0.39]

Notes: The table follows the structure of Table 1, but instead of the average allocations in the Help-or-Harm task it reports the prevalence of hostile behavior to recipients, by their religious denomination and ethnicity. Hostile behavior is measured by a dummy variable equal to 1 if the respondent decided to allocate KSh 0 to a recipient, and equal to 0 if the respondent decided to allocate positive amount of money to a recipient. The table further reports religious and ethnic biases in hostility, measured as differences in the prevalence of hostile behavior towards the relevant recipients. Because the measure of hostile behavior is a binary variable, in square brackets Column 3 reports p-values of the Chi-square test.

Table A6: Religious leaders: The effect of increasing salience of competition between religious denominations

	Recipient: same denomination	Recipient: different Christian denomination	Denominational bias
	(1)	(2)	(3)
Competition_salient	-2.85	-6.34	-3.49
	(7.82)	(7.13)	(5.51)
Observations	200	200	200
Control variables			
Basic (age, gender, education, ethnicity, farmer, wealth)	✓	✓	✓
Religious leader: religious denomination, # of years in service, # of services per week, # of church members	✓	✓	✓

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of religious leaders (N=200). The table reports the effects of the *Competition_salient* condition as opposed to the *Competition_notsalient* condition. In the *Competition_salient* condition, before making choices in the allocation tasks, the religious leaders answered a set of questions designed to make competition between religious denomination salient, e.g., whether the number of people who attended their church regularly had been increasing or decreasing. In the *Competition_notsalient*, they also answered this set of questions, but they did so at the end of the survey. The dependent variable is the allocation in the Help-or-Harm task (in KSh) to a recipient with the same denomination as the respondent in Column 1 and with a different Christian denomination in Column 2. In Column 3, the dependent variable is denominational bias measured as the difference in allocations to a recipient with different Christian denomination and to a recipient with the same denomination. In all Columns, we control for a set of basic individual characteristics (age, gender, education – 4 categories, ethnicity – 3 categories, farmer and wealth index) and for a set of characteristics of the religious leader related to his/her occupation (religious denomination – 3 categories: Catholic, Anglican and other, length of service in years, number of religious services per week and estimated number of church members). T-test p-values (two-sided) reported as *p<0.10; **p<0.05; ***p<0.01.

Table A7: Comparison of Tolerant and Parochial participants: Average amounts allocated in HHT, based on religion of recipients

	Religious leaders			Church members		
	Parochial	Tolerant	Diff. (2)-(1) [p-value]	Parochial	Tolerant	Diff. (5)-(4) [p-value]
	(1)	(2)	(3)	(4)	(5)	(6)
Religious in-group						
(a) Recipient: same Christian denomination	161.62	158.18	-3.43	151.02	158.69	7.67**
	(42.25)	(49.22)	[0.90]	(45.43)	(49.03)	[0.02]
Religious out-groups						
(b) Recipient: religious out-group member (average (c),(d),(e))	108.35	158.18	49.83***	94.97	158.69	63.72***
	(42.92)	(49.22)	[0.00]	(41.98)	(49.03)	[0.00]
(c) Recipient: different Christian denomination	136.36	158.70	22.34***	128.62	158.95	30.33***
	(43.20)	(49.45)	[0.00]	(42.88)	(48.82)	[0.00]
(d) Recipient: different religion (Muslim)	109.49	158.18	48.69***	99.60	158.04	58.44***
	(56.45)	(49.86)	[0.00]	(60.40)	(51.08)	[0.00]
(e) Recipient: non-religious	79.19	157.66	78.47***	56.69	159.08	102.40***
	(58.34)	(49.84)	[0.00]	(57.67)	(50.44)	[0.00]
Religious bias (b)-(a)	*-53.27****	*0.00*	*53.27****	*-56.05****	*0.00*	*56.05****
	(38.38)	*(0.00)*	*[0.00]*	*(39.87)*	*(0.00)*	*[0.00]*
Denominational bias (c)-(a)	*-25.25****	*0.52*	*25.77****	*-22.40****	*0.26*	*22.66****
	(36.61)	*(4.56)*	*[0.00]*	*(38.46)*	*(3.96)*	*[0.00]*
Bias against Muslims: (d)-(a)	*-52.12****	*0.00*	*52.12****	*-51.42****	*-0.65*	*50.76****
	(52.36)	*(5.62)*	*[0.00]*	*(57.85)*	*(12.44)*	*[0.00]*
Bias against non-religious (e)-(a)	*-82.42****	*-0.52*	*81.90****	*-94.33****	*0.39*	*94.72****
	(57.16)	*(9.72)*	*[0.00]*	*(58.91)*	*(12.45)*	*[0.00]*
Ethnicity						
(f) Recipient: same ethnicity	138.18	160.52	22.34***	135.81	159.48	23.67***
	(51.04)	(49.84)	[0.00]	(54.50)	(49.09)	[0.00]
(g) Recipient: different ethnicity	133.74	157.92	24.18***	116.37	158.69	42.33***
	(53.27)	(51.87)	[0.00]	(55.14)	(50.35)	[0.00]
Ethnic bias (g)-(f)	*-4.44*	*-2.60*	*1.85*	*-19.44****	*-0.78*	*18.66****
	(45.32)	*(29.08)*	*[0.15]*	*(66.15)*	*(25.53)*	*[0.00]*
Other measures						
Recipient: same church	163.03	157.66	-5.37	160.08	160.92	0.84
	(39.42)	(49.52)	[0.99]	(48.02)	(49.97)	[0.33]
Pro-sociality index (average allocation)	131.66	158.40	26.75***	121.17	159.12	37.95***
	(36.60)	(48.03)	[0.00]	(34.18)	(47.58)	[0.00]
Number of observations	99	77		501	153	

