Does Information Break the Political Resource Curse? Experimental Evidence from Mozambique*

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April 2020

Abstract

Natural resources can have a negative impact on the economy through corruption and civil conflict. This paper tests whether information can counteract this political resource curse. We implement a large-scale field experiment following the dissemination of information about a substantial natural gas discovery in Mozambique. We measure outcomes related to the behavior of citizens and local leaders through georeferenced conflict data, behavioral activities, lab-in-the-field experiments, and surveys. We find that information targeting citizens and their involvement in public deliberations increases local mobilization and decreases violence. By contrast, when information reaches only local leaders, it increases elite capture and rent-seeking.

JEL codes: D72, O13, O55, P16.

Keywords: Natural Resources, Curse, Natural Gas, Information, Deliberation, Rent-seeking, Mozambique.

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Since Adam Smith's Wealth of Nations, economists have been wary of potential problems arising from the exploitation of natural resources. The *resource curse*, a term coined by Auty (1993), is well-defined in the literature as a decrease in income following a resource boom (Caselli and Cunningham, 2009), and observed empirically as a cross-country negative relationship between per-capita GDP growth and exports of natural resources (Sachs and Warner, 1999).[1] Initial theories associate this phenomenon with shifts away from manufacturing and toward non-tradable goods, i.e., the Dutch Disease (Corden and Neary, 1982; Gelb, 1988; Auty, 1993). In the 1990s, African countries such as Nigeria, Angola, and Sierra Leone, rich in oil and diamonds, became prominent cases for the development of new theories involving corruption (Treisman, 2000) and civil conflict (Collier and Hoeffler, 2004; Ross, 2004). These theories initially associated resource exploitation with movements toward rent-seeking in the economy, at the expense of more productive activities (Tornell and Lane, 1999; Baland and Francois, 2000; Torvik, 2002). Attention then shifted to the relationship between the resource curse and the quality of institutions (Mehlum et al., 2006), paving the way for theories centered around politicians' misbehavior when resource rents become available, i.e., the political resource curse (Robinson et al., 2006). This mechanism is closely connected to rapacity (Dube and Vargas, 2013; Berman et al., 2017), which associates competition for centralized resource rents with conflict.

In face of the political resource curse, evidence about policies that could counteract its negative effects remains scarce. Promoting local institutions that strengthen political accountability could help if the problem is politicians' misbehavior. Indeed, as windfalls reduce the relative importance of tax revenues, the link between government and citizens is weakened (Karl, 1997; Ross, 2001).[2] A first step to strengthen political accountability is to inform citizens. However, the literature has limited causal evidence linking this solution to politicians' behavior. Banerjee et al. (2018) is a recent exception: providing information about a redistribution program to beneficiaries led to substantially lower resource capture by local officials in Indonesia. In addition, in the context of community campaigning, the provision of information could not only impact accountability, but also prevent conflict by raising citizens' opportunity costs of joining conflict (Becker, 1968; Grossman, 1991), or by mobilizing communities against violence (Collier and Vicente, 2014).

This paper extends the literature by focusing on the reactions of citizens and local politicians to the dissemination of information about a major resource discovery that will materialize as a future

[1] Within-country evidence is more positive. For Peru, Aragón and Rud (2013) find evidence of a positive effect of a large gold mine on real income. For Mozambique, Toews et al. (2016) show positive impacts on job creation of resource-induced FDI.

[2] McGuirk (2013) provides evidence consistent with this claim for the African continent, and Paler (2013) for Indonesia. Following a similar design to Paler (2013), De la Cuesta et al. (2017) find no difference in the demand for accountability between priming on taxation or oil revenues for Ghana and Uganda. However, evidence on local accountability is limited as the literature has often focused on national-level leaders and institutions (Bhattacharyya and Hodler, 2010; Andersen and Aslaksen, 2013).

resource windfall.[3] We conducted a large-scale randomized field experiment in 206 communities of Northern Mozambique, after a massive discovery of 180 trillion cubic feet of natural gas in the Rovuma basin, Cabo Delgado province (IMF, 2016).[4] Labeled the largest worldwide in many years, the discovery has the potential to transform the country into the third-largest exporter of liquefied natural gas (LNG) in the world (The World Bank, 2014; Frühauf, 2014).[5] This provides a unique setting because the future exploitation of natural gas is expected to generate a substantial impact on the Mozambican economy, but also brings high risks of future resource and revenue mismanagement. Mozambique is a low-income country, ranking seventh from the bottom worldwide in terms of GDP per capita (The World Bank, 2017). Cabo Delgado province is primarily rural, with a total of 1.8 million inhabitants, and ranks lowest in human development among all the provinces of Mozambique (INE, 2015; Global Data Lab, 2016). At the same time, accountability and the current management of natural resources score weakly in international rankings (Freedom House, 2017; NRGI, 2017).

Facing limited media independence and penetration, as well as poor knowledge of the discovery in the province, a broad coalition of governmental and non-governmental organizations sponsored the large-scale information campaign we follow. Its objective was to provide communities with important details about the discovery of natural gas in Cabo Delgado, the expected size of the future windfall, and the rights of local populations to benefit from its exploitation. To relate information with local political accountability, two interventions were implemented. In a first group of randomly-selected communities, only local political leaders received the information module, which in principle did not contribute to increased accountability.[6] Leaders can gain not only from information about the discovery, but also from the fact that the campaign recognizes their centrality in the community. In a second group, the information module was delivered to both local leaders and citizens, targeting communities at large while aiming to provide higher levels of accountability. In a third (control) group, no dissemination efforts were organized.

[3] It has been common in the literature to study the resource curse at the national level and after the exploitation began. However, in countries with high level of corruption, central government's inefficiencies are often the result of widespread local capture (see, e.g., Reinikka and Svensson, 2004). This justifies the importance of local political structures to understand the curse. In addition, standard economic theory suggests that shocks to expectations about the future exploitation translate to current behavioral change. In aggregate terms, Arezki et al. (2017) show that news about resource discoveries have effects on savings, investments, and employment.

[4] The new gas field in Mozambique takes the third place worldwide if one considers the ranking of largest gas fields compiled by Sandrea (2006). The Mozambican field would rank behind only the South Pars field in Iran/Qatar and the Urengoy field in Russia, both discovered in 1960/70s.

[5] Major investment plans were approved by the Government in 2017 and 2018, and new projects are currently under approval. See, for instance, *The Financial Times* (*Mozambique to become a gas supplier to world*, 27/06/2018). The epicenter of action is Palma in the north of the province, where a refinery and a port are expected to be built. Off-shore discoveries can have significant effects beyond the area of extraction when windfalls are distributed (see, for instance, Caselli and Michaels, 2013). For Mozambique, this is expected to be the case (Melina and Xiong, 2013). See *CNN* (Is Mozambique the next oil and gas hub?, 03/05/2017) or *The Financial Times* (Mozambique to become a gas supplier to world, 27/06/2018) for two recent articles about natural gas in Mozambique.

[6] Leaders could opt to pass this information on to their citizens, potentially forming a cost-effective entry point to inform communities.

The design of the experiment and of the measurements was included in a pre-analysis plan registered on the American Economic Association RCT Registry (Armand et al., 2017), and followed closely in the analysis. The experimental design incorporates a wide range of measurements, including georeferenced data about violent events, structured community activities (SCAs), lab-in-the-field experiments, baseline and endline surveys. Many measurements were compiled specifically to detect behavioral changes among both local leaders and citizens, consistent with previous theoretical work on the political resource curse. Some behavioral measurements were originally developed for this project, namely SCAs measuring favoritism and rent-seeking, and a rent-seeking game. Other behavioral measurements follow previous contributions, as in Casey et al. (2012), Batista and Vicente (2011), and Collier and Vicente (2014).

