Preventing Violent Islamic Radicalization: Behavioral Evidence from Northern Mozambique[*]

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Abstract:

Violence perpetrated by radicalized Muslims has recently emerged in Northern Mozambique. This is a remote region of the country, marked by a substantial discovery of natural resources. We collaborated with the main Islamic authority in Mozambique, which sponsored two randomized interventions to prevent violence related to Islamic radicalization: (i) a religious sensitization campaign against extremist views of Islam, targeting a change in religious beliefs; and (ii) a training module on entrepreneurship and employment, aiming to increase the opportunity cost of engaging in conflict. We follow a sample of young men recruited from the mosques of the main city in Northern Mozambique. Importantly, we focus our measurement on anti-social behavior in a Joy-of-destruction lab game, which opposed our main Muslim sample to auxiliary samples of local Muslims, local Christians, local public officials, and foreigners. This game allows players to pay to destroy the payoff of their opponents. We also employ survey attitudes to evaluate the impact of the interventions. We find that the religious treatment decreased the propensity of the main Muslim sample to destroy payoffs by 8 percentage points. We do not observe effects of the training module except that it increases the belief that others will be more disposed to destroy payoffs. Consistently, the religious campaign increased trust in the state and decreased support for extremism.

JEL Codes: D74, O55.
Keywords: Islamic Radicalization, Violence, Conflict, Political Economy, Experiment, Joy-of-destruction game, Mozambique, Africa.

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1 Introduction

In recent years, most of the major violent conflicts in the world have happened in Muslim-majority countries. Of these conflicts, a substantial and increasing share has been related to Islamist insurgents.[1] We can then safely assert that Islamic radicalization is one of the main correlates of violent conflict in the world today. Although the world awaked to Islamic radicalization with the 9/11 Al-Qaeda attacks in the US and subsequent war in Afghanistan, this phenomenon became clear in many different Muslim-majority countries. These include Iraq/Syria's, where ISIS has been particularly active, Nigeria, where Boko Haram was initiated, Somalia, home of Al-Shaabab, as well as many other countries across the Middle East and Caucasus, North and Central Africa, and South Asia, where ramifications of Islamist groups became prominent.

Conflict prevention in the context of Islamic radicalization is then a complex problem that requires attention. Different potential solutions have been tried. The obvious one is military, i.e., targeting terrorist organizations and specific (potential) aggressors within these. However, as it became clear from the very beginning of the Afghanistan war in 2001, the repression of terrorists cannot be enacted alone provided the risk of losing widespread local support.[2] Consistently, the US have focused on winning the 'hearts and minds' of the local populations in Afghanistan and Iraq through development interventions. This type of strategy became a focal point of practitioners since the work of Collier and Hoeffler (2004) and of Miguel et al. (2004), which emphasizes the idea that increasing the opportunity cost of engaging in conflict is a way to prevent it.

The counterinsurgency strategy based on material benefits is however sidelining the specificity of religious motivations behind Islamist violence. Radicalized Muslims have strong religious beliefs that may trump any material payoff. An alternative is to work with moderate Muslims in order to prevent the spread of radical Islam. The setting of our study, Northern Mozambique, a majority-Muslim region, is one where the emergence of radicalized Muslims with foreign links has recently started, shortly after the local discovery of substantial natural gas. Starting in the end of 2017, a series of attacks associated to Islamic extremists have taken place in the region, with several

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[1] See the descriptive study by Gleditsch and Rudolfsen (2016), employing data from the Uppsala Conflict Data Program (UCDP), where a civil war is defined as a contested incompatibility over government or territory between the government and one or more opposition movements resulting in at least 25 battle-related deaths in a calendar year.

[2] This is a clear premise in 'The U.S. Army/Marine Corps Counterinsurgency Field Manual', which was published by the US Army in different versions from the time of the Iraq War (2003).

hundred people killed to date, many of whom decapitated. Still, long-standing Muslim authorities in the region have a tradition of peaceful positions, namely in the mediation of conflict-prone Mozambican politics. This is a setting where religious sensitization by Muslim authorities against a radical version of Islam makes particular sense as way to prevent further violence.

In this paper, we report on the results of a randomized field experiment we conducted in the capital city of Cabo Delgado, the northern province of Mozambique. We collaborated with the main Muslim authority in Mozambique, which sponsored two conflict-prevention interventions, targeting young men from local mosques. The first intervention was a religious sensitization campaign submitted by religious leaders, who provided information about the lack of theological foundations of a number of typical claims by Islamic fundamentalists. Some of these claims had a direct connection to violent behavior. The main motivation of this campaign was to change the religious beliefs of subjects in the direction of moderate Islam. The second intervention was a training module on entrepreneurship and employment in the local labor market. It made specific reference to the new jobs expected in the region in connection to the extraction of natural resources. The main idea of this module was to improve the economic prospects of subjects, i.e., as a way to increase the opportunity cost of engaging in conflict. Hence, we study the two main conflict-prevention strategies we alluded to: one, less standard, aiming to change religious beliefs, the other, more standard in both policy and research, aiming to change the economic prospects of potential perpetrators of violence.

Beyond studying conflict-prevention through changes in religious beliefs, the main innovation of this paper is in the measurement of outcomes. We focus our attention on measuring anti-social behavior. For that purpose, we employ a Joy-of-destruction lab game (Abbink, and Herrmann, 2011; Abbink and Sadrieh, 2009). To the best of our knowledge, this is the first paper employing this standard game in the experimental literature as an evaluation tool for a real-life intervention.[3] The Joy-of-destruction game is played in pairs. Each subject has a unique decision to make, i.e., whether to destroy the endowment of the other player at a cost. Subjects play simultaneously. In

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[3] Our knowledge of the Joy-of-destruction game from lab settings has evolved quickly after its introduction in the literature. Prediger et al. (2014) show a correlation between anti-social behavior in the Joy-of-destruction game and long-run resource scarcity among pastoralists in Namibia. Caldara et al. (2017) show that anti-social behavior in the joy-of-destruction game is associated with known triggers of conflict, i.e., fear, monetary incentives, and uncertainty about an opponent's desire to cause harm. Jauernig et al. (2016) create winners and losers and observe who becomes the target of destruction in the game, as well as who becomes the perpetrator of destruction. Sadrieh and Schröder (2017) find that perpetrators of harm in the Joy-of-destruction are also givers in the Dictator game.

our implementation of the lab game, the main Muslim sample we follow plays against four types of opponents: local Muslims, local Christians, local public officials, and foreigners. We measure beliefs about the behavior of counterparts as well. In our study, we are able to track 1,520 experimental decisions about destruction in the Joy-of-destruction game. We complement our behavioral measurements with a list experiment[4] and standard survey-based attitudes. We follow a pre-analysis plan we filled for the purpose of this study.

Our results show that the religious sensitization reduced anti-social behavior in the Joy-of-destruction game: the magnitude of the effect is 8 percentage points on the probability that subjects in our main Muslim sample destroy the payoffs of their opponents. We observe no effects of the training module on entrepreneurship and employment on the same outcome. In fact, this intervention increases significantly the belief that others will behave in an anti-social manner in the Joy-of-destruction game. We interpret this finding in light of the resource discovery in the region, which was covered explicitly during the training. Theory and evidence on the resource curse emphasize an increase in rent-seeking (Tornell and Lane, 1999; Baland and Francois, 2000; Torvik, 2002) and a deterioration of political behavior (Robinson et al., 2006; Vicente, 2010; Brollo et al. 2013) following the discovery of natural resources. We also report on suggestive evidence that our main Muslim sample targets more anti-social behavior towards public officials and foreigners, consistently with the violent attacks that have taken place in the region. Finally, we observe effects of the religious campaign on survey attitudes, namely on increased optimism regarding peace in the region, increased trust in the state, and lower support for mixing religion with politics. However, we do not find any effects on support for extremist positions in our list experiment.

This paper relates to the literature on civil wars reviewed by Blattman and Miguel (2010). In terms of mechanisms behind the emergence of conflict, apart from the referred emphasis on opportunity cost of engaging in conflict, best exemplified at the micro level by Blattman and Annan (2016) with Liberian ex-fighters, recent contributions have identified alternative factors. First, rapacity or competition over natural resources (Dube and Vargas, 2013). Second, feasibility, i.e., natural resources offering a source of funding for fueling conflict (Berman et al., 2017). Although both alternative drivers of conflict are likely at play in our setting, we do not address conflict-prevention through those lenses in this paper. In a related paper, Armand et al. (2019) address conflict-

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[4] We follow the standard design of list experiments employed in the literature: see Kuklinski et al. (1997) and Gonzalez-Ocantos et al. (2012) for two prominent examples measuring racial prejudice and vote-buying (respectively).

prevention in Northern Mozambique through the perspective of natural resources. In that study, the authors follow a large-scale information campaign about management of natural resources. They distinguish two randomized treatments: information targeting community leaders alone and information targeting communities at large. The study finds clear effects of information at the level of the community in terms of increased community mobilization[5] and reduced conflict. The latter is assessed through the analysis of administrative datasets of geo-referenced violent events.