Notes: The table reports the means of (i) the allocations in the Help-or-Harm task (in KSh) to recipients, by their religious denomination and ethnicity, (ii) the religious bias and its three components, and (iii) the ethnic bias. The definitions of the pro-sociality index and of the biases are described in the notes to Table 1. Standard deviations reported in parentheses. Column 1 reports the means for the sub-sample of Parochial religious leaders (N=99) and Column 2 for the sub-sample of Tolerant religious leaders (N=77). Parochial respondents are those who allocate lower amount to a religious out-group recipient (average allocation to a Christian with different religious denomination, to a Muslim and to a non-religious person) than to a religious in-group recipient (a Christian with the same religious denomination). Tolerant respondents are those who allocate the same amount to a religious out-group recipient as to a religious in-group recipient. Column 3 reports the differences between Columns 2 and 1; in square brackets it reports p-values of the Wilcoxon rank-sum test. Column 4 reports the means for the sub-sample of Parochial church members (N=501) and Column 4 for the sub-sample of Tolerant church members (N=153). Column 6 reports the differences between Columns 5 and 4; in square brackets it reports p-values of the Wilcoxon rank-sum test. The stars in Columns 1, 2, 4 and 5 indicate whether the religious and ethnic biases are significantly different from zero, based on the t-test. * p<0.10; ** p<0.05; *** p<0.01.

Table A8: Religious leaders: Predictors of pro-sociality and religious and ethnic biases

	Pro-sociality index	Religious bias	Denominational bias	Bias against Muslims	Bias against non-religious	Ethnic bias
	(1)	(2)	(3)	(4)	(5)	(6)
Age in years	0.09	0.24	0.23	0.22	0.27	-0.32
	(0.45)	(0.46)	(0.36)	(0.54)	(0.73)	(0.43)
Gender (female)	-3.20	-4.53	2.45	-8.50	-7.52	8.01
	(8.77)	(8.02)	(6.54)	(11.39)	(12.54)	(9.30)
Education: completed primary school	1.15	13.78	-3.78	14.30	30.83	-0.01
	(14.65)	(16.23)	(12.08)	(16.84)	(26.10)	(13.59)
Education: completed secondary school	12.21	12.61	-1.87	19.01	20.70	13.52
	(14.76)	(15.45)	(11.57)	(18.16)	(23.86)	(13.39)
Education: completed tertiary education	18.36	7.27	-7.97	10.45	19.35	7.30
	(14.37)	(15.97)	(12.07)	(17.02)	(24.49)	(11.99)
Ethnicity: Luhya	-0.78	-5.68	-1.32	6.51	-22.24*	23.17**
	(8.83)	(9.15)	(8.04)	(12.38)	(12.37)	(11.02)
Ethnicity: Teso	-10.97	-2.73	3.03	10.39	-21.61	18.51
	(11.26)	(11.60)	(10.34)	(16.07)	(16.25)	(11.23)
Religious denomination: Catholic	0.19	-24.57**	-28.47***	-17.64	-27.60*	-10.16
	(13.40)	(12.30)	(10.86)	(14.67)	(15.63)	(10.49)
Religious denomination: Anglican	7.44	-23.83**	-26.29***	-20.35*	-24.85	-12.00
	(10.92)	(9.92)	(8.75)	(11.54)	(16.11)	(12.07)
Number of years working as a church leader	-0.75*	-0.26	-0.25	-0.19	-0.35	0.23
	(0.43)	(0.37)	(0.32)	(0.42)	(0.61)	(0.49)
Number of religious services per week	1.21	-3.73	-3.16	-4.73	-3.30	-0.17
	(2.06)	(2.48)	(2.50)	(3.10)	(2.62)	(1.69)
Number of church members (estimate)	0.01	-0.00	0.01	0.00	-0.02	-0.01
	(0.03)	(0.04)	(0.03)	(0.03)	(0.05)	(0.02)
Distance to the closest mosque	-2.36*	0.16	0.45	0.02	0.01	-0.12
	(1.28)	(1.19)	(0.98)	(1.51)	(1.67)	(1.02)
Constant	136.62***	11.00	29.00	-6.68	10.69	-25.57
	(42.27)	(26.26)	(24.21)	(30.67)	(39.11)	(31.68)
Observations	200	200	200	200	200	200

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of religious leaders (N=200). The definitions of the pro-sociality index and of the biases are described in the notes to Table 1. T-test p-values (two-sided) reported as *p<0.10; **p<0.05; ***p<0.01.