We find clear positive effects of community-level information dissemination, most notably, on decreasing violence. This effect is concurrent with a sudden rise in violent events attributed to extremist groups recruiting locally in the province of Cabo Delgado, beginning at the time this project completed operations in the field.[7] As compared to the control group, the probability of a violent event occurring decreased by 9 percentage points in communities where the full campaign was implemented. Consistently, we observe positive effects on awareness and knowledge about the natural gas discovery among citizens. In line with a higher opportunity cost of engaging in conflict, citizens also become more optimistic about the future benefits of the discovery. On the other hand, when only leaders receive information, no change occurs in awareness and knowledge among citizens, while leaders become more knowledgeable. In this case, elite capture and rent-seeking activities by leaders and citizens increase. Such adverse effects are not observed when the information campaign targets entire communities. We report instead an increase in citizens' mobilization, trust, voice, and demand for accountability. These are possible mediators for the reported effects on violence.

This paper contributes to the literature on the resource curse in two main ways. First, this study complements the growing empirical work documenting the political roots of the resource curse. The case of oil in Brazil has inspired a number of contributions. Caselli and Michaels (2013) analyze impacts of oil revenues on the structure of municipality-level income, showing evidence consistent with political pressures. Additional revenues increase corruption and result in less educated local politicians (Brollo et al., 2013). They are also favorable to the incumbents in elections (Ferraz and Monteiro, 2014). In line with these results for Brazil, Vicente (2010) shows that, following an oil discovery in São Tomé and Príncipe, perceived corruption increases, especially vote-buying. Second, this paper demonstrates that an information campaign targeting communities at large can counteract the political resource curse, while avoiding elite capture and promoting

[7] Civilians were the main target. See, for instance, *The Economist* (A bubbling Islamist insurgency in Mozambique could grow deadlier, 09/08/2018), *The Independent* (Mozambique's own version of Boko Haram is tightening its deadly grip, 20/06/2018), *The Financial Times* (Shadowy insurgents threaten Mozambique gas bonanza, 21/06/2018).

community mobilization.[8] Moreover, it is capable of preventing conflict after a resource discovery, a real possibility in light of the evidence linking commodities with violence (Fearon, 2005; Dal Bó and Dal Bó, 2011; Dube and Vargas, 2013; Bazzi and Blattman, 2014; Berman et al., 2017). To our knowledge, this paper is the first to evaluate a specific intervention to prevent conflict in a newly resource-rich setting. It builds on recent developments in understanding the effects of micro-interventions aimed at preventing violence by transforming institutions (Fearon et al., 2009), influencing opportunity costs (Blattman and Annan, 2016; Armand et al., 2020), and improving non-cognitive skills (Blattman et al., 2017).

1 The intervention and its setting

A wide coalition of international, national, and local institutions sponsored a large-scale information and deliberation campaign about the management of natural resources in the province of Cabo Delgado, focusing on the recent natural gas discoveries. The campaign was conducted at the community level between March and April in 2017.

The information module started by defining natural resources and the related legal rights of the population, including the presentation of various laws related to land, mines, forests, and fishing (see Appendix A for further details). The campaign provided details about the discovery of natural gas in Cabo Delgado, including plans for exploration, and the expected consequences for local communities. Importantly, the module highlighted the expected size of the natural gas windfall, with the likely positive implications for provincial government revenues and job creation. The campaign cited specifically an IMF report mentioning that tax revenues from the project from the startup to 2045 could reach US$ 500 billion, more than 34 times the revenue generated by Mozambique the year before the campaign (IMF, 2016). The campaign emphasized the rights of local communities to benefit from the exploitation of the natural gas, as established by Mozambican law and stated by the government in programmatic documents (INP/MIREME, 2014). These included the rights to: be informed, have revenues invested locally, be compensated if directly affected, and be given priority in employment in the sector. Note that there is substantial uncertainty about many of the topics covered. Importantly, the government had not yet made any decisions on how to channel fiscal revenues to local authorities. Still, the cases of other resource-rich countries facing similar discoveries were part of the information package, which referred to both successes and failures. All sponsoring organizations involved in the project discussed and approved the final content of the information package, in order to guarantee widespread support and maintain

[8] Large-scale civic-education campaigns have already proven to be effective in Mozambique in relation to political participation (Aker et al., 2017). Closely related to the context of natural resources, Cappelen et al. (2018) show how conveying information through videos about a discovery in Tanzania increases citizens' expectations of corruption, while willingness to engage in corrupt behavior is not affected.

neutrality.

The campaign included two major randomized variations at the community level. Treatment 1, labeled as *leader treatment*, had the information module delivered to the corresponding community leaders only. In Mozambique these individuals are the highest-ranked representatives of the government within each community and are well-defined figures. In rural areas these are known as village chiefs (*chefes de aldeia*), and in urban settlements as neighborhood chiefs (*secretários de bairro*). Communities select both types of leaders, whom the state then acknowledges, meaning that the state hierarchy has significant influence over community leader selection. They are paid a wage from the government and their competencies are mainly related to land allocation, enforcement of justice, rural development, and formal ceremonies. In addition, they must be consulted when natural resources are procured in the community, and aid or public programs are to be implemented (Nuvunga, 2013; Buur and Kyed, 2005).

In treatment 2, labeled as *community treatment*, the information dissemination was targeted not only to local leaders, but also to communities at large. Community meetings and door-to-door contact were implemented for this purpose in each community. Following Humphreys et al. (2006), within this treatment, half of the communities were randomly selected and offered a deliberation module in addition to the information module.[9] Communities in the *control group* received neither information nor deliberation modules.

Due to the low level of literacy among study participants, information was mainly delivered verbally. First, trained facilitators provided an explanation of the information content in local languages. This happened individually to local leaders in treatments 1 and 2, and in community meetings for treatment 2. Appendix A shows the structure of these presentations. Second, treatment 2 included a live community-theater presentation with the intention of communicating the contents of the information package in an informal manner. For treatment 2, verbal presentations and community theaters also served as a mean to mobilize communities by gathering villagers in large numbers. In these communities, in 91% of sampled households, at least one member participated in the meetings. Finally, verbal communication was supplemented with the distribution of a pamphlet (Figure A1). It was hand delivered to leaders in treatments 1 and 2, and additionally door-to-door to community members in treatment 2.

[9]This component started with the formation of small citizen committees of around 10 people. Each group was invited to meet and deliberate on the priorities for local spending in relation to the future natural gas windfall. District administrators, the main political representative above the community but below the provincial level, received the results of the deliberation meetings.

2 Sampling and randomization

We selected a sample of 206 communities in the province of Cabo Delgado. These were randomly drawn from the list of all 421 polling locations in the sampling frame, stratified on urban, semi-urban, and rural areas. To randomly allocate polling stations to different interventions, blocks of four communities were built using Mahalanobis-distance while exploiting the richness of baseline information. Within each block communities were randomly allocated with equal probability to either treatment 1, treatment 2 without the deliberation module, treatment 2 with the deliberation module, or a control group. This procedure resulted in 50, 51, 50, and 55 communities in each group, respectively. Figure 1 illustrates their geographical distribution.[10]

Sampling of citizens was the product of physical random walks during the baseline survey. In each house, heads of households were sampled for survey interviews and behavioral activities. A total of 2,065 heads of household were interviewed at the baseline, targeting 10 per community. Post-treatment attrition was handled through substitutions in the same household, when possible. Attrition is not significantly different across treatment groups (Appendix B).

Appendix Tables B2–B3 provide a characterization of the demographic traits of the sample at baseline. Among household representatives, 25% are female, the average age is 45 years old, 30% have no formal education, and 57% are Muslim. Local leaders are almost all men (only 2% are female), are older and more educated than the average citizen, and have been in power for 8.8 years on average. Seven percent of the sample is located in urban areas, and 11% in semi-urban areas, which makes the large majority of the sample rural.