Our paper connects specifically to the recent literature on US counterinsurgency. Berman et al. (2011a) employ panel data from Iraq and find that improved service provision reduces insurgent violence. Beath et al. (2018) reach similar conclusions through the analysis of a randomized evaluation of Afghanistan's largest development program. Also for Afghanistan, Lyall et al. (2018) follow a program of livelihood training and one-time unconditional cash transfers on combatant support among 2,597 at-risk youths. They find that only the combination of the two dimensions of the program increased support for the Afghan government in the medium term. Although the referred studies are generally positive about the role of development programs in conflict-prevention, Crost et al. (2014) find an increase in conflict stemming from a development program in the Philippines, which they attribute, however, to initial attempts of program appropriation or sabotage. This is also in line with Hirose et al. (2017), who find that Afghan villages that received international assistance are more likely to receive future Taliban attacks.

Beyond conflict prevention based on material benefits, a number of studies emphasizes the importance of attitudes of potential insurgents. Berman et al. (2011b) underline that, contrary to the opportunity-cost theory, data for Afghanistan, Iraq, and the Philippines rejects a positive correlation between unemployment and attacks against government and allied forces.[6] Bursztyn et al. (2017) find that Pakistani men are willing to forego material benefits to avoid identifying themselves with the American government. Lyall et al. (2013) find that Afghan civilian attitudes are less forgiving when it comes to harm inflicted by foreigners, relative to harm caused by the Taliban. In the same vein, Lyall (2010) observes that pro-Russian Chechens are more effective counterinsurgents than Russians in the context of the second Chechen War. Something is missing

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[5] Aker et al. (2017) and Fafchamps et al. (2019) find a similar structure of results, going from information to political mobilization, in another randomized experiment conducted in Mozambique.
[6] This is in line with Atran (2003), who reports that suicide terrorists from the Middle East have no appreciable psychopathology and are as educated and economically well-off as the surrounding population.

the eye of material benefits.[7] In this paper, we embrace the idea that religious beliefs can be important, alongside raising material benefits or expectations of material benefits through economic opportunities.

Finally, a different line of work has emphasized that promoting collective action and social cohesion can be an enduring conflict-prevention strategy. This is the idea behind community-driven reconstruction. Fearon et al. (2009, 2015) show effects of this type of program on social cohesion as measured through behavior in public goods lab games in Liberia. Collier and Vicente (2014), as well as Fafchamps and Vicente (2013) report on the direct and network effects (respectively) of grassroots campaigning against political violence in Nigeria. They find a clear decrease in violence perceptions and intensity of actual violence during an election. The religious sensitization campaign we analyze in this study embeds some aspects of this work, in the sense that it includes an implicit appeal to collective action in favor of moderate Islamic principles.

The structure of this paper is as follows. We first set the context of our experiment. Then, we describe our experimental design, including treatments, sampling, assignment to treatment, timeline, measurement, estimation strategy, and hypotheses. We then turn to the econometric results, including the Joy-of-destruction lab game, and the survey outcomes. We finally conclude.

2 Context

Mozambique has been a relatively stable country since the civil war ended in 1992 and general elections began shortly after. The contenders in the civil war were FRELIMO, the ruling party, and the main opposition movement RENAMO. Some degree of conflict between the state and RENAMO resumed in 2013 in central Mozambique; however, negotiations led to a peace agreement in 2017. At the same time, Mozambique discovered substantial amounts of natural gas in the northern province of Cabo Delgado starting in 2010. This is likely to turn Mozambique into a global player in exports of liquefied natural gas, with massive implications for the state budget. Although production will not begin until the 2020s, significant international attention has been devoted to Cabo Delgado: major extractive multinationals got concessions for gas exploration offshore, and a refinery is in construction in the town of Palma. This sudden attention stands in

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[7] Early studies on the determinants of terrorism (e.g., Krueger and Malečková, 2003; Abadie, 2006) also cast some doubt on the link between poverty and terrorism.

great contrast with the nature of Cabo Delgado province: a remote and primarily rural area of the country, home of a majority Muslim population, with high poverty and child mortality rates for national standards.

It is in this context that a number of attacks in the province of Cabo Delgado have been reported starting from the end of 2017. There is no relation of these attacks with RENAMO, in a province known as a stronghold of the ruling party, where the independence movement started. Although some doubts persist about the motivation for these attacks, some facts are undisputed. First, although the attacks were initially against state institutions like the police, they rapidly became widespread in rural areas, targeting civilians in roads or the destruction of entire villages, as well as foreign convoys linked to the natural gas operations (e.g., working for the American company Anadarko). At this point, we can account for several hundred people killed in the sequence, many of whom decapitated. Second, there are many associations of these episodes with radicalized Muslims.[8] There are many reports of infiltration of local mosques by people with links to the Al-Shabaab movement. Although the police was able to identify some foreigners connected to the violence, there is no doubt that most perpetrators of violence are Mozambican.[9]

3 Experimental design

3.1 Treatments

We collaborated with the Conselho Islâmico de Moçambique (Islamic Council of Mozambique, CISLAMO), as the main institution representing Muslims in Mozambique. This partnership was established both at the provincial and national levels. CISLAMO has a long record of political

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[8] A recent qualitative study presented by Saide Habibe, Salvador Forquilha, and João Pereira in May 2018, underlines that the attacks were initiated by a group named Ahlu Sunnah Wa-Jamo/Ansar al-Sunna, meaning in Arabic 'supporters of tradition.' This group originates from the area of Mocímboa da Praia. The study reports that the members of this movement, typically young and marginalized men, follow an extremist version of Islam, and that the movement is funded through the illegal trading of local natural resources like timber, ivory, and rubies. The authors of the study also corroborate links with extremist groups in neighboring countries.
http://www.open.ac.uk/technology/mozambique/sites/www.open.ac.uk.technology.mozambique/files/files/Moci%CC%81mboa%20da%20Praia.pdf
[9] See recent coverage in the international media:
(Financial Times) https://www.ft.com/content/5206046a-7070-11e8-92d3-6c13e5c92914;
(The Economist) https://www.economist.com/middle-east-and-africa/2018/08/09/a-bubbling-islamist-insurgency-in-mozambique-could-grow-deadlier;
(BBC) https://www.bbc.com/news/world-africa-44289512.

mediation in Mozambique, namely in the context of electoral observation. It had an important role in the peace agreement with RENAMO. In response to the violent events in Cabo Delgado associated to violent religious extremism, CISLAMO developed a sensitization campaign against extremist views of Islam in the mosques of Pemba. This organization ended up sponsoring religious sensitization as well as a training module on business management and employment in the local labor market. Both initiatives were directed at young Muslim men recruited from the mosques of Pemba. While the first targeted directly the views of Muslims about Islamic doctrine as a way to oppose violence and insurgency, the second aimed to increase the opportunity cost of joining violent groups and engaging in conflict. We now turn to the details of each one of the interventions sponsored by CISLAMO.

A group of specialists in Islamic doctrine from CISLAMO developed the contents of the religious sensitization campaign, which we label the *religious treatment*. Specifically, they produced a written manual that provided the basis for the campaign, which took place verbally in classroom sessions at CISLAMO headquarters in Pemba, the capital city of Cabo Delgado province. The referred manual, in Portuguese, is available upon request from the authors.[10] The manual and the sessions began by identifying the insurgents as 'al khawarij,' which means rebels or opponents who are not the true followers of the Prophet.[11] They then focused on deconstructing the main arguments presented by radicalized Muslims, with reference to passages of the Quran (which is considered by Muslims as the word of God) as well as narrations of events from the life of the Prophet (i.e., Hadiths, also considered as sacred). The targeted statements included: anyone who commits a sin is no longer a Muslim and will have no forgiveness; a Muslim cannot work for a non-Muslim government; a Muslim cannot befriend a non-Muslim; a Muslim should not have an ID card, because having a photo taken is forbidden; a Muslim should not go to the hospital; a Muslim should not use modern transportation; the only way to solve today's problems is through violence; women's rights are limited relative to men; Muslim children should attend madrassas and not secular schools; anyone who is not a believer should be considered an apostate and sentenced to death. The manual and sensitization campaign also included a number of personal views from major religious scholars about radicalized movements. During the classroom sensitization, the participants were free to ask questions, and discussions on specific topics (like the above) happened

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[10] A full webpage with the details of implementation of the treatments is available at
https://novafrica.org/lab-experiment-associated-to-radicalization-insurgency-in-cabo-delgado-mozambique/.
[11] Campaigners reminded that the Prophet himself warned his followers against these groups of people who would kill in the name of Islam, who would recite the Quran but without true knowledge.

frequently. Sensitization took place in January 2019 and was chaired by two religious leaders from CISLAMO.