Table A9: Church members: Effect of recipients' religion and ethnicity on allocations in HHT, robustness

	Allocation to a recipient							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Religious bias (omitted category: religious in-group)								
Recipient: religious out-group (different Christian denomination, M	-29.27***	-29.27***	-29.31***	-29.21***	-29.27***	-29.27***	-29.27***	-29.25***
	(1.76)	(1.76)	(1.76)	(1.76)	(1.76)	(1.76)	(1.76)	(1.78)
Observations	3,200	3,200	3,196	3,196	3,200	3,200	3,200	3,192
Panel B: Religious biases (omitted category: religious in-group)								
Recipient: different Christian denomination	-5.88***	-5.88***	-5.90***	-5.73***	-5.88***	-5.88***	-5.88***	-5.76***
	(1.54)	(1.54)	(1.54)	(1.54)	(1.54)	(1.54)	(1.54)	(1.55)
Recipient: Muslim	-25.90***	-25.90***	-25.96***	-25.91***	-25.90***	-25.90***	-25.90***	-25.96***
	(2.17)	(2.17)	(2.18)	(2.18)	(2.17)	(2.17)	(2.18)	(2.19)
Recipient: non-religious	-56.02***	-56.02***	-56.07***	-55.99***	-56.02***	-56.02***	-56.02***	-56.04***
	(2.59)	(2.60)	(2.60)	(2.60)	(2.60)	(2.60)	(2.60)	(2.62)
Observations	3,200	3,200	3,196	3,196	3,200	3,200	3,200	3,192
Panel C: Ethnic bias (omitted category: same ethnicity)								
Recipient: different ethnicity	-14.72***	-14.72***	-14.72***	-14.79***	-14.72***	-14.72***	-14.72***	-14.79***
	(2.18)	(2.19)	(2.20)	(2.20)	(2.19)	(2.20)	(2.20)	(2.23)
Observations	1,600	1,600	1,598	1,598	1,600	1,600	1,600	1,596
Control variables								
Individual characteristics (age, gender, education, ethnicity, farmer, wealth)		✓	✓	✓	✓	✓	✓	✓
Family and household (hh head, married, children, siblings, parental education, earnings)			✓					✓
Religious practices and beliefs (religious denomination, ever changed religion, church attendance, donations, speaks in tongues,…)				✓				✓
Church characteristics (size, donations, distance to mosque)					✓			✓
Religious leader's characteristics and practices						✓		✓
Location (ward) fixed effects							✓	✓
Order of choices	✓	✓	✓	✓	✓	✓	✓	✓

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of church members (N=800). The dependent variable is the allocation in the Help-or-Harm task (in KSh). Panel A reports estimated effects of the recipient being from respondent's religious out-group as opposed to religious in-group. Panel B reports estimated effects of the recipient being from a specific religious out-group (as opposed to religious in-group), specifically of the recipient having different Christian denomination, being a Muslim and being a non-religious person. Panel C reports estimated effects of the recipient being of different ethnicity than the respondent as opposed to the recipient being of the same ethnicity as the respondent. In Panels A and B, we use four observations per respondent, specifically allocations to a recipient with the same Christian denomination (religious in-group), a recipient with different Christian denomination, a Muslim recipient and a non-religious recipient. In Panel C, we use two observations per respondent, specifically allocations to a recipient of the same and of different ethnicity. In Columns 1-9, we control for sets of controls as indicated in the bottom part of the table and detailed in the notes to Table 3. T-test p-values (two-sided) reported as *p<0.10; **p<0.05; ***p<0.01.

Table A10: Church members: Predictors of pro-sociality and religious and ethnic biases