3 Measurement and hypotheses

This paper collates a wide array of measurement instruments. These include administrative data about georeferenced violent events, behavioral data from the holding of SCAs and from lab-in-the-field experiments, and survey-based measurements. Data about violent events are available for the whole period under analysis. Baseline survey data were collected from August to September 2016. Some SCAs were initiated immediately after the treatment activities in March 2017. The endline survey, the completion of SCAs, and the lab-in-the-field experiments were implemented in the period of August to November, 2017. Appendix C provides full details about the timeline of the activities, all measurements and data sources.

To analyze the response to the interventions, we examine three sets of outcomes that characterize the behavior of citizens and leaders. The specific variables used in each set are presented in

[10] Disparities between groups are due to the efforts to reduce information spillovers across treatments. Rural communities located within 3 km of one another received the same treatment (see Appendix B).

Appendix D. The first set relates to *violence*. This is an important dimension as natural gas is a capital-intensive and easy-to-tax commodity. Its exploitation disproportionately increases state income, which is likely to increase conflict through a rapacity mechanism (Dube and Vargas, 2013; Berman et al., 2017). This possibility is given additional plausibility in our context by the increase in violent events attributed to locally recruited extremists, which began in October 2017. Appendix E provides further details about these events.

The community treatment can reduce violence if, in response to the information and deliberation campaign, citizens feel more included in the process of managing the resources and become more optimistic about their future economic opportunities. This has the potential to increase citizens' opportunity cost of engaging in violence (Becker, 1968; Grossman, 1991), a prominent mechanism of conflict-prevention (Blattman and Miguel, 2010). The community treatment can also increase community mobilization, thereby helping to avert violence (Collier and Vicente, 2014). The effect of the leader treatment on violence is more ambiguous. Still, it could make leaders aware of the conflict risk associated with the future resource boom, thus allowing local actions to prevent violence. In fact, expectations about future resources can incentivize local leaders to strengthen control over the territory (Fearon and Laitin, 2003; Snyder, 2006; Ross, 2012). To test these mechanisms we measure local variation in violence through international event-based datasets: the Armed Conflict Location & Event Data Project (ACLED, Raleigh et al., 2010) and the Global Database on Events, Location and Tone (GDELT, Leetaru and Schrodt, 2013). Citizens' perceived violence is measured from surveys.

The second set of variables relates to *information and perceived benefits* regarding natural resources. The information campaign can increase awareness and knowledge of the natural gas discovery among individuals targeted by the treatment. This is the most direct potential impact of the interventions as treatment 1 provides information to leaders, and treatment 2 to communities at large. When leaders are the only recipients of the campaign, it is uncertain whether information flows to citizens. Similarly, it is uncertain whether better informed leaders and citizens update their expectations about the future benefits from the natural gas in a positive or a negative way. We study these impacts using survey questions related to information and perceptions measured both at baseline and endline, and administered to both local leaders and citizens.

The third set relates to *political outcomes*, which record behaviors related to elite capture, rent-seeking, citizens' mobilization, and demand for accountability. Following Robinson et al. (2006), politicians become more focused on increasing their probability of remaining in power when faced with a resource boom or its anticipation (as in our context). This is because low levels of political accountability can enable leaders to gain privately from the exploitation of resources.

If local accountability remains low as in the leader treatment, when faced with information about natural resources local leaders may capture a higher share of present resources as a way to cement

power. Capture can also increase if local leaders feel more empowered because they are singled out to receive information. In addition, as a means of influencing the future allocation of political power, leaders can increase their interactions with other political leaders and the intensity of rent-seeking.[11] We study elite capture by local leaders using behavioral measurements, including SCAs on resources intended for community use and on the appointment of a community taskforce, as well as leader behavior in a trust game. For rent-seeking by local leaders and citizens, we rely on survey questions assessing interaction with leaders, an auction eliciting willingness to engage in rent-seeking, and a novel rent-seeking lab-in-the-field game.

In the community treatment, political accountability is expected to be greater, as information is provided to communities at large, and inclusive deliberation methods are introduced. Robinson et al. (2006) predict a different pattern of behavior in this case. Leaders' capture and rent-seeking are not expected to increase as much as in a low-accountability setting. This is because an information campaign targeted at the whole community is expected to increase citizens' mobilization and demand for political accountability. We test this hypothesis by measuring mobilization through survey-based measures, an SCA involving a matching grant activity, including behavior associated with community meetings, and a public goods game. Demand for accountability is measured with survey questions, an SCA involving a postcard activity, and citizen behavior in a trust game.

4 Results

Appendix Tables B2–B3 show mean differences at baseline between the control and treatment groups for a number of characteristics of households, leaders, and communities. Randomization was effective at identifying comparable groups in the experiment. We can therefore estimate treatment effects by restricting the sample to endline observations. For local leader or citizen i living in community j, the outcome variables are defined as Y_{ij}. The following specification is estimated using Ordinary Least Squares (OLS):

$$Y_{ij} = \alpha + \beta_1 \, T1_j + \beta_2 \, T2_j + \gamma \, \mathbf{Z}_j + \delta \, \mathbf{X}_{ij} + \epsilon_{ij} \tag{1}$$

where $T1_j$ and $T2_j$ are indicator variables for living in a community in the leader treatment or the community treatment, $\mathbf{Z}_j$ is a set of community control variables, and $\mathbf{X}_{ij}$ is a set of individual characteristics, for either leaders or citizens depending on the outcome at stake.[12] ϵ_{ij} is

[11] Some theories of the resource curse emphasize its decentralized nature, anticipating generalized movements toward rent-seeking – e.g., Torvik (2002). While measurements used in this paper are able to distinguish decentralized from centralized theories, no generalized opportunities for rent-seeking are yet available as most structural changes to the economy are still to occur. Movements toward rent-seeking are then more likely closer to the political agents, making centralized theories most meaningful in this analysis.

[12] *Community characteristics* include district and stratum indicator variables, an infrastructure index measuring the presence of public infrastructures, presence of natural resources, number of voters, and distance to the city of Palma.

an individual-specific error term, clustered at the community level to account for correlated errors within the community (when considering outcomes at the level of the citizen). Outcomes defined at the community level are treated analogously to leaders' outcomes. When baseline data are available, we implement an ANCOVA specification, by including the baseline value of the dependent variable ($Y_{ij,t-1}$) as a control variable.[13]

Outcomes are selected in line with the pre-analysis plan (Armand et al., 2017), and grouped according to the sets presented in Section 3. For all outcome variables studied in the paper (listed in Appendix D), the goal is to test whether treatment 1 had an impact ($H_0 : \beta_1 = 0$), treatment 2 had an impact ($H_0 : \beta_2 = 0$), and the impact is different across the two treatments ($H_0 : \beta_1 - \beta_2 = 0$). Because the set of outcomes is large, we address issues related to multiple inference. We first estimate, in the next section, impacts using equation (1) on indices that aggregate individual outcomes by category within each set of outcomes. This procedure gives the most comprehensive account of the results as it builds on the broadest set of outcome variables we have available. We then present results for individual outcomes while showing statistical significance for the relevant t-tests and for multiple hypothesis testing (Section 4.2, which builds on the full analysis in Appendix D.2).

For the latter, p-values are adjusted considering step-down multiple testing following the Studentized k-StepM method for the two-sided setup (Romano and Wolf, 2005, 2016). Further details of the procedure are presented in Appendix D.2. For each group of outcome variables, the test is repeated separately for two sets of hypotheses. The first test considers each treatment effect and the difference across treatment effects separately. For instance, to test that treatment 1 had an impact for a given set of outcomes Y^k with $k = 1, .., K$, a joint test that $H_0 : \beta_1^1 = 0, \beta_1^1 = 0, .., \beta_1^K = 0$ is performed. This set is indicated as the *row-level* one since hypotheses group coefficients in tables' rows. The second test follows a more conservative strategy and checks significance of both treatment effects and their difference across all outcomes presented in the table. This set is indicated as the *table-level* one. In the tables, p-values adjusted for multiple hypothesis testing are presented in squared brackets.