Turning to the training module on business management and employment in the labor market, which we label the *economic treatment*, it was designed by a group of management teachers from a local college linked to CISLAMO, in coordination with members of our research team. They produced a manual on purpose for this treatment, which was delivered in the classroom. This manual is available, in Portuguese, upon request from the authors. The goals of the module were twofold. First, attention was devoted to business management and entrepreneurship, since a large share of the Muslim community in Cabo Delgado is managing their own business activities. Topics included how to make a business plan and a budget, how to get funding, namely from the financial institutions in Cabo Delgado, and simple rules of thumb on business management like the separation of business accounting from personal accounting and the importance of registering all transactions. Second, the module provided simple training on searching for jobs locally, including giving an overview of websites posting relevant jobs, going over current employers searching for collaborators, and the types of occupations and skills they were looking for. The training also covered how to present oneself for an interview, and how to structure a CV. The training was offered at the CISLAMO headquarters in Pemba by trained facilitators in January 2019.

3.2 Sampling, assignment to treatment, and timeline

The main sample in our field experiment is Muslim and was drawn from 21 mosques of Pemba. Individuals were selected by local religious leaders. They were then invited to participate in the study. The sample was uniquely composed of men 18-44 years of age, given that perpetrators of violence related to Islamic radicalization in Cabo Delgado are almost exclusively male and young. 241 individuals composed the main Muslim sample. Auxiliary samples were gathered for the purpose of the joy-of-destruction lab game we played as part of the measurement in the experiment. The first auxiliary sample was Muslim and local, as it was drawn from two different mosques in the suburbs of Pemba. 37 young males were selected from there. The second auxiliary sample was Christian and local, as it was recruited from one church in Pemba. It included 37 young males. Figure 1 in the Appendix to this paper shows the specific locations of the mosques and church of Pemba from where we drew participants to our study. The third auxiliary sample was selected from public officials working for the provincial government. 38 young males composed this sample. Finally, the fourth auxiliary sample was American and taken from the student population of the

University of Notre Dame in the US. It consisted of 30 young males. We can then report that 383 individuals participated in our study.

<Figure 1 near here>

The assignment of the main Muslim sample to the two treatment conditions, religious or economic, as well as to a control group followed simple randomization at the individual level. Each subject in this sample was either invited to a session on the religious treatment, invited to a session on the economic treatment, or had no treatment session assigned. The measurement activities followed and were conducted in all three groups, beginning with the joy-of-destruction lab game and ensuing with the submission of individual surveys. These measurement activities were conducted from January to March, 2019. In most cases, measurement activities were conducted in a group setting, but on a few cases required following individuals in their homes.

3.3. Measurement

Our measurement of outcomes in this paper is focused on a Joy-of-destruction lab game (Abbink, and Herrmann, 2011; Abbink and Sadrieh, 2009). This game measures anti-social behavior and is standard in the experimental literature. In this paper, we take the Joy-of-destruction game to measuring anti-social behavior in a meaningful field context, as an evaluation tool of different real-world interventions aimed at conflict prevention.

The Joy-of-destruction game we implemented involved two players faced with the same simultaneous binary decision: to destroy or not to destroy the other player's endowment.[12] Each player in the game is initially given an endowment by the experimenter, which can then be destroyed by the other player at a cost. We worked with a version of this game which included destruction of 50 percent of the other player's endowment and prices of destruction of 10 percent of one's own endowment. The best-case scenario is then that both players keep their endowment. This is the only Nash equilibrium of the game, which has the added feature that these are strongly dominant strategies. The worst-case scenario is that both players get 40 percent of their endowments, in case both pay to destroy the endowments of their counterparts.

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[12] Note that decisions were simultaneous in the sense that players did not know about their counterparts' decisions until the end of the game.

All the individuals in our main Muslim sample played the game once with a player from each one of the auxiliary samples, i.e., one Muslim player, one Christian player, one public official, and one foreigner. When facing each opponent, players knew their gender (male) and age range. The remaining information was: for the Muslim player, that he was born and currently resides in Mozambique, as well as that he is a practicing Muslim; for the Christian player, that he was born and currently resides in Mozambique, as well as that he is a practicing Christian; for the public official, that he was born and currently resides in Mozambique, as well as that he is a public official working for the Provincial Government of Cabo Delgado; for the foreigner, that he was born and currently resides in the US. The order of play with each one of the auxiliary players was randomized between players. Individuals in the auxiliary samples also faced a randomized order, when playing with the four types of opponents.

After the four decisions about each one of the opponents, players were asked to guess what their opponents (in the same order they appeared in the game) had done in the game. These are their beliefs about the anti-social behavior of their opponents. These beliefs were incentivized in the sense that a correct guess entailed a prize amounting for 10 percent of the initial endowment in the game. In order to define payoffs, one of the opponents was randomly drawn from the four possibilities for each player (with equal probability). This was done in front of each subject at the end of the session. Endowments were 500 Meticais (approximately 8 USD) for the Mozambican sample and 15 USD for the American sample. The first is approximately 10 percent of an average monthly salary in Northern Mozambique, and the second adjusts the first number for purchasing power parity relative to the US. All players were separately compensated for participating in the game at a fixed rate. The full protocol of the game is available in the pre-analysis plan of this project and in the Appendix of this paper.

In addition to the Joy-of-destruction game, we implemented an individual survey, which was submitted face-to-face after the lab game was conducted. Due to institutional constraints of our partners, in some cases, this was done several days or weeks after the game. In the case of Mozambican subjects, the survey started with a list experiment on support for extremist positions related to violent and radicalized Islam. It then followed with questions on basic demographics including education, ethnicity, household income and assets, among others. Other questions were dedicated to social capital, awareness about expectations about the exploration of natural resources in Cabo Delgado, trust in institutions, interest in politics, and views about the relationship between Islam and politics. The list experiment and all survey questions related to Mozambique and Islam

were not submitted to the American sample. Both the list experiment and full survey submitted to the Mozambican subjects are available in the pre-analysis plan of this project.

We now describe the details of the list experiment. The objective was to measure support for extremism. It included six questions. Each question asked about how many of the following sentences the subject agreed with. Each question included either four or five possible answers. In the version with four sentences, no sensitive ones were included. The version with five sentences included a sensitive option in addition to the same four of the shorter version. Each individual was randomized one these two versions for all questions. The questions and sensitive sentences related to different types of extremist positions.[13] In the main analysis of our paper, we aggregate all six dimensions of extremism into one, by averaging between them with equal weighting.

The survey attitudes we employ in our analysis are taken from the following survey questions. First, we compose a variable measuring whether respondents have heard about the natural gas discovery in Cabo Delgado. Second, we take a variable measuring whether the respondent agrees with the statement 'The discovery of natural gas is good for peace in Mozambique.' Third, we consider the extent of trust in the state from employing the question 'How much do you trust the President of Mozambique?', whose answer was on a scale of 0-3. Fourth, we assess interest in politics from using the question 'How interested are you in public affairs?', whose answer was on a scale of 0-3. Finally, we measure support for an Islamic autocracy by averaging the answers on a scale of 1-5 regarding the extent to which respondents agree with the following statements: 'Democracy goes against Islam,' 'Non-Muslims should have less rights that Muslims,' and 'There should be an Islamic government, without parties or elections.'

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[13] Specifically, the questions included the following six topics: (i) 'goals for your children's education,' which included an option on 'daughters finishing secondary school' – from this we take a measure on being 'against secondary education of daughters;' (ii) 'actions contributing to improve the situation in Cabo Delgado,' which included an option of 'threatening state authority (police, army, civil servants in general)' – from this we take a measure of 'fighting state authority;' (iii) 'ways of publicly advocating a cause you believe in,' which included an option on 'resorting to physical violence against those who oppose your cause' – from this we take a measure of 'supporting violence;' (iv) 'news about Mozambique you liked,' which included as an option 'men invaded the village of Moçímboa da Praia and attached police stations' – from this we take a measure of 'support for national extremism events;' (v) 'international news you liked,' which included as an option 'people were killed in an Islamic-inspired bombing in New York' – from this we take a measure of 'support for international extremism events;' and (vi) 'activities you would like to do in the future,' which included as an option 'helping a radical Muslim group to fight' – from this we take a measure of the 'intention to join extremist groups.'

3.4 Estimation strategy

We now turn to the econometric specifications we employed in our study. Our main analysis relates to estimating treatment effects on the different outcome variables that we have available concerning anti-social behavior and survey attitudes of the main Muslim sample. These effects of interest, of the religious and economic treatments (β^R, β^E) can be estimated through the specification:

$$Y_{l,i} = \alpha + \beta^R T_i^R + \beta^E T_i^E + \theta X_{l,i} + \varepsilon_{l,i}, \quad (1)$$

where Y is an outcome of interest, l, i are identifiers for neighborhoods and individuals, $X_{l,i}$ is a vector of neighborhood and individual demographic controls. T_i^R and T_i^E are dummy variables representing the treatments with value 1 for treated units.

Regarding the outcomes of the Joy-of-destruction lab game, the above specification includes four different observation for each individual in the main sample, one per opponent j. For those outcomes, we also add a few important explanatory variables, as follows:

$$Y_{l,i,j} = \alpha + \beta^R T_i^R + \beta^E T_i^E + \gamma O_{i,j} + \delta C_{i,j} + \rho^R T_i^R . C_{i,j} + \rho^E T_i^E . C_{i,j} + \theta X_{l,i} + \varepsilon_{l,i,j}, \quad (2)$$

where O is a vector of order dummies in the game, for the four rounds of play each player in the main sample faced, and C is a vector of counterpart types in the game, for the four types of opponents each player faced. Interaction terms between the treatments and the counterpart types are also included.

