Preventing Violent Islamic Radicalization: Experimental Evidence on Anti-social Behavior

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Motivation

Muslim radicalization is associated to a large share of violent conflict in the world (Gleditsch and Rudolfsen, 2016).

Although known/established drivers of conflict may be at play at the same time as Muslim radicalization, there is a sense that **religious principles could be specific drivers**.

In many settings, no clarity from Islamic authorities on a unique interpretation of Islam, namely regarding the use of violence against others.

In this paper

In this paper we focus on:

1. The **evaluation of a sensitization campaign by Islamic authorities in Mozambique**.

2. **Contrasting religious sensitization to the creation of economic opportunities**.

We conducted a **field experiment (RCT) whereby we test the impact of two interventions on young Mozambican males.**

The main source of measurement is the use of a **joy-of-destruction lab game.**

Research questions

What is the impact of?

Two randomized interventions:
1) **Islamic sensitization**,
2) Creation of economic opportunities through **training on entrepreneurship and employment/labor market**.

On:
1) Destruction of others' payoffs in the **joy-of-destruction lab game**,
2) **List experiment** on propensity to defend Islamic radicalization,
3) **Survey attitudes**.

Main results

Religious sensitization causes a decrease in destruction of others' payoffs in the joy-of-destruction game.

This is not observed for the training module on entrepreneurship and employment, which increases the belief that others will destroy payoffs.

Some evidence of public officials and foreigners being more targeted for destruction in the game.

Positive effects of the interventions on trusting the state, and negative effect of religious sensitization on support for extremism (survey questions).

Outline

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1. Literature

Drivers of conflict, main mechanisms at work are:
(i) **low opportunity costs -** Collier and Hoeffler (OEP, 2004), Miguel et al. (JPE, 2004), Blattman and Annan (APSR, 2016).
(ii) **rapacity -** Dube and Vargas (JPE, 2013).
(iii) **feasibility -** Berman et al. (AER, 2017).

Terrorism/Violence in the Middle East:
Counterinsurgency works in Iraq/Afghanistan - Berman et al. (JPE, 2011), Beath et al. (2018), Lyall et al. (2018).
Beyond material benefits - Berman et al. (JCR, 2011), Bursztyn et al. (JEEA, 2019), Lyall et al. (APSR, 2013).

Promoting collective action works - Fearon et al. (AER P&P, 2009; APSR, 2015), Collier and Vicente (EJ, 2014).

Context

Mozambique discovered substantial amounts of natural gas in Cabo Delgado province starting in 2010. This is likely to turn Mozambique into a global player in the LNG exports.

Cabo Delgado is remote and primarily rural, with high poverty and child mortality rates for national standards.

Previous project (Armand et al., 2019) implemented an RCT following an information campaign on resource management in the whole of Cabo Delgado province: it increased mobilization of local communities and decreased the incidence of conflict (ACLED, GDELT).

Conflict started in Cabo Delgado province at the end of 2017: Systematic attacks to government institutions like the police, to civilians in rural areas (including the destruction of villages), and to foreign convoys linked to the natural gas operations.
Several hundred deaths (300+) until now.

Many associations with radical Muslims, some infiltrated in local Mosques from other countries with links to Al-Shabaab, ISIS. Most perpetrators are Mozambican.

Treatments

Partnership with CISLAMO (Islamic Council of Mozambique), the main NGO representing Muslims in Mozambique, with a long record of peaceful political mediation (during the civil war and with systematic contributions in the observation of the political process).

Two treatments:

1. **Islamic sensitization**.
2. **Training on entrepreneurship and employment in the local labor market**.

1. **Islamic sensitization included:**

CISLAMO produced a full manual for the purpose of this project, consulting with their Muslim religious leaders.

Deconstruction of radical beliefs:

A Muslim can work for a non-Muslim government,
Befriend non-Muslims is not forbidden,
Islam opposes to violence.

Other topics related to: secular education; going to hospitals, specially for females who are attended by male doctors; holding an ID card or passport with a picture not forbidden.

2. Training on Entrepreneurship and employment included:

Entrepreneurship:

Have an idea and business plan,
Where to get funding and corresponding requirements,
Simple rules of thumb to keep a sustainable business, e.g., keeping accounts, separating business accounts.

Employment/Labor market:

Employment opportunities in the province, who is recruiting and how to have access to the job advertisements,
How to organize a CV,
Which skills and characteristics employers are looking for.