The infrastructure index averages 14 indicator variables for the presence of a kindergarten, a primary school, a lower secondary school, a high school, a health center, a facilitator, a water pump, a market, a police station, a religious building, an amusement area, a community room, as well as for the access to electricity and to the sewage system. The presence of natural resources is built by averaging 10 indicator variables for the presence of limestone, marble, sands and rocks, forest resources, ebony and exotic woods, gold, charcoal, graphite, precious and semi-precious stones, mercury, fishing resource, salt, and natural gas. When analyzing leader-level outcomes, district indicators are removed in order to avoid collinearity with stratum indicators. *Citizens' characteristics* include gender and age of the household head, household size, education, religion, and ethnic group indicators, and an indicator for whether the respondent was born in the community. *Leaders' characteristics* include the same variables measured at the leader level.

[13] Autocorrelations are low for most (subjective) survey outcomes. The ANCOVA specification therefore maximizes statistical power (McKenzie, 2012). Results are robust to the inclusion or the exclusion of $Y_{ij,t-1}$. In addition, Appendix F.8 shows robustness to the selection of control variables or p-hacking (Simmons et al., 2011) using the Post-Double Selection LASSO procedure (Belloni et al., 2014a,b; Tibshirani, 1996). Difference-in-differences regressions are also estimated, with similar results – they are available upon request.

4.1 Aggregated outcomes

In this section we aggregate outcome variables using indices of z-scores for each category of interest (Kling et al., 2007). Following this procedure, individual outcomes are first normalized in standard deviations from the control group, and then averaged within each set. Indices and their specific components are described in Appendix Tables D1–D4. Treatment impacts for aggregated outcomes are estimated using equation (1) and summarized in Figure 2.[14]

The community treatment significantly decreases the probability of observing a violent event in proximity to the community, by 0.17 standardized units. This effect is corroborated by a reduction in perceived violence among citizens. We do not encounter significant effects of the leader treatment on these outcomes. As only the community treatment increased citizens' perceived benefits from the natural gas discovery, this pattern of results suggests that information dissemination targeted at communities diminished individuals' willingness to participate in violent activities by increasing the opportunity costs of fighting.

Turning to information, we show that the leader treatment was effective in raising knowledge about the natural gas discovery among the leaders. Their knowledge increases by 0.18 standardized units. We do not observe a rise in citizen's knowledge when the information is made available to the leader only. Turning to the community treatment, we find large impacts on both leaders and citizens. The effect on leaders (0.46 standardized units) is significantly greater than the one of treatment 1. The effect on citizens stands out with a magnitude of 0.55 standardized units.

Relating to political outcomes, treatment 1 significantly increases elite capture by 0.20 standardized units. This confirms that in settings in which leaders are privately informed about a resource boom and levels of political accountability are lower, leader decisions are poorer in terms of community welfare. While this is not accompanied by an increase in rent-seeking among leaders, citizens do respond in such a manner. We do not find effects of the community treatment on elite capture or rent-seeking.

The effects of the community treatment on decreasing violence are possibly mediated by citizens' mobilization and demand for accountability. The community-level information dissemination significantly increased citizen mobilization by 0.14 standardized units, and demand for accountability by 0.06 standardized units. Community mobilization and the demand for accountability are unaffected by treatment 1.

[14] The same procedure is followed to analyze the effect of adding a deliberation module to the information module in the community treatment. No clear differences are observed on our outcomes of interest (Appendix F.1).

4.2 Individual outcomes

The aggregate outcomes provide us with the main structure of results in our paper. This section presents detailed results on central outcomes of interest we selected out of the full set of outcome variables we have available. While standard errors and the corresponding significance levels refer to individual estimates, p-values adjusted for multiple hypothesis testing (reported in brackets) take into account the full set of variables reported in Appendix Tables D1–D4. Results for the complete set of outcome variables are discussed in Appendix D.2. We begin the analysis by focusing on outcomes related to violence. We then look at outcomes depicting information and perceived benefits. Subsequently, we report on political outcomes.

4.2.1 Violence

Starting in October 2017, Cabo Delgado experienced a rise in violence attributed to extremist groups seeking to gain inroads in the province, recruiting locally, and targeting mainly civilians (Habibe et al., 2019). Panel A of Figure 3 shows how violence evolved over time in the control communities, highlighting the sharp increase observed in the post-intervention period.

Table 1 presents the effects of the interventions on outcomes related to violence. Columns (1)–(3) show results employing georeferenced violent events from alternative data sources. Column (1) uses the ACLED database (Raleigh et al., 2010); column (2) uses the GDELT database (Leetaru and Schrodt, 2013); and column (3) considers both sources (ACLED plus GDELT). Each dependent variable is an indicator variable, taking value 1 if a violent event was recorded within 5 km of the community.[15] The probability that a location in the control group witnessed at least one violent event ranges from 6% for ACLED to 9% for GDELT (13% for ACLED plus GDELT).

In the post-intervention period, we observe significant negative effects for the community treatment when considering all three measures of violence. The magnitude ranges from 5 to 9 percentage points, statistically significant at the 1% or 5% levels. The effect for ACLED plus GDELT passes multiple hypothesis testing at all levels. The differences between treatment effects are not statistically significant, even though the p-values for GDELT is below 0.15. Panel B of Figure 3 shows differences between the control group and each treatment group for ACLED plus GDELT, estimated separately for pre- and post-intervention periods. The timing of the effect is clearly specific to the post-intervention period. Before the completion of the information campaign we do not observe any statistically significant difference between the control group and the treatment groups. In the post-intervention period treatment 2 decreases not only the probability of observing a violent event, but also the number of fatalities (Appendix E.3). These results are not driven by

[15] Appendix E.1 describes in detail the procedure followed to assign an event to a community. Results are robust to varying the distance from the community used to assign events.

displacement of violence to the control group (Appendix E.4).

Columns (4)–(5) focus instead on perceived violence by citizens. Column (4) presents an indicator equal to 1 if the citizen believes violence is justified to defend a cause. In column (5) a binary outcome variable is defined as 1 if the respondent reports witnessing and being involved in the three months prior to the endline survey in any type of violence, including physical, against women, verbal, theft, and property destruction. In the control group 32% of respondents justify violence, and 19% were involved in violence. While interventions do not affect sympathy toward violence, the results based on violent events are supported by self-reported involvement in violence. The community treatment decreases involvement by 5 percentage points, statistically significant at the 5% level.

4.2.2 Information and perceptions

The most direct dimension targeted by the interventions is information about the discovery of natural gas in Cabo Delgado among local leaders and citizens. At baseline, awareness of the discovery is low among citizens, while a majority of leaders are aware. Nevertheless, even among individuals aware of the discovery, the level of knowledge about the details is very limited (Appendix F.2).

Table 2 presents estimates of the treatment impacts on information and perceptions about the discovery. Panel A refers to leaders, while Panel B refers to citizens. Column (1) focuses on a binary indicator of awareness about the natural gas discovery. Column (2) is dedicated to the respondent's knowledge about the natural gas discovery. Specifically, we employ an index averaging 15 indicator variables related to knowledge about the location of the discovery, whether exploration has started, whether the government is receiving revenues, when extraction is expected to start, and which firms are involved. The index is equal to 1 if the respondent has full knowledge of these elements, and 0 if the respondent reports all answers wrongly or has never heard about the discovery. Appendix F.2 provides the details about the index and results per component. Columns (3)–(4) restrict attention to respondents who are aware of the natural gas discovery. These columns display the estimated treatment effects on perceived benefits from the natural gas discovery for the community or the household of the respondent (respectively). These are indicator variables equal to 1 if the respondent agrees or fully agrees that the discovery of natural gas will bring benefits for his community or his family, and zero otherwise.