In order to assess differences in behavior in the Joy-of-destruction game between the four types of players, i.e., Muslims for both the main and auxiliary samples, Christians, public officials, and foreigners, we use all observations we have in the game in the following specification:

$$Y_{l,i} = \alpha + \sigma P_i + \gamma O_i + \delta C_i + \theta X_{l,i} + \varepsilon_{l,i}, \quad (3)$$

where P is the vector of player types, including the four types of players in the game.

Finally, in the analysis of the list experiment, we aim to explain the number of sentences subjects in the main Muslim sample selected for each of the six corresponding questions. We employ the following specification where treatment effects of the religious and economic treatments are given, respectively, by the parameters β^R and β^E:

$$Y_{l,i} = \alpha + \omega^R T_i^R + \omega^E T_i^E + \mu L_i + \beta^R T_i^R . L_i + \beta^E T_i^E . L_i + \theta X_{l,i} + \varepsilon_{l,i}, \quad (4)$$

where L is a dummy variable taking value 1 in case the question was asked including the sensitive item, i.e., a list of 5 sentences.

For ease of interpretation and transparency, we employ OLS estimations throughout the paper. We cluster standard errors at the level of the individual i in all regressions relating to the Joy-of-destruction game.

3.5. Hypotheses

We now turn to a description of the main hypotheses we test in our study. We follow a pre-analysis plan, which we published at the AEA Registry (AEARCTR-0003775). The emphasis on the analysis of the impact of the two treatments on behavioral measures gathered in the Joy-of-destruction game is clear in the pre-analysis plan.

Our first two hypotheses are that the religious and economic interventions are effective at decreasing anti-social behavior and the support for Islamic extremism including violence. These interventions could also increase trust in institutions. While the first is expected to work through a change in religious beliefs, the second is expected to work through an increase in the opportunity cost of engaging in conflict. We state these hypotheses in the following manner.

Hypothesis 1: Faced with the Islamic sensitization campaign, i.e., the religious treatment, young Muslim males in Cabo Delgado engage less often in anti-social behavior, are less sympathetic with Islamic extremism, including violence, and show higher trust levels in state institutions. This means we expect $\beta^R > 0$ when the outcomes of interest are measured as positive.

Hypothesis 2: Faced with the training module on business management and employment in the labor market, i.e., the economic treatment, young Muslim males in Cabo Delgado engage less often

in anti-social behavior, are less sympathetic with Islamic extremism, including violence, and show higher trust levels in state institutions. This means we expect $\beta^E > 0$ when the outcomes of interest are measured as positive.

We do not have a clear prior with respect to the difference of the two treatment effects. In the same way, we do not have strong expectations about differences in behavior in the Joy-of-destruction game among the different types of players, i.e., Muslims, Christians, public officials, and foreigners. We do however have the prior that anti-social behavior increases when Muslims are paired with public officials or foreigners relative to when they are paired with the other types of opponents. As described above, indeed, public officials like security officers, and foreigners in convoys of gas of workers in the extractive industry have been the most prominent targets of violence motivated by Islamic extremism in Cabo Delgado. Our remaining hypothesis is then as follows.

Hypothesis 3: In the Joy-of-destruction lab game, anti-social behavior by Muslims in the main sample is most likely when they interact with public officials and foreigners. For that reason, positive treatment effects are most likely when interacting with those types of opponents.

4 Econometric results

4.1 Balance

We begin by devoting some attention to balance between comparison groups and descriptive statistics in the main Muslim sample. Table 1 shows the corresponding results while focusing on demographic characteristics. In the first column of that table, we display the mean and standard deviation for the control group for each of the demographic characteristics. The second column presents the difference to the two treatment groups together. The third and fourth columns show the differences between the control group and each one of the treatment groups, i.e., the religious and the economic treatments, respectively. The fifth column is dedicated to joint tests of significance of the two treatment effects for each demographic characteristic. We observe that, of the 60 tests performed, only two come out significant at standard levels, well below 10 percent of the total number of tests performed. Overall, this is evidence that randomization was effective at identifying comparable control and treatment groups. The significant differences we encountered can be seen as the product of luck. They relate to age, i.e., individuals in the religious group are

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older on average, when compared to the control group. In any case, we control for this characteristic in the regressions we perform ahead.

<Table 1 near here>

Table 1 also enables a description of the traits of the control group of the main Muslim sample. Average age is 25 years of age, and average number of adults in the corresponding households is 4. 79 percent of these young men are single. 35 percent of the control group completed secondary schooling, and 14 higher education, with an average of 11 years of education. The main ethnic groups represented are Macua (54 percent) and Mwani (40 percent). 25 percent of these men are employed, with an average monthly income of 5,388 Meticais (83 USD). Finally, 49 percent of the households represented in this control sample have access to piped water and 99 percent have access to electricity.[14]

4.2 The Joy-of-destruction lab game

We now turn to the main results of this paper, on the Joy-of-destruction lab game. In Table 2a, we show treatment effects of the religious and economic intervention on anti-social behavior in the lab game, i.e., taking as outcome variable a dummy taking value 1 in case the subject decided to destroy his opponent's endowment. We employ specification (2) above as well as simpler versions with a lower number of controls. We begin by reporting on a specification without any controls (column 1), we then add order dummies (column 2), and subsequently add other controls (column 3).[15] In columns (4)-(7) we add counterpart dummies for Christian, public official, and foreigner opponents (the omitted category is Muslim). We distinguish between specifications without (4-5) and with (6-7) interaction with the treatment dummies (with and without individual demographic controls). At the bottom of the table, we show tests of differences between the two treatment effects, as well as of the joint relevance of the counterpart dummies and of the differences between them.

<Table 2a near here>

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[14] Descriptive statistics of the auxiliary samples, i.e., Muslim, Christian, public officials, and foreigners, are displayed in the Appendix to this paper in Table A1.

[15] Controls are neighborhood dummies and individual demographic variables. Individual demographic variables are: age, age squared, number of adults in the household, years of education, years of education squared, dummy for Macua ethnicity, dummy for Mwani ethnicity, monthly expenditure, and ownership of assets (fridge, oven, car, tv and radio).

We observe a negative effect of the religious treatment on the probability of destruction in the Joy-of-destruction lab game. The magnitude of the effect is consistently 8 percentage points, across the main specifications (1)-(3). This treatment effect is significant at the 10 percent level. The same results appear when including counterpart dummies. This means that Hypothesis 1 in our paper seems to be true. However, we do not find any effects on destruction in the game of the economic treatment, contrary to Hypothesis 2 in our paper. These are indeed very close to zero in terms of magnitude, which means we can actually say that the effects of the religious and economic treatments are significantly different from each other (at the 10 percent level of statistical significance). When we add counterpart dummies to the specification, we do not see clear effects of these variables. However, we are closest to statistical significance when comparing Muslims to foreigners, as well as when comparing Christians to public officials and Christians to foreigners: facing foreigners and public officials seems to increase the propensity to destroy payoffs of opponents, relative to the other types of opponents. These differences are actually statistically significant for the control group when treatment interactions are added to the specification. These patterns are suggestive that Hypothesis 3 is partly true, although we do not find any significant interaction effects between the counterpart dummies and the treatments.

Table 2b is dedicated to the analysis of beliefs about destruction from opponents in the main Muslim sample. The specifications and tests we implement are the same as in Table 2a.

<Table 2b near here>

From the analysis of Table 2b, we find a consistently negative effect of the religious treatment, in line with effects we found for Table 2a and Hypothesis 1 in the paper. However, this effect is never statistically significant at standard levels. Surprisingly, we find a strong positive effect of the economic treatment, which ranges between 11 and 13 percentage points across specifications (1)-(5), which is significant at the 5 percent level. This effect suggests that the economic treatment may have triggered an expectation of added economic competition, leading to more anti-social behavior from others, consistently with the theoretical effects of a resource bonanza (which was emphasized in the contents of the economic treatment). When we add counterpart dummies, we find a clear expectation that foreigners will destroy endowments relative to Muslims – this is a difference of 6 percentage points, significant at the 5 percent confidence level. The difference between Christians and foreigners also approaches statistical significance in the same direction, i.e., that foreigners are

expected to be more anti-social than Christians (this is actually significant for the control group when considering interactions with the treatment variables). This pattern is similar to the one we found in Table 2a, and so to Hypothesis 3 in the paper. Like before, we do not find any statistically significant interactions between the counterpart dummies and the two treatment variables.

Since we have available data for the Joy-of-destruction lab game concerning not only the main Muslim sample but also the auxiliary samples of Muslims, Christians, public officials, and foreigners, we now report on the behavioral differences between the four different types of players. These are shown in Table 3, for destruction in the lab game (columns 1 and 2), as well as beliefs about destruction by opponents (columns 3 and 4), following specification (3) introduced above when describing our estimation strategy. We employ Muslim subjects as the omitted category. We control in all regressions for the treatment dummies, order dummies, and demographic characteristics. In columns (2) and (4), we add counterpart dummies (again using Muslims as the omitted category). We employ joint tests of significance of player types, as well as of counterpart types. For each group of dummies, i.e., player or counterpart, we also show tests of differences within each pair of possible types.