	Pro-sociality index	Religious bias	Denominational bias	Bias against Muslims	Bias against non-religious	Ethic bias
	(1)	(2)	(3)	(4)	(5)	(6)
Age in years	0.40**	-0.02	-0.29*	-0.22	0.44	0.61**
	(0.15)	(0.19)	(0.17)	(0.23)	(0.31)	(0.27)
Gender (female)	-5.76	-0.12	1.07	6.44	-7.86	3.05
	(3.65)	(5.36)	(4.47)	(6.73)	(7.83)	(6.46)
Education: completed primary school	8.58**	3.44	0.07	6.54	3.71	2.93
	(4.06)	(5.58)	(4.77)	(6.78)	(7.92)	(6.88)
Education: completed secondary school	5.13	-0.98	-0.39	3.69	-6.25	14.83*
	(4.77)	(6.42)	(5.00)	(8.02)	(9.35)	(8.01)
Education: completed tertiary education	23.12***	5.02	1.71	6.02	7.35	14.98*
	(5.77)	(7.51)	(5.93)	(9.52)	(11.03)	(8.54)
Ethnicity: Luhya	-8.71**	-2.54	-3.22	0.32	-4.74	9.73*
	(3.69)	(4.60)	(3.73)	(6.14)	(6.75)	(5.14)
Ethnicity: Teso	-11.91**	-5.50	-5.63	-0.54	-10.32	4.65
	(4.70)	(5.97)	(4.77)	(7.38)	(9.18)	(7.49)
Farmer	-1.56	-5.90	-0.64	-8.12	-8.94	-4.85
	(3.78)	(4.36)	(3.46)	(5.23)	(7.04)	(5.27)
Wealth index	2.74*	1.13	1.20	1.38	0.81	0.77
	(1.41)	(1.77)	(1.58)	(2.18)	(2.58)	(2.19)
Household head	-5.12	2.41	0.99	5.37	0.86	-4.06
	(3.36)	(5.12)	(4.21)	(6.31)	(7.76)	(6.42)
Married	-4.44	1.26	5.69	3.30	-5.22	-2.47
	(3.55)	(5.19)	(4.34)	(6.44)	(7.38)	(5.84)
Number of children	0.25	1.62*	1.07	1.50	2.30*	-0.78
	(0.73)	(0.85)	(0.77)	(1.04)	(1.31)	(0.99)
Number of siblings	-0.06	0.74	0.49	1.10	0.65	-1.09
	(0.53)	(0.62)	(0.52)	(0.87)	(0.87)	(0.85)
Father's education: secondary or tertiary	7.14*	-0.14	-1.97	1.53	0.03	-7.22
	(3.96)	(4.81)	(3.96)	(5.80)	(7.30)	(6.44)
Father's education not known	-11.74**	-2.99	-2.23	-11.26	4.54	-4.06
	(5.27)	(6.33)	(5.85)	(7.77)	(9.23)	(9.06)
Mother's education: secondary or tertiary	1.02	-4.70	-8.86*	-1.43	-3.80	-3.14
	(5.11)	(6.32)	(5.23)	(7.81)	(9.31)	(7.19)
Mother's education not known	3.52	12.46	13.50*	11.37	12.51	8.39
	(7.01)	(8.60)	(7.07)	(10.81)	(12.80)	(10.56)
Household earnings: medium	-2.88	-1.89	-2.14	-2.61	-0.92	12.57**
	(3.54)	(4.45)	(3.92)	(5.48)	(6.51)	(5.68)
Household earnings: high	-5.84	-9.78**	-9.62**	-11.64*	-8.08	5.66
	(3.86)	(4.95)	(4.07)	(6.31)	(7.21)	(5.98)
Religious denomination: Catholic	7.94	-23.89***	-31.26***	-16.02**	-24.40***	11.52
	(5.08)	(5.75)	(5.34)	(7.22)	(8.17)	(7.77)
Religious denomination: Anglican	-8.35**	-20.96***	-22.79***	-9.42	-30.68***	-5.15
	(4.20)	(5.39)	(5.42)	(6.66)	(7.04)	(7.38)
Ever changed religion/denomination	0.76	-9.10**	-5.69	-8.31	-13.30**	4.22
	(3.04)	(3.97)	(3.48)	(5.27)	(5.62)	(4.91)
Attended church last week	0.87	5.91	5.25	3.27	9.20	3.40
	(4.04)	(5.04)	(3.98)	(5.74)	(7.68)	(6.24)
Distance to the closest mosque	-0.47	-0.27	0.06	-0.04	-0.82	0.10
	(0.48)	(0.70)	(0.55)	(0.86)	(1.04)	(0.80)
Constant	111.93***	-46.12***	-7.27	-48.74**	-82.35***	-46.94**
	(11.37)	(14.30)	(11.96)	(19.58)	(21.29)	(18.49)
Observations	799	799	799	799	799	799

Notes: OLS coefficients. Standard errors clustered at the respondent level in parentheses. The sample of church members (N=800). The definitions of the pro-sociality index and of the biases are described in the notes to Table 1. T-test p-values (two-sided) reported as *p<0.10; **p<0.05; ***p<0.01.

Table A11 (first part): The link between religious bias of religious leaders and church members and the role of other predictors

	Religious bias								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Preference of the religious leader	0.16***	0.15***	0.15***	0.10***	0.15***	0.15***	0.13***	0.15***	0.12***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Age in years		0.19	-0.11	0.22	0.19	0.21	0.19	0.17	-0.09
		(0.14)	(0.19)	(0.14)	(0.14)	(0.14)	(0.13)	(0.14)	(0.21)
Gender (female)		-1.73	0.17	-1.11	-1.38	-1.40	-1.78	-1.11	-0.27
		(3.87)	(5.18)	(3.78)	(3.88)	(3.96)	(3.78)	(4.07)	(5.48)
Education: completed primary school		0.75	2.99	0.26	1.19	1.01	0.64	1.63	4.36
		(5.69)	(5.72)	(5.67)	(5.71)	(5.63)	(5.68)	(5.82)	(5.76)
Education: completed secondary school		-6.17	-1.47	-6.46	-5.84	-5.17	-5.89	-4.71	0.78
		(6.14)	(6.61)	(5.99)	(6.15)	(6.09)	(6.11)	(6.28)	(6.49)
Education: completed tertiary education		-2.13	5.17	-4.38	-1.93	-0.94	-2.24	-1.11	4.58
		(7.05)	(7.78)	(7.08)	(6.98)	(6.98)	(7.04)	(7.27)	(7.91)
Ethnicity: Luhya		-2.98	-3.33	-2.38	-3.17	-2.58	-2.61	-5.83	-6.07
		(4.70)	(4.68)	(4.59)	(4.75)	(4.73)	(4.63)	(4.91)	(5.02)
Ethnicity: Teso		-6.71	-6.75	-4.40	-6.38	-6.08	-5.68	-2.47	-0.96
		(5.92)	(5.88)	(5.97)	(5.97)	(6.04)	(5.85)	(6.83)	(7.03)
Farmer		-6.63	-6.71	-4.59	-6.49	-6.71*	-6.38	-6.45	-5.20
		(4.03)	(4.25)	(3.98)	(4.04)	(4.06)	(3.97)	(4.19)	(4.33)
Wealth index		0.36	1.30	0.70	0.30	0.20	0.40	0.59	1.97
		(1.63)	(1.75)	(1.60)	(1.62)	(1.68)	(1.58)	(1.76)	(1.90)
Household head			4.61						1.71
			(4.93)						(4.93)
Married			0.64						2.61
			(5.10)						(5.07)
Number of children			1.39						1.60*
			(0.86)						(0.87)
Number of siblings			0.78						0.81
			(0.62)						(0.61)
Father's education: secondary or tertiary			-1.35						-0.86
			(4.77)						(4.93)
Father's education not known			-3.31						-2.29
			(6.46)						(6.83)
Mother's education: secondary or tertiary			-2.47						-6.07
			(6.34)						(5.98)
Mother's education not known			10.11						13.09
			(8.78)						(8.59)
Household earnings: medium			-0.33						-1.84
			(4.33)						(4.52)
Household earnings: high			-9.09*						-10.57**
			(5.03)						(5.02)