Among local leaders, awareness increased by 4–5 percentage points in both treatment groups. Knowledge about the discovery also increased significantly in both treatment groups (4–6 percentage points). The information campaign was indeed effective among leaders, especially given the already high level of awareness among the local elite. When communities at large are targeted,

we also observe an increase in the salience of the natural gas discovery for leaders (Appendix D.2.2). While awareness and knowledge increased, no significant effect is observed on leaders' perceived benefits from the natural gas discovery.

Turning to citizens, the intervention generated a large increase in awareness of 25 percentage points when information was distributed to citizens. The community treatment increased not only citizens' awareness, but also their depth of knowledge: the knowledge index increased by 17 percentage points. No effects are observed when the information is distributed only to the leader instead, suggesting that leaders did not introduce any clear within-community effort to disseminate information. Differently from leaders, citizens become optimistic regarding the future benefits to their community and their household, but only in treatment 2. All significant coefficients or tests of differences between coefficients are strong enough to pass multiple hypothesis testing. The exception is the coefficient of treatment 2 for the perceived benefit to the community (significant only at the row level).[16]

4.2.3 Political outcomes

Results relating to political outcomes are reported in Table 3. We begin by focusing on the effect of the interventions on elite capture by local leaders. Column (1) is dedicated to an SCA that examined whether leaders appropriated funds that had been set aside to cover food items for the community members during their meetings. This is the funds-for-meetings SCA – see Appendix C.2.3 for details. We employ as dependent variable the share of the full funds not spent in the meetings (i.e., the share appropriated). Substantial appropriation by leaders arises in this setting: in the control group, 47% appropriated funds, with an average share appropriated of 23%. We find that the leader treatment significantly increased appropriation, while no effect is seen for the community treatment. The difference between these treatments is statistically different, passing multiple hypothesis testing as well. The point estimate is large in absolute value for treatment 1, at 14 percentage points, and significant at the 1% level. It passes multiple hypothesis testing at the row level.

We now devote attention to an outcome variable related to the SCA in which a taskforce was appointed by the leader (see Appendix C.2.1). With this activity, we sought to measure propensity for favoritism or nepotism by leaders choosing individuals for specific tasks. In this case, the leader was asked to select five individuals to take a Raven's test (Raven, 1936), a nonverbal test used in measuring abstract reasoning and regarded as a means of estimating intelligence, especially in settings of low literacy. Leaders were truthfully told that if all five individuals got at least half

[16]The design of the experiment imposed a minimal distance between communities in different comparison groups in order to avoid information spillovers. Information diffusion beyond that minimal distance cannot be completely excluded. However, we do not find evidence of information spillover effects (Appendix F.3).

of the questions correct, they could earn a monetary prize for their community. Leaders were also instructed that the selected individuals would receive a smaller show-up bonus. Measurement thus centered on the test performance of the selected individuals. We also asked the sample of survey respondents in the community to conduct the same Raven's test. Column (2) in Table 3 reports impact estimates on the leader's preference for mid-performers in this activity. This is defined as an indicator variable constructed for the middle quintiles (2^{nd}–4^{th}) in the distribution of the difference between the average score in the taskforce and the average score among representative citizens surveyed in the community. On average, individuals in the household survey got 5 out of 10 correct answers, while those chosen by the leader performed more poorly on average, scoring 3.7. Treatment 1 increases the probability of selecting mid-level performers, by 19 percentage points. This effect does not pass multiple hypothesis testing.

Turning to rent-seeking, we begin with survey-based outcomes concerning interaction between leaders, and between citizens and leaders. This information was built by asking leaders and citizens to list community leaders, members of the district or provincial government, religious leaders, and other influential people whom they could personally contact if they wished, and their interaction with them in the six months prior to the interview. Using names and roles in the community, unique individuals within and across communities are identified, building a network between citizens and local leaders (see Appendix F.4 for further details). The focus is on *chiefs* (i.e., formal community leaders and close collaborators) and on *other political leaders* (i.e., chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives).

Column (3) depicts interaction between leaders by determining whether local leaders talked to or called other political leaders in their network in the six months prior to the interview. Column (4) determines instead a similar measure for interactions between citizens and chiefs. Both treatments lead to clear increases in the interaction between leaders. Magnitudes are 16 percentage points for treatment 1 and 11 percentage points for treatment 2, statistically significant at the 1% and 5% levels respectively. The effect of the leader treatment is also fully robust to multiple hypothesis testing. For leaders, other impacts on rent-seeking beyond the community and on their response to citizens' rent-seeking are limited (Appendix D.2.3). For citizens, the leader treatment has a clear positive effect on the probability of interaction with chiefs in their own communities. The magnitude of the effect is 9 percentage points, statistically significant at the 1% level. This effect is statistically different from that of treatment 2. However, these findings are not fully robust to multiple hypothesis testing. Increased interaction with chiefs does not translate into better-informed citizens (Section 4.2.2). The effect of treatment 1 is specific to interaction with the local leader and its closest collaborators, as interventions have no effect on citizens' interaction with other political leaders (Appendix D.2.3).

We now address citizens' rent-seeking outside the community. This is measured using two auctions for activities illustrating the dichotomy between rent-seeking and entrepreneurship (see Appendix C.2.2). The first activity is a meeting, inclusive of lunch and transportation costs, with the district administrator, i.e., the main politician at the district level. This activity provides an environment conducive to rent-seeking activities, and was available to both local leaders and community members. The second activity was instead related to entrepreneurship and provided a productive alternative to the rent-seeking activity. Only community members participated in this auction. Each player received an endowment and was asked to bid for each activity in an incentive-compatible way. Column (5) presents impact estimates for the share of total bids allocated by the citizens to meeting the administrator. For treatment 1 we find a 3-percentage-point increase in this share, statistically significant at the 5% level, and statistically different from the effect of the community treatment. None of these differences are robust to multiple hypothesis testing.[17]

Columns (6)–(8) focus on outcomes related to citizens' mobilization and the demand for accountability. Column (6) presents estimates of treatment effects on citizens' attendance of community meetings. This is an indicator variable equal to 1 if the citizen reported having participated in at least one community meeting in the last 12 months. Attendance is generally very high, with 89% of control respondents having attended at least one meeting in the last year. Treatment 2 induces a significant increase in meetings participation: a 4-percentage-point effect, statistically significant at the 5% level. This effect survives multiple hypothesis testing at the row level. The null that both treatment effects are equal is rejected, which is not robust to allowing for multiple hypotheses.

We now turn to the measurement of community mobilization to contribute for local public good provision. We employ for this purpose a matching grants SCA (see Appendix C.2.4). Similar to Casey et al. (2012), communities had the opportunity to raise funds toward a community objective. Funds were matched at a rate of 50% until a fixed maximum amount. Twenty-two percent of survey respondents reported having contributed, with an average contribution of 30 Meticais (US$0.5 as of mid-2017). Column (7) shows impacts on the individual contribution in the matching activity (reported in logarithms). This variable is self-reported and checked with the administrative information in the community logbooks used for the activity. The community treatment increases contributions by 48%, which is statistically significant at the 1% level, and robust to multiple hypothesis testing at the row level. The effect of treatment 2 is also statistically different from the effect of treatment 1, although this is not confirmed when testing for multiple hypotheses. Treatment 2 not only increases the intensive margin of contributing, but it also significantly increases the awareness of the activity among citizens (Appendix D.2.4).