<Table 3 near here>

Regarding destruction by player types, we can report significantly less destruction for foreigners, who always play the Nash strategy of no destruction, when compared to Muslims. The magnitude of this difference is 17 percentage points, statistically significant at the 1 percent level. However, and surprisingly, we find a marginally significant difference (at the 10 percent level) between Muslims and Christians going in the direction of more destruction for the latter. The size of the coefficient is 11 percentage points. Public officials also seem to be more destructive than Muslims, but the difference is not statistically significant at standard levels. When adding counterpart dummies, we observe that subjects are particularly aggressive towards foreigners: the probability of destruction increases by 5 percentage points for these opponents, when comparing to Muslim counterparts (significant at the 5 percent level).

Effects are generally consistent when looking at beliefs about destruction by opponents. Foreigners believe their opponents will be less destructive, when compared to Muslims: this is an effect of 11 percentage points, significant at the 10 percent level. Christians and public officials believe their counterparts will be more aggressive, when contrasted to Muslims: they are 21 (Christians) or 11

(public officials) percentage-points more likely to believe their endowments will be destroyed (statistical significance is at the 1 or 10 percent levels, respectively). In the specification that adds counterpart dummies, we find that subjects believe public officials and foreigners will be more aggressive towards them than Muslims: these are differences of 6 and 7 percentage points (significant at the 5 or 1 percent levels).

The evidence in the Joy-of-destruction game allows us to conclude that the religious treatment was effective at decreasing the extent of anti-social behavior. This stands out as different from what we find for the economic treatment, which seems to yield no effects on anti-social behavior. In fact, in the opposite direction, when faced with the economic treatment, our main Muslim sample believes their counterparts will be more aggressive towards them. This may be due to an added sense of competition in line with the opportunities arising from the recent discovery of natural resources in the province of Cabo Delgado. When looking at descriptive behavior between the different types of players, we find that foreigners are significantly less aggressive than Muslims, but that Christians are marginally more destructive than Muslims in our study.

4.3 The list experiment and survey attitudes

In this section, we devote our attention to the outcome variables from the list experiment and from our survey measures of attitudes. We focus on the main Muslim sample.

Table 4 shows all the results. The first column relates to the list experiment. As described in full detail in our section on measurement, the sensitive items in the list experiment regarded support for extremism. We follow specification (4) from the section on our estimation strategy. The dependent variable concerns the simple average number of agreed items by subjects from the list of possible answers. We compute this average across all six survey questions/dimensions included in the list experiment. Each question could include a sensitive answer on an extremist position, over the four default (possible) answers. The inclusion of the sensitive item was randomized across subjects for all questions. Our effects of interest are the interaction terms between the two treatments and the inclusion of sensitive items, i.e., the dummy variable taking value 1 when a list of 5 items was given as possible answers.

We also show effects of the religious and economic treatments on a set of survey attitudes in columns (2)-(6) of Table 4. We follow the simplest specification we introduced above, i.e.,

specification (1). The dependent variables we employ concern the survey questions we described in our section on measurement. They concern awareness about the discovery of natural gas, expectation about whether the discovery of natural gas is good for peace, the extent of trust in the state, the extent of interest in politics, and the extent of support for Islamic autocracy. All dependent variables except the first, which is a dummy variable, are standardized as z-scores, i.e., by taking the mean of the control group and dividing by the standard deviation in the same comparison group.

In addition to our two effects of interest, we also display at the bottom of the table the test of the difference between them. All our regressions include full controls like in Tables 2.

<Table 4 near here>

We do not report any statistically significant effect of the interaction terms in the regression corresponding to the list experiment. In fact, these coefficient magnitudes are well below the size of the corresponding standard errors. It is possible that the list experiment was ineffective at measuring support for extremist positions. In case it was at least somewhat effective, we do not find any effects of the treatments, possibly due to limited statistical power at the level of the subject in the main Muslim sample.[16]

Consistent with the fact that the natural gas discovery was mentioned in both the religious and economic treatments, we find strong effects on awareness about that discovery: these are effects of 37 and 40 percentage points for the religious and economic treatments, respectively, with both being statistically significant at the 1 percent level. On the perception of whether the discovery is good for peace in Mozambique, we only see a significant positive effect for the religious treatment: the magnitude is 0.34 standard deviation units, significant at the 10 percent level of confidence. Trust in the state increases for both treatments, by 0.28 (religious) and 0.25 (economic) standard deviation units, both statistically significant at the 10 percent level. Turning to the interest Muslims in our main sample have in politics, we find negative effects of the treatments. However, only the

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[16] In Table A2 in the Appendix of this paper, we show full results of the list experiment by question. We do not find any significant interaction terms. Magnitudes are typically close to zero. Signs of these effects are not consistent either. If one looks at the coefficient of list of 5 alone, which is expected to be positive and significant if the sensitive option is systematically reported in the control group, one finds just one positive and significant effect (for fighting state authority). All the others are positive, although not significant, except for being against education of daughters, which yields a negative and significant effect.

religious one has a significant impact (at the 10 percent level): the size of the coefficient is 0.39 standard deviation units. Finally, support for an Islamic autocracy is impacted by both treatments significantly (at the 5 or 10 percent levels): the religious treatment leads to a decrease in 0.35 standard deviation units, and the economic treatment leads to a decrease in 0.27 standard deviation units. We do not find statistically significant differences between the two treatment effects for any of the outcome variables in Table 5.

We conclude in favor of some evidence that the religious treatment increased awareness about natural resources in Cabo Delgado, raised optimism regarding the impact of natural resources on peace, improved trust in the state, decreased interest in politics, and diminished support for Islamic preponderance over democratic politics. These effects are generally consistent with the impact of this treatment on decreasing the extent of anti-social behavior that we observed for the Joy-of-destruction lab game (Hypothesis 1). Although rising awareness about natural resources is consistent with the previous results of the economic treatment, the increase in trust and the decrease in support for an Islamic autocracy seem to add a more positive tone to the effects of the economic treatment (in line with Hypothesis 2).

5 Concluding remarks

In this paper, we follow two types of randomized conflict-prevention initiatives sponsored by an Islamic authority in Northern Mozambique. This is in a context where the discovery of substantial natural resources in the region has been accompanied by the emergence of violence related to radicalized Muslims. The first initiative is a religious sensitization campaign calling for a moderate Islam. The second is a training module on entrepreneurship, which also facilitates employment in the local labor market. We study a sample of young men recruited from mosques and focus our attention on the impact of the referred interventions in terms of anti-social behavior as measured in a Joy-of-destruction lab game. We also employ standard survey measures of attitudes including a list experiment. We find that the religious intervention decreased the prevalence of anti-social behavior measured in the lab game. We do not find effects for the economic intervention, although it increased the belief that other will be aggressive, consistently with theories of the resource curse. We also observe that young Muslims become more optimistic, more trustful in state institutions, and less supportive of extremism, when faced with moderate religious campaigning.

Although the evidence presented in this paper does not show that conflict was prevented by the interventions we studied, it presents clear evidence that sensitization by Islamic authorities works in the direction of conflict prevention, through less anti-social behavior and less support for extremism. Together with other recent evidence for the same setting (Armand et al., 2019), which shows that information given to the local communities averted real conflict events, this paper contributes to building a body of evidence on the important role of broad-based information campaigning in conflict-prevention. This is particularly relevant to policy-makers whose first-reaction, when faced with the emergence of violent Islam, is purely repressive of the focal points of aggression. This strategy has well-known risks in the longer run, namely of losing the support of moderate local populations, when it is difficult to isolate the true sources of violent behavior. Reaching to the communities with moderate information is not a substitute to guaranteeing security by force. However, as this paper helps to suggest, it is likely to be a crucial element of a balanced and effective strategy of conflict-prevention.