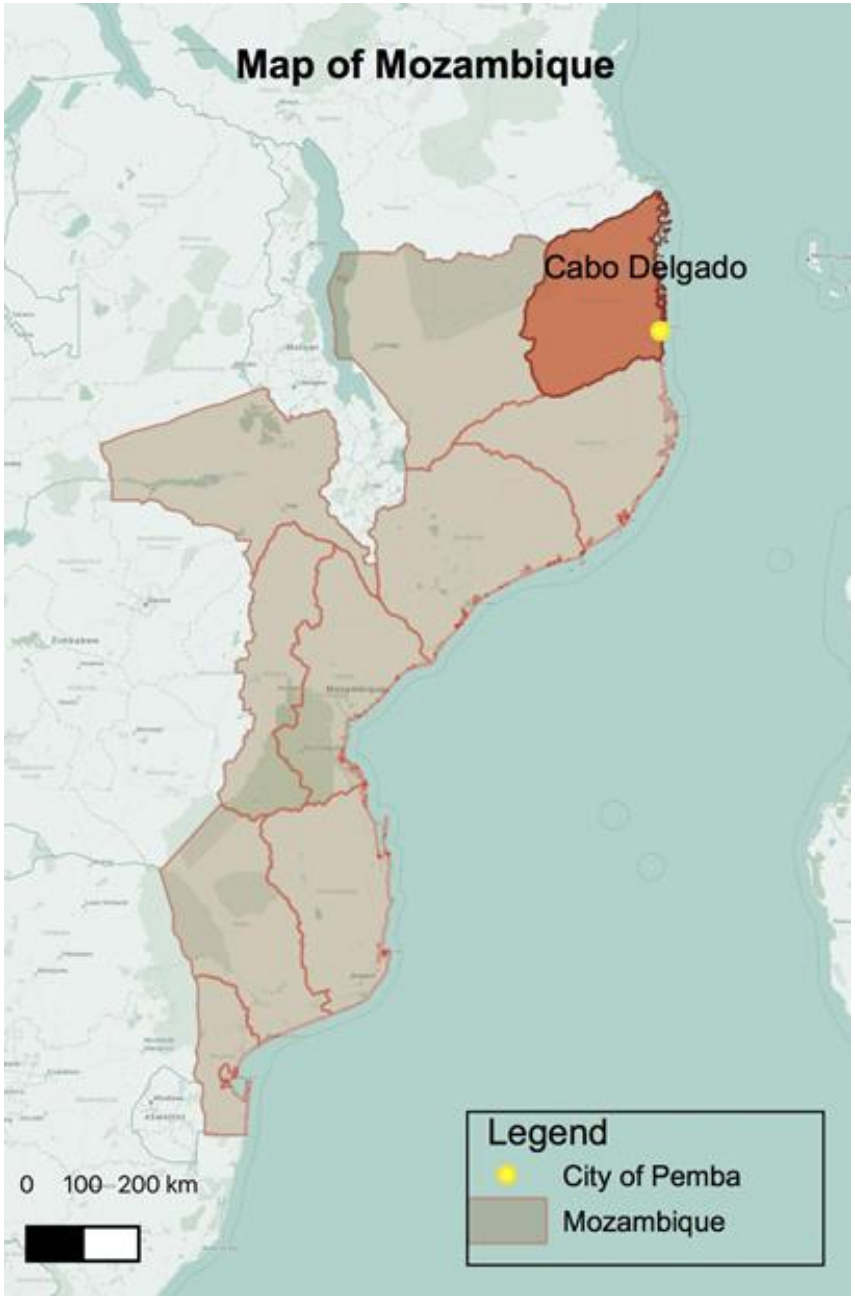
Islamic sensitization.

Sampling and Randomization

Main Muslim sample drawn from 21 Mosques in Pemba, Cabo Delgado.
Indicated by local religious leaders, consisted of 241 young males, 18-44 years of age.

Auxiliary samples were gathered in the following populations:
1. **Mozambican Muslims**: drawn from three Mosques in the suburbs of Pemba, Muxara, consisted of 37 young males, 18-42 years of age.
2. **Mozambican Christians**: drawn from one Church in Pemba, consisted of 37 young males, 18-42 years of age.
3. **Mozambican public officials**: drawn from the provincial government, consisted of 38 young males, 18-40 years of age.
4. **Foreigners**: drawn from the University of Notre Dame (USA), consisted of 30 young males, 18-31 years of age.

Randomization performed at the individual level for the Muslim sample.



The sampled Mosques and Church in Pemba.

Measurement

1. Joy-of-destruction lab game

2. List experiment

3. Survey attitudes

Timeline:

April 2018 - data collection with Foreigners (US).
January 2019 - treatments.
January to March 2019 – measurement activities, and payment of game payoffs.

1. Joy-of-destruction lab game

Follows original design in **Abbink and Herrmann (2011) and Abbink and Sadrieh (2009)**.