[17] The effects of treatment 1 on rent-seeking among citizens are more evident in communities with low mobilization capacity at baseline (Appendix F.5). Heterogeneous effects are also explored in other dimensions identified in the pre-analysis plan, such as age, distance to Palma (the town where most of the gas extraction-related activities are taking place), and knowledge of local leaders. Citizens living closer to Palma are also more responsive to treatment 1 in terms of rent-seeking.

The final outcome of interest, in column (8), is survey-based and devoted to the level of voice that citizens have with provincial and national leaders. The scale ranges from 1 (no voice) to 4 (full voice). The community treatment increases voice by 4% of the subjective scale. The effect is significant at the 5% level and robust to multiple hypothesis testing at the row level. The difference between treatment 1 and treatment 2 is also significant, although it does not pass multiple hypothesis testing. Similar findings are also observed in other measures of demand for political accountability and on trust toward leaders (Appendix D.2.4). Greater demand for political accountability could translate into higher turnover of community leaders. Since there are no formal elections or set mandate for these leaders in Mozambique, leader turnover is low; the average number of years in power in the sample is 8.8 years. No effects on turnover of leaders between baseline and endline are found (Appendix F.6).

5 Concluding remarks

The political resource curse has captured the attention of academics and policy-makers alike and remains highly relevant for many low and middle-income countries with significant resource endowments. The main idea is that the resource curse originates on competition for centralized rents and related misgovernance by politicians. Related literature has often been purely theoretical, lacking strong causality claims, and/or silent about specific policy solutions. This paper experimentally tests the impact of an information campaign on countering the political resource curse. The context is the recent discovery of natural gas in Northern Mozambique, a low-income country with relatively weak institutions and a record of conflict.

When targeting communities at large, the campaign we follow led to a decrease in violence, namely as reported through news events in administrative datasets. In face of the known association of the resource curse with localized conflict in resource-producing areas, this is a very important finding for policy-makers. It represents solid evidence that informing communities and encouraging inclusive participation in decision-making is an effective conflict-prevention tool. Given the detailed measurements we have in this experiment, we are able to establish that community campaigning was effective in raising information held by citizens about natural resources. In the process, citizens became more optimistic about the future, suggesting higher opportunity costs of engaging in conflict. In parallel we observe positive impacts on citizen mobilization and the demand for political accountability. These may have increased local collective action to protect against violence. When information is given to local leaders only, a likely default possibility in the longer run, we do not find this pattern of results. On the contrary, the observed increase in elite capture and rent-seeking is consistent with the political resource curse.

A final note is due about implications for policy-making. In the context of the political resource

curse, good policies are often limited to the adoption of general standards. Two examples are the Extractive Industries Transparency Initiative and the Natural Resource Charter. The adoption of these standards depends to a great extent on the goodwill of governments. Corrupt governments with access to resource revenues have fewer incentives to take these standards seriously. In this paper we show that a bottom-up intervention widely supported by civil society can be effective at countering the curse. Even self-interested governments are potential supporters, as improving community awareness, mobilization, and trust in institutions can be the pathway to avoiding wars.

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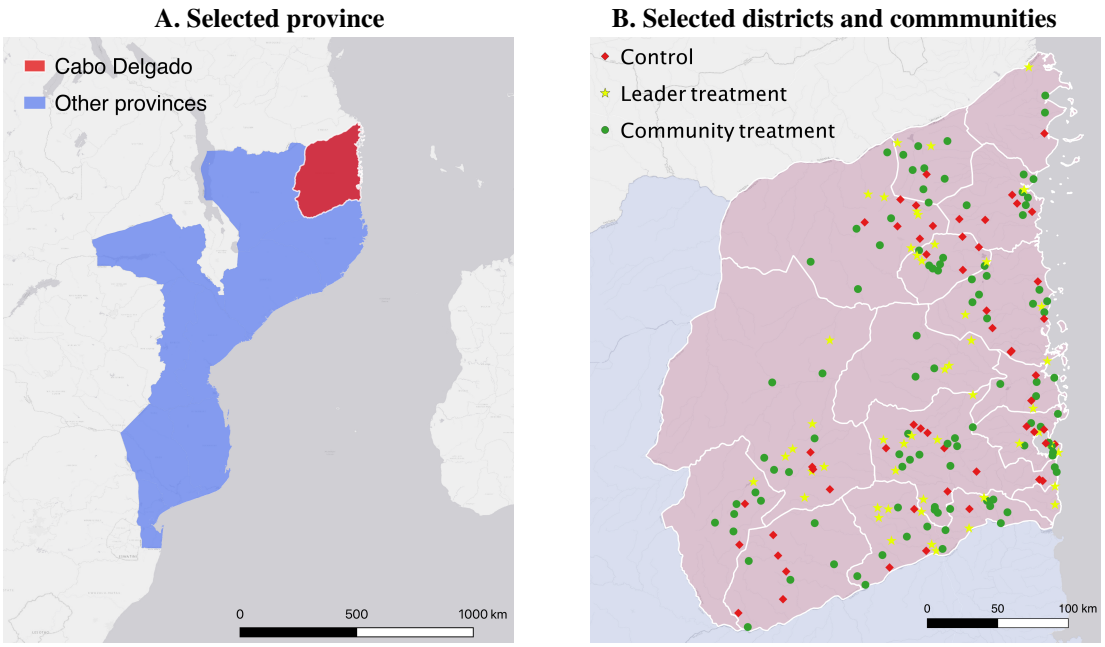
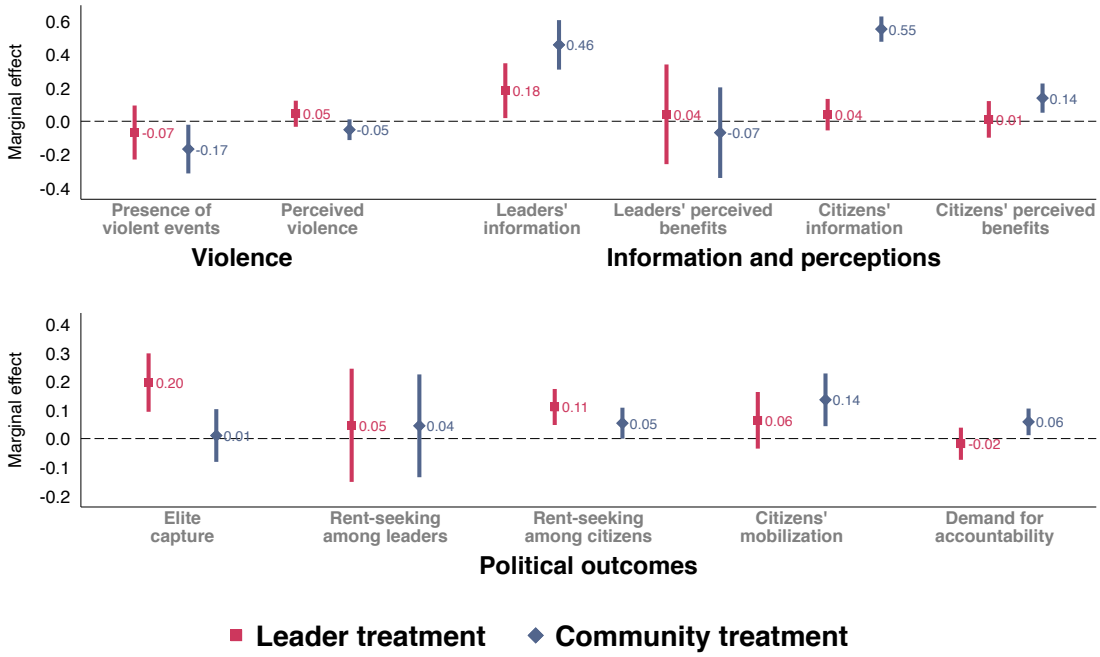
Figure 1: Selected communities and allocation to treatment groups