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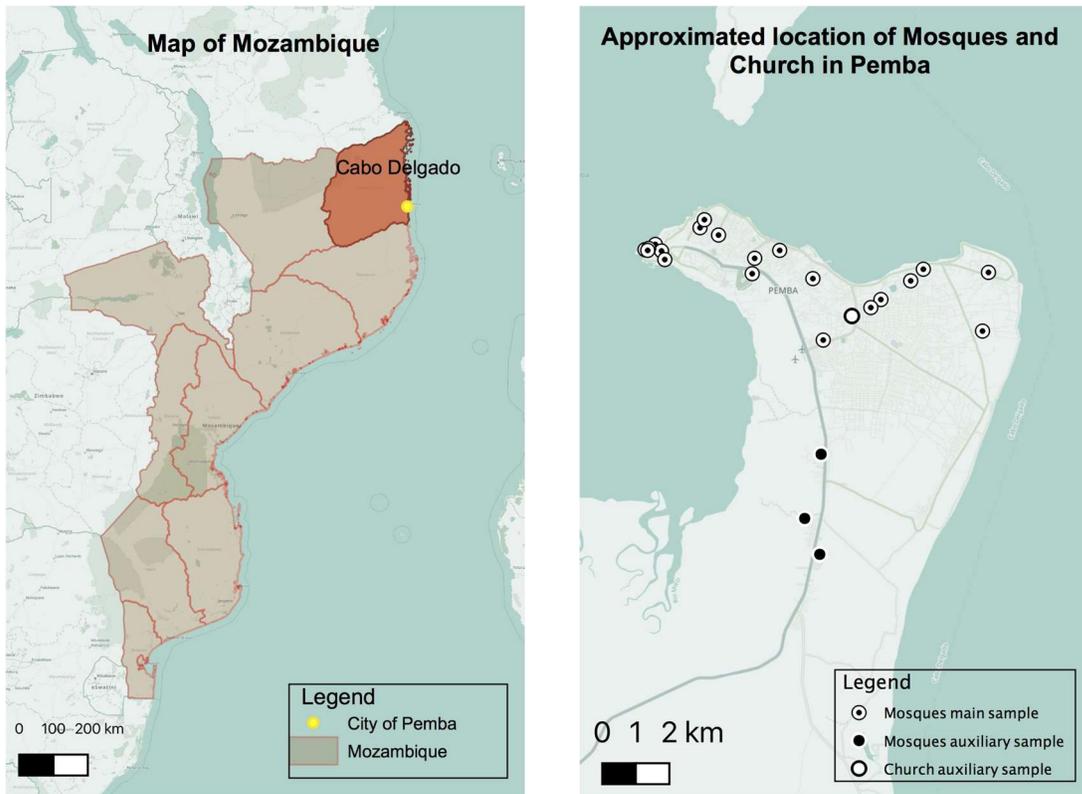**Figure 1: Mosques and church sampled**

Table 1: Demographic characteristics of the main Muslim sample

	control group	any treatment	religious treat.	economic treat.	joint test
	(1)	(2)	(3)	(4)	(5)
	mean	diff.	diff.	diff.	p-value
	[std.dev.]	(std.err.)	(std.err.)	(std.err.)	(N)
age	24.963	1,437*	1,859**	1.083	0.131
	[5,393]	(0,781)	(0,925)	(0,885)	(241)
number of adults in the household	3.704	-0.122	-0.087	-0.152	0.916
	[2,142]	(0,32)	(0,38)	(0,363)	(241)
single	0.79	-0.096	-0.105	-0.089	0.28
	[0,41]	(0,061)	(0,072)	(0,069)	(241)
secondary schooling	0.346	0.029	0.065	-0.001	0.626
	[0,479]	(0,066)	(0,078)	(0,075)	(241)
higher education	0.136	-0.023	-0.054	0.002	0.49
	[0,345]	(0,045)	(0,053)	(0,05)	(241)
years of education	10.691	-0.229	-0.637	0.113	0.137
	[2,349]	(0,343)	(0,404)	(0,386)	(241)
ethnic - macua	0.543	0.063	-0.009	0.123	0.155
	[0,501]	(0,067)	(0,079)	(0,076)	(241)
ethnic - mwani	0.395	-0.026	0.03	-0.073	0.381
	[0,492]	(0,066)	(0,078)	(0,075)	(241)
employed	0.247	0.059	0.082	0.04	0.536
	[0,434]	(0,062)	(0,073)	(0,07)	(241)
monthly income (Meticais)	5387.79	-640.974	-770.256	-532.497	0.866
	[8050,5]	(1249,274)	(1481,475)	(1417,394)	(241)
monthly expenditure (Meticais)	9251.444	3087.602	1127.775	4732.056	0.661
	[11871,547]	(4791,659)	(5677,629)	(5432,042)	(241)
owns assets (0-5)	2.617	-0.155	-0.302	-0,031	0.268
	[1,22]	(0,172)	(0,203)	(0,195)	(241)
piped water	0.494	-0.019	0.054	-0.08	0.232
	[0,503]	(0,068)	(0,081)	(0,077)	(241)
electricity	0.988	-0.031	-0.015	-0.045	0.253
	[0,111]	(0,024)	(0,029)	(0,028)	(241)
missing basics (0-30)	9.014	0.792	1.584	0.136	0.427
	[8,308]	(1,151)	(1,354)	(1,293)	(233)

Notes: Column (1) shows the mean for each variable in the control group, with standard deviation in squared brackets. Column (2) shows the coefficient of an OLS regression of each demographic variable on a dummy for any treatment (religious or economic). Columns (3)-(4) show the coefficients of OLS regressions of each demographic variable on each treatment separately. Column (5) shows the results of joint tests of the significance of the treatment coefficients. Ethnic - Mwani and ethnic - Macua are dummies for the two main ethnic groups of the sample. Owns assets is an indicator from 0 to 5 of possesion of assets in the household that includes: radio, tv, car, oven and fridge. Missing basics is an indicator of intensity of having no access to basic goods in the previous year, that ranges from 0-30. Basic goods are: food, drinking water, medical care, fuel to cook, and money for other basic needs. * p<0.10, ** p<0.05, *** p<0.01

Table 2a: Joy-of-destruction - main results

	destruction in the lab game						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
religious treatment	-0.075*	-0.075*	-0.082*	-0.075*	-0.082*	-0.067	-0.075
	(0.044)	(0.044)	(0.046)	(0.044)	(0.046)	(0.053)	(0.057)
economic treatment	-0.002	-0.002	-0.007	-0.002	-0.007	0.035	0.030
	(0.049)	(0.049)	(0.051)	(0.049)	(0.051)	(0.059)	(0.061)
counterpart (omitted=muslim)							
christian				0.008	0.008	-0.017	-0.017
				(0.026)	(0.026)	(0.035)	(0.035)
public official				0.033	0.033	0.069	0.069
				(0.032)	(0.032)	(0.046)	(0.046)
foreigner				0.045	0.045	0.094*	0.094*
				(0.029)	(0.030)	(0.049)	(0.050)
christian*religious treatment						0.064	0.065
						(0.046)	(0.048)
public official*religious treatment						-0.021	-0.020
						(0.060)	(0.062)
foreigner*religious treatment						-0.073	-0.073
						(0.065)	(0.067)
christian*economic treatment						0.012	0.012
						(0.046)	(0.047)
public official*economic treatment						-0.084	-0.084
						(0.057)	(0.058)
foreigner*economic treatment						-0.075	-0.075
						(0.065)	(0.066)
religious=economic (p-value)	0.087	0.088	0.091	0.088	0.091	0.063	0.056
christian=0; official=0; foreigner=0 (p-value)				0.369	0.38	0.08	0.085
christian=official (p-value)				0.324	0.331	0.051	0.054
official=foreigner (p-value)				0.641	0.641	0.523	0.528
christian=foreigner (p-value)				0.134	0.137	0.011	0.012
number of observations	972	972	964	972	964	972	964
r-squared	0.008	0.008	0.071	0.010	0.073	0.014	0.077
order dummies	N	Y	Y	Y	Y	Y	Y
controls	N	N	Y	N	Y	N	Y

Notes: This table shows OLS regressions using as dependent variable a dummy variable taking value 1 when the subject destroys the endowment of his partner in the Joy-of-destruction lab game. We are only considering the main sample of Muslim players in the experiment. We present the p-value for tests of five hypotheses. The first is for the equality of coefficients of treatments: religious=economic. Additional tests relate to coefficients of counterpart variables: we show results for jointly testing if the three coefficients of the counterpart dummies are equal to zero; then we show results for testing differences within each pair of counterparts. Specifications in columns (3), (5) and (7) include controls. Controls are neighbourhood dummies and individual demographic variables. Demographic variables are: age, age squared, number of adults in the household, years of education, years of education squared, dummy for macua ethnicity, dummy for mwani ethnicity, monthly expenditure, and ownership of assets (fridge, oven, car, tv and radio). Standard errors are clustered at the individual level and presented in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 2b: Joy-of-destruction - beliefs

	beliefs about destruction from opponents						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
religious treatment	-0.049	-0.049	-0.042	-0.049	-0.042	-0.068	-0.062
	(0.042)	(0.042)	(0.045)	(0.042)	(0.045)	(0.051)	(0.053)
economic treatment	0.114**	0.114**	0.126**	0.114**	0.126**	0.105*	0.116*
	(0.053)	(0.053)	(0.055)	(0.053)	(0.055)	(0.062)	(0.065)
counterpart (omitted=muslim)							
christian				0.020	0.020	-0.041	-0.041
				(0.028)	(0.028)	(0.041)	(0.041)
public official				0.033	0.034	0.024	0.024
				(0.028)	(0.029)	(0.049)	(0.050)
foreigner				0.058**	0.058**	0.087*	0.087*
				(0.026)	(0.026)	(0.044)	(0.045)
christian*religious treatment						0.094	0.095
						(0.062)	(0.064)
public official*religious treatment						0.003	0.005
						(0.062)	(0.064)
foreigner*religious treatment						-0.021	-0.019
						(0.056)	(0.057)
christian*economic treatment						0.085	0.085
						(0.052)	(0.053)
public official*economic treatment						0.019	0.019
						(0.063)	(0.064)
foreigner*economic treatment						-0.066	-0.066
						(0.059)	(0.060)
religious=economic (p-value)	0.001	0.001	0.001	0.001	0.001	0.003	0.002
christian=0; official=0; foreigner=0 (p-value)				0.144	0.154	0.018	0.02
christian=official (p-value)				0.628	0.626	0.172	0.177
official=foreigner (p-value)				0.343	0.354	0.246	0.252
christian=foreigner (p-value)				0.136	0.141	0.002	0.002
number of observations	972	972	964	972	964	972	964
r-squared	0.030	0.032	0.076	0.035	0.079	0.038	0.082
order dummies	N	Y	Y	Y	Y	Y	Y
controls	N	N	Y	N	Y	N	Y