Table A11 (continued): The link between religious bias of religious leaders and church members and the role of other predictors

	Religious bias								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Religious denomination: Catholic				-18.74***					-26.77***
				(6.14)					(8.17)
Religious denomination: Anglican				-14.27**					-22.72***
				(5.82)					(7.49)
Ever changed religion/denomination				-8.59**					-8.58**
				(3.89)					(4.19)
Attended church last week				4.25					3.04
				(5.04)					(5.40)
Church donations in the past 30 days				-0.31					0.32
				(0.49)					(0.44)
Speaks in tongues at least once a month				-7.54					-4.05
				(4.74)					(5.06)
Religious services include frequently or always signs of spirit				4.34					5.45
				(4.15)					(4.69)
Ever experienced or witnessed a divine healing				2.01					-0.23
				(5.09)					(5.46)
Ever given or interpreted prophecy				8.95*					6.31
				(5.21)					(5.13)
Ever experienced or witnessed the devil being driven out of a person				-7.26					-7.40
				(5.07)					(5.26)
Is saved				9.99					12.62*
				(7.52)					(7.34)
Strongly agrees God grants material prosperity				-15.27**					-17.28**
				(6.78)					(6.82)
Church: number of church members (estimate)					-0.01				-0.00
					(0.01)				(0.01)
Church: weekly cash donations in '000 KSh (estimate)					0.07				0.44*
					(0.24)				(0.24)
Church: weekly non-cash donations in '000 KSh (estimate)					-0.12				-0.59
					(0.55)				(0.56)
Distance to the closest mosque					-0.23				-0.27
					(0.68)				(1.47)
Religious leader: age						-0.24			-0.20
						(0.25)			(0.26)
Religious leader: gender						1.33			5.74
						(5.25)			(5.68)
Religious leader: # of years working as a religious leader						0.37			0.49*
						(0.23)			(0.27)
Religious leader: # of religious services per week						0.04			-0.29
						(1.03)			(1.14)
Religious leader: services frequently or always include speaking in tong						4.14			4.19
						(4.82)			(5.33)
Religious leader: services frequently or always include prophecying						-7.11			-12.58*
						(5.84)			(6.76)
Religious leader: services frequently or always include prayers for divir						6.18			4.88
						(4.27)			(4.65)
Religious leader: services frequently or always include signs of spirit						0.95			-2.73
						(5.53)			(5.60)
Average preference of other church members							0.10		-0.13
							(0.07)		(0.09)
Constant	-43.14***	-40.28***	-43.62***	-32.77**	-39.70***	-39.12**	-38.88***	-63.03***	-68.92***
	(10.59)	(12.63)	(13.75)	(15.37)	(12.90)	(16.66)	(12.77)	(15.78)	(24.45)
Observations	800	800	799	800	799	800	800	800	798
Location (ward) fixed effects								✓	✓
Order of choices	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table reports full results of Panel B in Table 3.

Table A12: Predictors of religious communities belonging to Cluster 1

	Cluster 1 marginal effects (1)
Number of years working as a church leader	-0.00
	(0.00)
Number of religious services per week	-0.00
	(0.02)
Religious denomination: Catholic	0.39***
	(0.12)
Religious denomination: Anglican	0.45***
	(0.10)
Number of church members (estimate)	0.00
	(0.00)
Weekly cash donations to church in '000 KSh (estimate)	-0.01**
	(0.01)
Weekly non-cash donations to church in '000 KSh (estimate)	0.00
	(0.01)
Pastor's services frequently or always include speaking in tongues	-0.01
	(0.09)
Pastor's services frequently or always include prophecying	0.16
	(0.12)
Pastor's services frequently or always include prayers for divine healing	0.02
	(0.09)
Pastor's services frequently or always include signs of spirit	0.08
	(0.11)
Distance to Busia center	-0.01**
	(0.00)
Distance to the closest mosque (km)	0.02
	(0.01)
Observations	200

Notes: Probit regression, marginal effects reported. Standard errors in parentheses. The sample of religious leaders (N=200). The dependent variable is a dummy variable equal to 1 if the religious leader is assigned in the cluster analysis to Cluster 1, and equal to 0 if the religious leader is assigned to Cluster 2. Comparison of the levels of pro-sociality and religious biases between Cluster 1 and Cluster 2 is provided in Table 5. T-test (two-sided) p-values reported as * p<0.10; ** p<0.05; *** p<0.01.