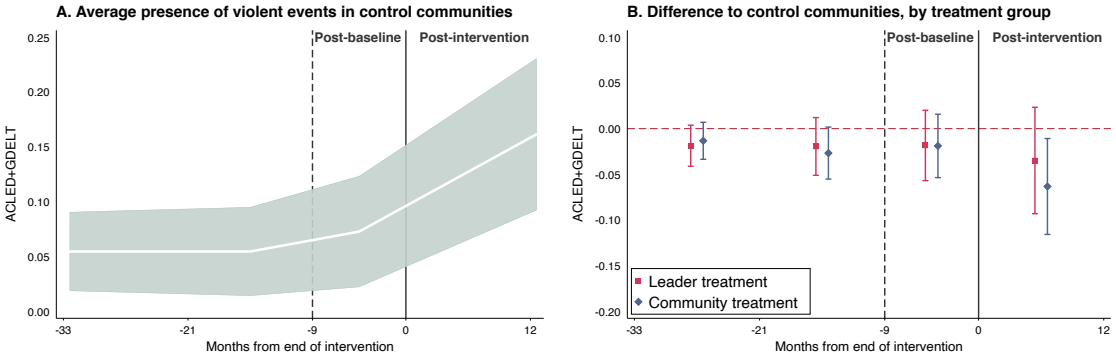
Note. In Panel A, Cabo Delgado province is highlighted in red. In Panel B, georeferenced coordinates were obtained from tablets' GPS sensors used for interviews. The georeferenced coordinate of each location is determined using the average of all available data points within each location (household interviews, leader interviews, and community interviews). Basemap source: Esri (see Appendix C for details and attributions).

Figure 2: Results by aggregation of outcomes



Note. Estimates based on OLS regressions (equation 1). The full set of point estimates and standard errors are presented in Appendix Table D11. Confidence intervals are built using statistical significance at the 10% level, and standard errors clustered at the community level when employing citizen-level outcomes. The specifications include community and household-level controls (for citizen-level outcomes) or community-level controls (for leader- and community-level outcomes). The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the Kling et al. (2007) procedure. Outcomes are first normalized in standardized units to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category. Indices and their specific components are described in Appendix D.1.

Figure 3: Treatment effects by timing of violent events



Note. Panel A presents the average presence of violent events in the control group, by time from the end of the intervention. The shaded area represents the confidence interval for the mean at the 10% level. The presence of violent events is measured by ACLED+GDELT, an indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) or GDELT (conventional and non-conventional violence) and occurred in the post-intervention period in proximity to the community, and zero otherwise. Additional details about the variable are presented in Appendix D.1. For the same variable, Panel B presents differences between treatment groups and the control group estimated using OLS regressions (equation 1) separately for each period (the lower and upper bound of each period are indicated in the horizontal axis). Specifications include community and leader-level controls. The full list of controls is presented in Section 4. Confidence intervals are built using statistical significance at the 10% level. Time 0 corresponds to the end of the information campaign (end of April 2017). The *post-intervention* period is the first year following the end of the information campaign (May 2017-April 2018). The *post-baseline* period corresponds to the period between the beginning of the baseline data collection and the end of the information campaign (August 2016-April 2017).

Table 1: Violence

	PRESENCE OF VIOLENT EVENTS			PERCEIVED VIOLENCE	
Dep.Var.:	**ACLED**	**GDELT**	**ACLED + GDELT**	**Sympathy for violence**	**Involved in violence**
	(1)	(2)	(3)	(4)	(5)
(T1) Leader treatment	-0.025	-0.017	-0.047	-0.002	-0.012
	(0.031)	(0.028)	(0.035)	(0.035)	(0.026)
	[0.61-0.61]	[0.61-0.61]	[0.31-0.39]	[0.95-0.95]	[0.87-0.87]
(T2) Community treatment	-0.057	-0.054	-0.085	-0.038	-0.052
	(0.028)	(0.026)	(0.032)	(0.031)	(0.021)
	[0.08-0.15]	[0.08-0.14]	[0.03-0.05]	[0.23-0.51]	[0.03-0.08]
Observations	206	206	206	1522	1827
R^2	0.275	0.733	0.656	0.043	0.060
Mean (control group)	0.055	0.091	0.127	0.323	0.187
T1 = T2 (p-value)	0.245	0.145	0.223	0.174	0.087
T1 = T2 (adj. p-value, row-level)	0.212	0.188	0.212	0.193	0.193
T1 = T2 (adj. p-value, table-level)	0.451	0.374	0.448	0.494	0.336
Lagged dependent variable	Yes	Yes	Yes	Yes	Yes

Note. Estimates based on OLS regressions. All regressions present estimates using equation (1), including the lagged value of the dependent variable. Standard errors are reported in parentheses. In columns (4) and (5) standard errors are clustered at the community level. P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Testing is performed separately for columns (1)–(3) and columns (4)–(5). Dependent variables by column: (1) *ACLED*: indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) and occurred in the post-intervention period in proximity to the community, and zero otherwise; (2) *GDELT*: indicator variable equal to 1 if an event was recorded in GDELT (conventional and non-conventional violence) and occurred in the post-intervention period in proximity to the community, and zero otherwise; (3) *ACLED+GDELT*: indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) or GDELT (conventional and non-conventional violence) and occurred in the post-intervention period in proximity to the community, and zero otherwise; (4) *Sympathy for violence*: indicator variable equal to 1 if the respondent believes violence is justified to defend a cause, and zero otherwise; (5) *Involved in violence*: indicator variable equal to 1 if the respondent reports having witnessed and being involved in any type of violence (physical, against women, verbal, theft, and property destruction) in the 3 months prior to the interview, and zero otherwise. Additional details about the dependent variables are presented in Appendix D.1. Specifications in columns (1)–(3) include community and leader-level controls. Specifications in columns (4)–(5) include community and household-level controls. The full list of controls is presented in Section 4.

Table 2: Information and perceptions about the natural gas discovery

	Dep.Var.:	Awareness	Knowledge	Perceived benefit to the...	
				community	household
		(1)	(2)	(3)	(4)
Panel A. Leaders					
(T1) Leader treatment		0.043	0.038	0.016	0.014
		(0.019)	(0.018)	(0.065)	(0.079)
		[0.09-0.15]	[0.09-0.17]	[0.94-0.99]	[0.94-0.99]
(T2) Community treatment		0.052	0.056	-0.008	-0.042
		(0.018)	(0.016)	(0.059)	(0.072)
		[0.02-0.03]	[0.01-0.01]	[0.89-0.99]	[0.72-0.97]
Observations		203	203	204	204
R^2		0.146	0.273	0.154	0.125
Mean (control group)		0.964	0.627	0.868	0.830
T1 = T2 (p-value)		0.648	0.255	0.671	0.430
T1 = T2 (adj. p-value, row-level)		0.750	0.492	0.750	0.652
T1 = T2 (adj. p-value, table-level)		0.976	0.752	0.976	0.903
Lagged dependent variable		Yes	Yes	No	No
Panel B. Citizens					
(T1) Leader treatment		-0.003	-0.001	-0.009	0.015
		(0.033)	(0.020)	(0.031)	(0.031)
		[0.99-0.99]	[0.99-0.99]	[0.97-0.97]	[0.95-0.95]
(T2) Community treatment		0.251	0.169	0.044	0.071
		(0.023)	(0.015)	(0.023)	(0.026)
		[0.00-0.00]	[0.00-0.00]	[0.06-0.23]	[0.02-0.07]
Observations		1886	1886	1592	1573
R^2		0.272	0.396	0.135	0.114
Mean (control group)		0.671	0.449	0.779	0.692
T1 = T2 (p-value)		0.000	0.000	0.046	0.050
T1 = T2 (adj. p-value, row-level)		0.001	0.001	0.088	0.088
T1 = T2 (adj. p-value, table-level)		0.001	0.001	0.228	0.228
Lagged dependent variable		Yes	Yes	No	No