Notes: This table shows OLS regressions using as dependent variable a dummy variable taking value 1 when the subject believes his opponent will destroy the subject's endowment in the Joy-of-destruction lab game. We are only considering the main sample of Muslim players in the experiment. We present the p-value for tests of five hypotheses. The first is for the equality of coefficients of treatments: religious=economic. Additional tests relate to coefficients of counterpart variables: we show results for jointly testing if the three coefficients of the counterpart dummies are equal to zero; then we show results for testing differences within each pair of counterparts. Specifications in columns (3), (5) and (7) include controls. Controls are neighbourhood dummies and individual demographic variables. Demographic variables are: age, age squared, number of adults in the household, years of education, years of education squared, dummy for macua ethnicity, dummy for mwani ethnicity, monthly expenditure, and ownership of assets (fridge, oven, car, tv and radio). Standard errors are clustered at the individual level and presented in parenthesis. * p<0.10, ** p<0.05, *** p<0.01.

Table 3: Joy-of-destruction - all players

	destruction in the lab game		beliefs about destruction in the lab game	
	(1)	(2)	(3)	(4)
player type (omitted=muslim)				
christian	**0.109***	**0.109***	**0.206***	**0.206***
	(0.063)	**(0.063)**	**(0.066)**	**(0.066)**
public official	**0.045**	**0.045**	**0.109***	**0.109***
	(0.059)	**(0.059)**	**(0.062)**	**(0.063)**
foreigner	**-0.174***	**-0.174***	**-0.108***	**-0.108***
	(0.053)	**(0.053)**	**(0.059)**	**(0.059)**
counterpart (omitted=muslim)				
christian		0.021		0.037
		(0.021)		(0.023)
public official		0.029		0.056**
		(0.025)		(0.025)
foreigner		0.053**		0.066***
		(0.025)		(0.024)
player: christian=0; official=0; foreigner=0 (p-value)	0.000	0.000	0.000	0.000
player: christian=official (p-value)	0.374	0.374	0.225	0.225
player: christian=foreigner (p-value)	0.000	0.000	0.000	0.000
player: official=foreigner (p-value)	0.000	0.000	0.002	0.002
counterpart: christian=0; official=0; foreigner=0 (p-value)		0.190		0.041
counterpart: christian=official (p-value)		0.704		0.394
counterpart: christian=foreigner (p-value)		0.129		0.182
counterpart: official=foreigner (p-value)		0.236		0.656
number of observations	1520	1520	1520	1520
r-squared	0.058	0.060	0.072	0.075

Notes: This table shows OLS regressions using as dependent variable: (left) a dummy variable taking value 1 when the subject destroys the endowment of his partner in the Joy-of-destruction lab game; (right) a dummy variable taking value 1 when the subject believes his opponent will destroy the subject's endowment in the Joy-of-destruction lab game. We are considering all participants in the lab game. We present the p-value for tests of eight hypotheses. The first set of four relates to coefficients of player type variables: we show results for jointly testing if the three coefficients of the player type dummies are equal to zero; then we show results for testing differences within each pair of player types. The second set of four is analogus and regards counterpart dummies. All regressions include treatment and order dummies, as well as demographic controls. Demographic controls are: age, age squared, years of education, education squared and monthly expenditure. Standard errors are clustered at the individual level and presented in parenthesis. * p<0.10, ** p<0.05, *** p<0.01.

Table 4: Survey attitudes and list experiment

	support for extremism (list experiment)	discovery of natural gas		trust in state	interested in politics	support for Islamic autocracy
		heard about it	good for peace			
	(1)	(2)	(3)	(4)	(5)	(6)
religious treatment	0.055	0.373***	0.344*	0.283*	-0.391*	-0.346**
	(0.189)	(0.055)	(0.204)	(0.160)	(0.215)	(0.172)
economic treatment	-0.048	0.403***	0.209	0.254*	-0.205	-0.271*
	(0.174)	(0.052)	(0.192)	(0.151)	(0.205)	(0.163)
religious=economic (p-value)	0.578	0.587	0.433	0.851	0.302	0.657
number of observations	241	241	196	237	201	235
r-squared	0.133	0.332	0.155	0.179	0.140	0.160

Notes: All dependent variables are presented in z-scores except column (1) and (2). The dependent variable in column (1) is the average of the number of items chosen in each list in the list experiment. The dependent variable in column (2) is a dummy variable taking value 1 when the subject heard about the discovery of natural gas. The dependent variable in column (3) is coded from a dummy variable taking value 1 when the subject agrees with the statement 'The discovery of natural gas is good for peace in Mozambique.' The dependent variable in column (4) is coded from the answer to the question 'How much do you trust the President of Mozambique?', on a scale of 0-3. The dependent variable in column (5) is coded from the answer to the question 'How interested are you in public affairs?', on a scale of 0-3. The dependent variable in column (6) is the mean level of agreement with the following three sentences, which are set on a scale of 1-5: 'Democracy goes against Islam,' 'Non-Muslims should have less rights that Muslims,' and 'There should be an Islamic government, without parties or elections.' In the regression of column (1) the coefficients we present correspond to interactions of the dummy variable 'list of 5' with the two treatments. 'List of 5' takes value 1 when the subject faced the full list of options in the list experiment. For all the other regressions in the table the coefficients we show correspond to the simple treatment variables. We are only considering the main sample of Muslim players in the experiment. In column (1) we also control for the dummy variable 'list of 5' and the simple treatment variables. Additional controls are the same as in Tables 2 and are included in all regressions. Standard errors are presented in parenthesis. * p<0.10, ** p<0.05, *** p<0.01.

Appendix

Protocol of the Joy-of-destruction Game - as implemented with the American sample

Instructions for Participants

Thank you for participating in this activity. The activity will last approximately 45 minutes. If you read the following instructions carefully, you can, depending on your own decisions, earn a considerable amount of money. It is therefore very important that you read these instructions carefully.

These instructions are solely for your private use. It is not allowed to communicate with the other participants during the activity. Should you have any questions, please ask us. If you violate this rule, we will have to dismiss you from the experiment and you will forfeit all payments.

You will be paid after the activity is over. No other participant will know how much you earned. You will receive $10 for showing up plus any additional earnings that you have in the activity. Your earnings also depend on the decisions of other participants, so you will receive that amount at a posterior date.

In the activity you are randomly matched with another participant – your partner. You will not learn the identity of the participant you are matched with, and vice-versa, your partner will never learn about your identity. Throughout the game you will partner with different people. At the end, one of the partners will be randomly chosen to be implemented and define your payoff. Since each pair is as likely to be chosen please be careful when making each of your decisions.

The activity is the following:

1. You and your partner both receive an endowment equivalent to $15.

2. You then have to decide whether to reduce your partner's income or to leave it as it is. Reducing your partner's income will cost you $1.5, and reduces the equivalent to $7.5 of your partner's income.

3. Your partner simultaneously takes the same decision. He can choose between leaving your income unaltered, or reducing it by $7.5. Your partner will incur the same cost (equivalent to $1.5) if he chooses to reduce your income.

What can happen:

If both of you choose to leave the other person's income unaltered, both of you will earn the equivalent to $15.

If both of you choose to reduce the other person's income, both of you will earn the equivalent to $6 (=15-7.5-1.5).

If you choose to reduce your partner's income, but he decides to leave your income unaltered, you will earn $13.5 (=15-1.5) and your partner will earn the equivalent to $7.5 (=15-7.5).

If you choose not to reduce your partner's income, but he decides to reduce yours, you will earn $7.5 (=15-7.5) and your partner will earn the equivalent to $13.5 (=15-1.5).

Your partner is a real person. Each participant receives some information about whom he is playing with. But you will never know the identity of your partner. And your partner will never know your identity either.

PARTNER X

Male
Age between 18-30
Born in Mozambique, where he resides
Practicing Muslim

Remember:

If both of you choose to leave the other person's income unaltered, both of you will earn the equivalent to $15.

If both of you choose to reduce the other person's income, both of you will earn the equivalent to $6 (=15-7.5-1.5).

If you choose to reduce your partner's income, but he decides to leave your income unaltered, you will earn $13.5 (=15-1.5) and your partner will earn the equivalent to $7.5 (=15-7.5).

If you choose not to reduce your partner's income, but he decides to reduce yours, you will earn $7.5 (=15-7.5) and your partner will earn the equivalent to $13.5 (=15-1.5).