Table A13: Accuracy of religious leaders' beliefs about church members' allocations to recipients

	Religious leaders' beliefs about church members' choices	Church members' choices	Diff. (1)-(2) [p-value]
	(1)	(2)	(3)
Religious in-group			
Recipient: same Christian denomination	146.20	139.70	6.50
	(51.56)	(53.77)	[0.14]
Religious out-groups			
Recipient: religious out-group member (average (c),(d),(e))	112.42	110.43	1.99
	(52.54)	(49.54)	[0.60]
Recipient: different Christian denomination	130.27	133.82	-3.56
	(47.39)	(44.92)	[0.41]
Recipient: different religion (Muslim)	109.30	113.80	-4.50
	(62.47)	(62.37)	[0.37]
Recipient: non-religious	97.70	83.68	14.03***
	(67.05)	(70.97)	[0.01]
Ethnicity			
Recipient: same ethnicity	147.30	139.90	7.40*
	(52.67)	(53.89)	[0.07]
Recipient: different ethnicity	125.70	125.18	0.53
	(55.47)	(57.09)	[0.94]
Other measures			
Recipient: same church	155.80	157.07	-1.27
	(47.13)	(49.04)	[0.50]
Pro-sociality index (average allocation)	130.32	127.59	2.73
	(43.54)	(39.95)	[0.31]

Notes: Column 1 reports beliefs of religious leaders (N=200) about choices of members of their church in the Help-or-Harm task. Column 2 reports actual choices of all church members in our sample (N=800) in the Help-or-Harm task. Column 3 reports the differences between Columns 1 and 2; in square brackets it reports p-values of the Wilcoxon rank-sum test. * p<0.10; ** p<0.05; *** p<0.01.

Table A14: Religious leaders: Comparison of own choices, choices recommended to church members and beliefs about choices of church members

	Recommended choices	Own choices	Beliefs about church members' choices	Diff. (1)-(2) [p-value]	Diff. (1)-(3) [p-value]	Corr. (1)-(2) [p-value]	Corr. (1)-(3) [p-value]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Religious in-group							
Recipient: same Christian denomination	154.40	152.30	146.20	2.10	8.20***	0.72***	0.62***
	(46.51)	(49.26)	(51.56)	[0.41]	[0.01]	[0.00]	[0.00]
Religious out-groups							
Recipient: religious out-group member (average (c),(d),(e))	133.57	129.82	112.42	3.74*	21.14***	0.82***	0.73***
	(50.83)	(50.08)	(52.54)	[0.08]	[0.00]	[0.00]	[0.00]
Recipient: different Christian denomination	145.80	145.27	130.27	0.53	15.53***	0.80***	0.74***
	(44.86)	(46.18)	(47.39)	[0.80]	[0.00]	[0.00]	[0.00]
Recipient: different religion (Muslim)	133.00	129.90	109.30	3.10	23.70***	0.71***	0.66***
	(56.84)	(58.59)	(62.47)	[0.32]	[0.00]	[0.00]	[0.00]
Recipient: non-religious	121.90	114.30	97.70	7.60***	24.20***	0.81***	0.69***
	(65.73)	(66.12)	(67.05)	[0.01]	[0.00]	[0.00]	[0.00]
Ethnicity							
Recipient: same ethnicity	148.10	146.00	147.30	2.10	0.80	0.79***	0.65***
	(49.16)	(51.82)	(52.67)	[0.37]	[0.79]	[0.00]	[0.00]
Recipient: different ethnicity	147.50	142.80	125.70	4.70	21.80***	0.64***	0.52***
	(50.54)	(53.73)	(55.47)	[0.13]	[0.00]	[0.00]	[0.00]
Other measures							
Recipient: same church	157.60	159.30	155.80	-1.70	1.80	0.71***	0.62***
	(45.30)	(44.98)	(47.13)	[0.49]	[0.53]	[0.00]	[0.00]
Pro-sociality index (average allocation)	144.04	141.41	130.32	2.63	13.72***	0.84***	0.75***
	(42.50)	(42.90)	(43.54)	[0.13]	[0.00]	[0.00]	[0.00]

Notes: Column 1 reports choices in the Help-or-Harm task that religious leaders (N=200) would recommend the members of their church to make. Column 2 reports choices made by religious leaders themselves in the Help-or-Harm task. Column 3 reports beliefs of religious leaders about choices of members of their church in the Help-or-Harm task. Columns 4 and 5 report the differences between Columns 1 and 2, and Columns 1 and 3, respectively; in square brackets they report p-values of the Wilcoxon rank-sum test. Columns 6 and 7 report pairwise correlations of variables reported in Columns 1 and 2, and Columns 1 and 3, respectively; p-values are reported in square brackets. * p<0.10; ** p<0.05; *** p<0.01.