Game played in pairs:

- Each player in the pair receives 500MTS (Mozambican sample, approx. 8USD),
- Choice between destroying 250MTS of the counterpart's endowment at own cost of 50MTS, or do nothing,
- Both players make the choice simultaneously.

1. Joy-of-destruction lab game (continued)

Each player from the main Muslim sample plays with:

A Mozambican Muslim from another Mosque,
A Mozambican Christian,
A Mozambican public official,
A foreigner.

1520 experimental decisions.

Incentivized beliefs about counterparts' behavior.

We randomly select which pair is implemented in the end of the game for the purpose of defining payoffs.

Players recording their choices in the game.

Lottery to decide the pair at the end of the game.

2. List experiment

Experimental methodology to measure response to sensitive questions.

Randomly allocate participants within a comparison group to two different types of questions:

1. (Not sensitive) Identify how many sentences you agree with in a list of 4 possibilities;
2. (Sensitive) Identify how many sentences you agree with in a list of the same 4 plus the sensitive possibility.

Sensitive options:

Girls' education,
Threaten the State to improve the country,
Use of violence to defend a cause,
Support for attacks (to police) in Mocimboa da Praia,
International attacks connected with Islam,
Join a radical Muslim group.

3. Survey attitudes

Natural gas awareness and perceptions.
Trust in the state.
Interest in politics.
Support for democratic institutions.
Attitudes towards religious extremism.

List experiment and survey.

Estimation strategy

Generally:

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

where T are indicator variables for the two treatments,
X is a set of individual characteristics.

For the joy-of-destruction outcomes:

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

with interactions with opponent types *C*, and order dummies *O*.

Hypotheses

Hypothesis 1: Faced with Islamic sensitization, young males become less sympathetic with violence.
This translates to less destruction in the joy-of-destruction lab game, as well as more peaceful positions in the list experiment and the survey attitudes.

Hypothesis 2: Faced with training on entrepreneurship/labor market, young males become less sympathetic with violence.

Hypothesis 3: In the joy-of-destruction lab game, effects are most likely when Muslims are interacting with public officials and foreigners.

Pre-analysis plan: Published with AEA Registry and followed closely in this paper.

8. Results

(Balance/descriptive statistics)

Joy-of-destruction lab game

List experiment

Survey attitudes

Two significant tests out of 60 tests performed: balanced demographics.

Average age is 25 years, 79 percent single, 35 percent completed secondary education, and 14 percent attended higher education.

The main ethnic groups are Macua (54 percent) and Mwani (40 percent).

25 percent are employed, with an average monthly income of around 83 USD.

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

Religious sensitization reduces the probability of destruction by 8 percentage points.

The training module on entrepreneurship and employment does not yield significant effects (which is statistically different from the result of Islamic sensitization).

Some evidence of public officials and foreigners being more targeted for destruction in the game.

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
Mean dependent variable (control group)	0.191	0.191	0.191	0.191	0.191	0.191	0.191
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.

The training on entrepreneurship and employment increases the belief that counterparts will destroy payoffs (which is consistent with some theories of the natural resource curse): the magnitude of the effect is 11-13 percentage points.

There is a belief that foreigners will destroy payoffs more frequently than other types of partners.

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
Mean dependent variable (control group)	0.176	0.176	0.176	0.176	0.176	0.176	0.176
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.

However, foreigners are destroying payoffs less frequently than the Muslims on the sample.

In the opposite direction, Christians are destroying payoffs more frequently.

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
Mean dependent variable (omitted player type)	0.172	0.172	0.206	0.206

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.

No effects of the interventions on support for extremism measured through the list experiment.

Positive effect of religious sensitization on expectations about the impact of natural resources on peace.

Positive effects of the interventions on trusting the state.

Negative effect of religious sensitization on interest in politics.

Negative effect of religious sensitization on support for extremism (survey questions).

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	**0.051**	**0.373*** **	**0.344***	**0.283***	**-0.391***	**-0.346** **
	(0.188)	**(0.055)**	**(0.204)**	**(0.160)**	**(0.215)**	**(0.172)**
Economic treatment	**-0.064**	**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)	0.532	0.587	0.433	0.851	0.302	0.657
Number of observations	241	241	196	237	201	235
R-squared	0.124	0.332	0.155	0.179	0.140	0.160
Mean dependent variable (control group)	2.209	0.580	-0.070	-0.138	0.124	0.261

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.

Concluding remarks

The evidence gathered in this project is consistent with the idea that Muslims can counter Muslim radicalization and violence: **simple religious sensitization decreased young males' propensity to harm others**.

Our results are also consistent with a religious exception on drivers of conflict, since we see no effects of increasing one's economic prospects.

Policy-wise, we show religious sensitization can work in countering radicalization. Community information/sensitization can be a crucial conflict-prevention strategy in Northern Mozambique.