Your partner will also have to decide among the same set of possibilities.

Please think about your decision carefully.

Reduce your partner (X) income.	
Keep your partner (X) income as it is.	

PARTNER W

Male
Age between 18-30
Born in Mozambique, where he resides
Practicing Christian

Remember:

If both of you choose to leave the other person's income unaltered, both of you will earn the equivalent to $15.

If both of you choose to reduce the other person's income, both of you will earn the equivalent to $6 (=15-7.5-1.5).

If you choose to reduce your partner's income, but he decides to leave your income unaltered, you will earn $13.5 (=15-1.5) and your partner will earn the equivalent to $7.5 (=15-7.5).

If you choose not to reduce your partner's income, but he decides to reduce yours, you will earn $7.5 (=15-7.5) and your partner will earn the equivalent to $13.5 (=15-1.5).

Your partner will also have to decide among the same set of possibilities.

Please think about your decision carefully.

Reduce your partner (W) income.	
Keep your partner (W) income as it is.	

PARTNER Y

Male
Age between 18-30
Born in Mozambique, where he resides
He is a public official with the Provincial Government of
Cabo Delgado

Remember:

If both of you choose to leave the other person's income unaltered, both of you will earn the equivalent to $15.

If both of you choose to reduce the other person's income, both of you will earn the equivalent to $6 (=15-7.5-1.5).

If you choose to reduce your partner's income, but he decides to leave your income unaltered, you will earn $13.5 (=15-1.5) and your partner will earn the equivalent to $7.5 (=15-7.5).

If you choose not to reduce your partner's income, but he decides to reduce yours, you will earn $7.5 (=15-7.5) and your partner will earn the equivalent to $13.5 (=15-1.5).

Your partner will also have to decide among the same set of possibilities.

Please think about your decision carefully.

Reduce your partner (Y) income.	
Keep your partner (Y) income as it is.	

PARTNER Z

Male
Age between 18-30
Born in the USA, where he resides

Remember:

If both of you choose to leave the other person's income unaltered, both of you will earn the equivalent to $15.

If both of you choose to reduce the other person's income, both of you will earn the equivalent to $6 (=15-7.5-1.5).

If you choose to reduce your partner's income, but he decides to leave your income unaltered, you will earn $13.5 (=15-1.5) and your partner will earn the equivalent to $7.5 (=15-7.5).

If you choose not to reduce your partner's income, but he decides to reduce yours, you will earn $7.5 (=15-7.5) and your partner will earn the equivalent to $13.5 (=15-1.5).

Your partner will also have to decide among the same set of possibilities.

Please think about your decision carefully.

Reduce your partner (Z) income.	
Keep your partner (Z) income as it is.	

We now ask you to estimate if your partner decides to reduce your income by $7.5 at the cost of the equivalent to $1.5. If your expectation is correct you will earn another $1.5.

My partner X: **Male**
Age between 18-30
Born in Mozambique, where he resides
Practicing Muslim

My partner (X) will reduce my income.	
My partner (X) will keep my income as it is.	

My partner W: **Male**
        Age between 18-30
        Born in Mozambique, where he resides
        Practicing Christian

My partner (W) will reduce my income.	
My partner (W) will keep my income as it is.	

My partner Y: **Male**
               Age between 18-30
               Born in Mozambique, where he resides
               He is a public official with the Provincial Government of Cabo Delgado

My partner (Y) will reduce my income.	
My partner (Y) will keep my income as it is.	

My partner Z: **Male**
      Age between 18-30
      Born in the USA, where he resides

My partner (Z) will reduce my income.	
My partner (Z) will keep my income as it is.	

Before we finish, we will randomly draw the partner that will be implemented. To guarantee randomness, we place 4 pieces of paper with letters X-W-Y-Z in a bag.

You will take out one piece of the paper from the bag without looking at the bag.

Which letter did you get?

Thank you for participating in this activity.

After you have made your decision, we ask you to remain seated. You will receive a short questionnaire, which we will also ask you to please complete.

Table A1: Demographic characteristics by sub-samples

	main muslim	aux. muslim	aux. christian	aux. pub. official	aux. foreigner
	(1)	(2)	(3)	(4)	(5)
	mean	mean	mean	mean	mean
	(std.dev.)	(std.dev.)	(std.dev.)	(std.dev.)	(std.dev.)
age	25.917	24.486	24.649	30.763	21.172
	(5.757)	(5.059)	(5.245)	(3.071)	(2.522)
number of adults in the household	3.622	2.568	2.649	2.053	1.333
	(2.344)	(1.281)	(1.136)	(1.314)	(1.446)
single	0.726	0.595	0.865	0.632	0.867
	(0.447)	(0.498)	(0.347)	(0.489)	(0.346)
secondary schooling	0.365	0.297	0.541	0.474	0.000
	(0.482)	(0.463)	(0.505)	(0.506)	(0.000)
higher education	0.120	0.081	0.162	0.447	1.000
	(0.326)	(0.277)	(0.374)	(0.504)	(0.000)
years of education	10.539	10.459	11.676	13.105	14.143
	(2.513)	(1.952)	(1.529)	(1.485)	(0.525)
employed	0.286	0.297	0.162	1.000	0.433
	(0.453)	(0.463)	(0.374)	(0.000)	(0.504)
partial employment	0.162	0.162	0.108	0.105	0.333
	(0.369)	(0.374)	(0.315)	(0.311)	(0.479)
full-time employment	0.124	0.135	0.054	0.895	0.100
	(0.331)	(0.347)	(0.229)	(0.311)	(0.305)
monthly income (USD)	82.704	61.685	50.901	181.186	346.207
	(152.452)	(77.185)	(110.812)	(185.524)	(1430.638)
monthly expenditure (USD)	188.355	137.878	93.707	128.509	712.466
	(584.923)	(246.977)	(77.095)	(76.729)	(1829.117)
ethnic - macua	0.585	0.919	0.784	0.737	
	(0.494)	(0.277)	(0.417)	(0.446)	
ethnic - mwani	0.378	0.081	0.000	0.053	
	(0.486)	(0.277)	(0.000)	(0.226)	
owns assets (0-5)	2.515	2.027	2.378	2.553	
	(1.262)	(1.443)	(1.163)	(1.350)	
piped water	0.481	0.649	0.649	0.711	
	(0.501)	(0.484)	(0.484)	(0.460)	
electricity	0.967	0.919	0.892	0.868	
	(0.180)	(0.277)	(0.315)	(0.343)	
missing basics (0-30)	9.554	9.486	9.000	10.684	
	(8.172)	(8.228)	(10.047)	(10.172)	
observations	241	37	37	38	30

Notes: Each column presents means and standard deviations for the different demographic characteristics. Ethnic - Mwani and ethnic - Macua are dummies for the two main ethnic groups of the Mozambican sample. Owns assets is an indicator from 0 to 5 of possesion of assets in the household that includes: radio, tv, car, oven and fridge. Missing basics is an indicator of intensity of having no access to basic goods in the previous year, that ranges from 0-30. Basic goods are: food, drinking water, medical care, fuel to cook, and money for other basic needs.

Table A2: List experiment

	support for extremism					
	against secondary education of daughters	fights state authority	supports violence	supports national extremism events	supports international extremism events	intends to join extremist groups
	(1)	(2)	(3)	(4)	(5)	(6)
religious treatment* list of 5	**0.363**	**0.143**	**-0.108**	**-0.067**	**0.205**	**-0.224**
	(0.373)	**(0.353)**	**(0.327)**	**(0.303)**	**(0.525)**	**(0.321)**
economic treatment*list of 5	**-0.019**	**-0.046**	**0.163**	**0.097**	**-0.663**	**0.109**
	(0.344)	**(0.327)**	**(0.302)**	**(0.280)**	**(0.485)**	**(0.297)**
list of 5	-0.967***	0.544**	-0.035	0.202	0.328	0.287
	(0.258)	(0.244)	(0.226)	(0.210)	(0.363)	(0.222)
religious treatment	0.028	-0.452*	-0.178	-0.148	-0.478	0.054
	(0.282)	(0.268)	(0.247)	(0.230)	(0.398)	(0.243)
economic treatment	0.058	-0.161	-0.303	-0.149	-0.010	0.005
	(0.253)	(0.239)	(0.222)	(0.205)	(0.354)	(0.218)
religious*list of 5=economic*list of 5 (p-value)	0.295	0.584	0.397	0.581	0.092	0.290
number of observations	240	241	240	241	241	240
r-squared	0.263	0.207	0.097	0.137	0.121	0.110

Notes: This table shows OLS regressions using as dependent variables the number of agreed items by subjects from the list of possible answers to the corresponding question. Each question may include a sensitive answer on an extremist position - these are referred in the top row of the table and fully described in the text of the paper. List of 5 is a dummy variable taking value 1 when the subject faced the full list of options in the corresponding question of the list experiment. We are only considering the main sample of Muslim players in the experiment. We present the p-value for the test of equality of the coefficients of the interaction terms. Controls are the same as in Tables 2a and 2b and are included in all regressions. Standard errors are presented in parenthesis. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.