Table A15: Comparison of choices recommended to church members by Parochial and Tolerant religious leaders

	Recommended choices		
	Parochial	Tolerant	Diff. (2)-(1) [p-value]
	(1)	(2)	(3)
Religious in-group			
Recipient: same Christian denomination	157.78	158.96	1.18
	(39.06)	(49.19)	[0.46]
Religious out-groups			
Recipient: religious out-group member (average (c),(d),(e))	116.57	159.91	43.35***
	(46.31)	(48.38)	[0.00]
Recipient: different Christian denomination	139.19	160.26	21.07***
	(41.03)	(48.44)	[0.00]
Recipient: different religion (Muslim)	115.76	159.48	43.72***
	(57.09)	(48.45)	[0.00]
Recipient: non-religious	94.75	160.00	65.25***
	(63.93)	(49.63)	[0.00]
Ethnicity			
Recipient: same ethnicity	139.19	162.60	23.41***
	(48.14)	(47.39)	[0.00]
Recipient: different ethnicity	135.76	164.16	28.40***
	(48.17)	(47.83)	[0.00]
Other measures			
Recipient: same church	155.56	162.60	7.04*
	(43.01)	(48.81)	[0.05]
Pro-sociality index (average allocation)	134.00	161.15	27.15***
	(35.62)	(47.09)	[0.00]

Notes: The table reports choices in the Help-or-Harm task that religious leaders (N=200) would recommend the members of their church to make. Standard deviations reported in parentheses. Column 1 reports the means for the sub-sample of Parochial religious leaders (N=99) and Column 2 for the sub-sample of Tolerant religious leaders (N=77). Parochial religious leaders are those who allocate lower amount to a religious out-group recipient (average allocation to a Christian with different religious denomination, to a Muslim and to a non-religious person) than to a religious in-group recipient (a Christian with the same religious denomination). Tolerant religious leaders are those who allocate the same amount to a religious out-group recipient as to a religious in-group recipient. Column 3 reports the differences between Columns 2 and 1; in square brackets it reports p-values of the Wilcoxon rank-sum test. * p<0.10; ** p<0.05; *** p<0.01.

Table A16: Church members: Balance table, information provision experiment

	Control condition (1)	Treatment condition (2)	Diff (2)-(1) (3)	[p-value]
Individual and household level characteristics				
Age in years	37.47	39.73	2.26***	[0.01]
Gender (female)	0.61	0.61	0.00	[0.89]
Education: not completed primary school	0.18	0.21	0.03	[0.33]
Education: completed primary school	0.38	0.40	0.02	[0.56]
Education: completed secondary school	0.28	0.23	-0.05	[0.11]
Education: completed tertiary education	0.15	0.15	0.00	[0.96]
Ethnicity: Luhya	0.55	0.60	0.05	[0.19]
Ethnicity: Teso	0.18	0.20	0.02	[0.41]
Ethnicity: other	0.27	0.20	-0.07**	[0.02]
Farmer	0.73	0.77	0.04	[0.24]
Wealth index	0.03	-0.04	-0.07	[0.19]
Household head	0.43	0.48	0.05	[0.19]
Married	0.76	0.78	0.02	[0.43]
Number of children	3.70	4.14	0.44**	[0.04]
Number of siblings	5.92	6.15	0.23	[0.18]
Father's education: primary or less	0.61	0.59	-0.03	[0.43]
Father's education: secondary or tertiary	0.38	0.41	0.03	[0.38]
Father's education not known	0.15	0.20	0.05*	[0.09]
Mother's education: primary or less	0.76	0.77	0.01	[0.78]
Mother's education: secondary or tertiary	0.24	0.23	-0.01	[0.84]
Mother's education not known	0.11	0.13	0.01	[0.60]
Household earnings: low	0.42	0.40	-0.01	[0.69]
Household earnings: medium	0.29	0.33	0.04	[0.23]
Household earnings: high	0.29	0.26	-0.03	[0.43]
Religious behavior and practices				
Religious denomination: Catholic	0.13	0.12	-0.02	[0.44]
Religious denomination: Anglican	0.13	0.12	-0.01	[0.57]
Religious denomination: other	0.73	0.77	0.03	[0.31]
Ever changed religion/denomination	0.51	0.55	0.04	[0.24]
Attended church last week	0.82	0.81	-0.01	[0.77]
Church donations in the past 30 days ('000 Ksh)	1.27	1.18	-0.09	[0.19]
Speaks in tongues at least once a month	0.22	0.23	0.02	[0.57]
Religious services include frequently or always signs of spirit	0.27	0.27	0.00	[0.98]
Ever experienced or witnessed a divine healing	0.88	0.87	-0.01	[0.69]
Ever given or interpreted prophecy	0.17	0.17	-0.00	[0.95]
Ever experienced or witnessed the devil being driven out of a person	0.80	0.81	0.01	[0.79]
Is saved	0.90	0.93	0.03*	[0.08]
Strongly agrees God grants material prosperity	0.91	0.89	-0.02	[0.28]
F-test of joint significance				0.88

Notes: The table reports summary statistics for the sub-sample of church members assigned in an information provision experiment to the *Control* condition (N=405) (Column 1) and to the *RL_Information* condition (N=305) (Column 2). In the *RL-Information* condition, respondents were informed that other people in the Busia county, including religious leaders, also participated in the survey and that a (to them anonymous) religious leader decided to allocate KSh 200 to a person living somewhere in Kenya. In the *Control* condition, no such information was provided. Column 3 reports the differences between Columns 2 and 1; in square brackets it reports p-values of the Chi-square test for binary variables and of the Wilcoxon rank-sum test for all other variables. * p<0.10; ** p<0.05; *** p<0.01.

Online Appendix B. Details of cluster analysis

Cluster analysis tools, unsupervised learning methods aimed at grouping data, have become widespread in numerous data analysis areas (Batool and Hennig 2021). These tools do not require linearity as factor and principal components analyses nor impose assumptions regarding probability distribution as model-based approaches, and have recently started to be used in economic research to study preference clusters (Chowdhury, Sutter, and Zimmermann 2022). It should be noted that cluster analysis is an umbrella term for diverse set of tools, and their benefits over classical economic techniques differ. More generally, they can be divided into hierarchical and non-hierarchical ones. We selected the latter because it does not impose a pre-defined order from top to bottom and puts focus on between-cluster differences. Even within non-hierarchical clustering, there are several options to choose from. Following Chowdhury, Sutter, and Zimmermann (2022), we consider partitioning around medoids because socio-economic preferences are likely to form distinct clusters of spherical shape and due to its computational advantages. The core of this algorithm are medoids which are the data points with the smallest distance to all other data points within a cluster. In other words, they can be viewed as the generalization of median for multidimensional data.

The partitioning around medoids or the *k*-medoids clustering is the iterative algorithm of grouping data into *k* clusters (Kaufman and Rousseeuw 1987). Because of its objective function that is based on minimizing the sum of distances, this algorithm requires to define the number of clusters a priori. Although there are several ways of determining an optimal number of clusters, they are often chosen via cluster validation indices (Batool and Hennig 2021). Rousseeuw (1987) proposed to use average silhouette width (ASW) for selecting the number of clusters. This approach is based on the averaged standardized indices that measure the difference between comparing data points to the assigned cluster with comparing data points to the next best cluster.[1] We consider the ASW because it performs well in simulation studies (Arbelaitz et al. 2012) and is not significantly affected by the presence of outliers (Wang and Yusheng 2019). The latter feature should complement the *k*-medoids clustering as it is also robust to dispersed and noisy data.[2]

After identifying the number of clusters, the *k*-medoids clustering algorithm works in two phases. In the build phase, *k* representative subjects (i.e. medoids) which have the smallest Euclidean distances to

[1] It is standardized over the range between -1 (distance to own cluster is maximal and distance to the next best cluster is minimal) and +1 (distance to own cluster is minimal and distance to the next best cluster is maximal).

[2] As a robustness test, we also consider the Calinski-Harabasz statistic (Calinski and Harabasz 1974). It also indicates that the number of clusters is equal to 2.

all other observations are successively selected to represent *k* clusters. Then, the remaining observations (i.e. non-medoids) are assigned to one of the clusters based on their proximity to its medoid. In the swap phase, within each cluster, medoids are iteratively replaced with non-medoids. If one of the swaps results in a decrease of the total distance between non-medoids and medoids, a new medoid based on the underlying non-medoid is created and the swap phase is repeated; alternatively, the algorithm ends.

In the analysis, we closely follow the approach of (Chowdhury, Sutter, and Zimmermann 2022) who used this approach to study preference clusters at the family level. For each family, they have measures of preferences of the mother, of the father, and of one or two children. For the purpose of the cluster analysis, when the family has two children, they calculate the average children's preference. In our case, the number of members of each religious community is fixed at five - one religious leaders and four church members. Therefore, we use data for each of the five individuals from the given religious community. Our results remain qualitatively unaltered when we use the average preference of the four church members instead. The inputs into the cluster analysis are the pro-sociality index, the denominational bias, the bias against Muslims and the bias against non-religious people.

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Abstrakt

Animozita vůči lidem s odlišným náboženským přesvědčením může vest k hlubokým konfliktům ve společnosti. V tomto článku zkoumáme roli duchovních (knězů a pastorů) při formování sociálního chování uvnitř jejich kongregací. Pomocí rozsáhlé sady kontrolovaných ekonomických experimentů mezi duchovními (N=200) a členy jejich kongregací (N=800) v Keni měříme pro-sociální a anti-sociální chování k různým lidem, kteří se liší svým náboženským přesvědčením a identitou. Dokumentujeme výraznou heterogenitu v preferencích mezi duchovními. První typ se v experimentech chová ke všem lidem stejně nezávisle na jejich náboženském přesvědčení, zatímco druhý typ výrazně diskriminuje muslimy a nevěřící jednotlivce. V souladu s modely kulturní transmise preferencí zjišťujeme, že: (i) duchovní se snaží vštípit své preference členům své kongregace, (ii) členové následují náboženské vůdce duchovní v experimentu, který exogenně poskytuje informace o chování duchovního, a (iii) preference členů církve jsou robustně pozitivně korelovány s preferencemi jejich pastora či kněze, zejména mezi těmi, kteří jsou s ním v intenzivnějším kontaktu. Naše zjištění naznačují, že rozdíly v náboženské (ne)toleranci duchovních se šíří a vytvářejí odlišné sociální skupiny s kontrastními morálními pohledy na to, jak se chovat k lidem s odlišnou vírou a náboženskou identitou.

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Email: office@cerge-ei.cz
Web: https://www.cerge-ei.cz/

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