Note. Estimates based on OLS regressions. Columns (1)–(2) present estimates using equation (1), including the lagged value of the dependent variable. Columns (3)–(4) present estimates using equation (1). Standard errors are reported in parentheses. In Panel B standard errors are clustered at the community level. P-values adjusted for multiple hypothesis testing are presented in brackets and take into account the larger set of variables reported in Appendix Table D2 (see Section 4 for details of the procedure and Appendix Tables D5-D6 for the results for the full set of outcome variable). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Panel A refers to outcomes related to local leaders, while Panel B refers to outcomes related to citizens. Dependent variables by column: (1) *Awareness*: indicator variable equal to 1 if the respondent heard about the natural gas discovery, and zero otherwise; (2) *Knowledge*: constructed index that averages 15 indicator variables related to knowledge about the location of the discovery, whether exploration has started, whether the government is receiving revenues, when extraction is expected to start, and which firms are involved (Appendix F.2 provides additional information about the construction of the index); (3) *Perceived benefit to the community*: indicator variable equal to 1 if the respondent agrees or fully agrees that the community will benefit from natural gas, and zero otherwise; (4) *Perceived benefit to the household*: indicator variable equal to 1 if the respondent agrees or fully agrees that his/her household will benefit from natural gas, and zero otherwise. Additional details about the dependent variables are presented in Appendix D.1. In columns (3)–(4), the sample is restricted to respondents aware of the natural gas discovery. Specifications in Panel A include community and leader-level controls. Specifications in Panel B include community and household-level controls. The full list of controls is presented in Section 4.

Table 3: Political outcomes

	ELITE CAPTURE		RENT-SEEKING			CITIZENS' MOBILIZATION		DEMAND FOR ACCOUNTABILITY
Dep.Var.	**Appropriation**	**Preference for mid-performers**	**Interaction between leaders**	**Citizen-chiefs interaction**	**Share bid for meeting**	**Community meetings attendance**	**Matching grants contribution**	**Voice**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(T1) Leader treatment	0.144	0.193	0.162	0.092	0.025	0.004	0.152	0.025
	(0.053)	(0.097)	(0.053)	(0.035)	(0.012)	(0.022)	(0.191)	(0.053)
	[0.06-0.14]	[0.25-0.53]	[0.01-0.02]	[0.05-0.12]	[0.13-0.34]	[0.98-0.99]	[0.90-0.98]	[0.76-0.99]
(T2) Community treatment	0.005	0.122	0.114	0.022	0.005	0.039	0.478	0.123
	(0.048)	(0.087)	(0.048)	(0.029)	(0.010)	(0.016)	(0.180)	(0.044)
	[0.99-1.00]	[0.67-0.88]	[0.05-0.12]	[0.83-0.95]	[0.87-0.98]	[0.08-0.24]	[0.06-0.16]	[0.04-0.13]
Observations	205	206	203	1890	2077	1803	1510	1718
R^2	0.235	0.145	0.212	0.101	0.021	0.086	0.065	0.068
Mean (control group)	0.227	0.491	0.818	0.531	0.499	0.892	0.892	2.463
T1 = T2 (p-value)	0.004	0.422	0.311	0.022	0.025	0.076	0.070	0.035
T1 = T2 (adj. p-value, row-level)	0.037	0.919	0.633	0.100	0.100	0.358	0.358	0.183
T1 = T2 (adj. p-value, table-level)	0.095	0.992	0.834	0.245	0.251	0.630	0.620	0.441
Lagged dependent variable	No	No	Yes	Yes	No	Yes	No	Yes

Note. Estimates based on OLS regressions. Columns (1)–(2), (5), and (7) present estimates using equation (1). Columns (3)–(4), (6), and (8) present estimates using equation (1), including the lagged value of the dependent variable. Standard errors are reported in parentheses. In columns (4)-(8) standard errors are clustered at the community level. P-values adjusted for multiple hypothesis testing are presented in brackets and take into account the larger set of variables reported in Appendix Tables D3-D4 (see Section 4 for details of the procedure and Appendix Tables D7-D10 for the results for the full set of outcome variable). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Dependent variables by column: (1) *Appropriation*: share difference between available funds and expenses in the funds for meeting SCA (Appendix C.2.3); (2) *Preference for mid-performers*: indicator variable equal to 1 if the community is in the 2nd, 3rd, or 4th quintiles of the sample distribution of the difference between the average Raven's score of individuals chosen by leader in the taskforce SCA (Appendix C.2.1), and of representative individuals selected for the survey in the same community; (3) *Interaction between leaders*: indicator variable equal to 1 if the leader reports having talked to or called another political leader (chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives) in the 6 months prior to the interview, and zero otherwise; (4) *Citizen-chiefs interaction*: indicator variable equal to 1 if the respondent reports having talked to or called chiefs (formal community leader and their closest collaborators) in the 6 months prior to the interview, and zero otherwise; (5) *Share bid for meeting*: share of total bids allocated by the citizen in the auctions SCA (Appendix C.2.2) to attend the meeting with the district administrator; (6) *Community meetings attendance*: indicator variable equal to 1 if the respondent attended at least one community meeting in the 12 months prior to the interview, and zero otherwise; (7) *Matching grants contribution*: amount (reported in logarithms) contributed by the respondent in the matching grants SCA (Appendix C.2.4); (8) *Voice*: average level of (self-reported) voice with provincial and national authorities (1 = no voice / 4 = full voice). Additional details about the dependent variables are presented in Appendix D.1. Specifications in columns (1)–(3) include community and leader-level controls. Specifications in columns (4)–(8) include community and household-level controls. The full list of controls is presented in Section 4.

Online Appendix

Does Information Break the Political Resource Curse? Experimental Evidence from Mozambique

Alex Armand, Alexander Coutts, Pedro C. Vicente, Inês Vilela

This online appendix is divided into the following sections. Section A presents additional details about the contents of the information campaign. Section B provides a detailed description of sampling and randomization procedures. Section C presents a summary of data sources and measurement instruments. Section D presents the outcomes variables used in the paper, discusses the detailed results for all outcome variables, and the methodology followed for multiple inference. Section E presents information about the violent events. Section F shows additional results that were omitted from the main paper due to space constraints.

A The information campaign

The information campaign was sponsored by a wide coalition of international, national, and local institutions. This coalition included the provincial government of Cabo Delgado, the Aga Khan Foundation, an international NGO with a strong presence in Cabo Delgado province, the Mozambican chapter of the Extractive Industry Transparency Initiative (EITI), two prominent national NGOs (the Christian Council and the Islamic Council of Mozambique), one university (Catholic University of Mozambique), one newspaper (@Verdade), and two local NGOs (UPC, the provincial farmers' union, and ASPACADE, the provincial association of paralegals).

The information campaign was based on a detailed information manual.[2] It includes information about natural resources, the natural gas discovery, the rights and the benefits for local populations, and instructions for facilitators to lead the discussions. The leaflet distributed as part of the information campaign summarizes the main points of the manual (Figure A1). Presentations to the communities were organized in the following components, which also summarize the content of the manual:

1. **Presentation**. This is an introductory space for those holding the meetings in the communities to present themselves and the implementing partners, and to introduce the subject of the meeting. This is also a moment for the community leader or any other influential person to explain to the community the contents and objectives of the meeting.

2. **Introduction**. Presenters explain that Mozambique is endowed with many different types of natural resources in large quantities, with the extractive industries of natural gas, coal, iron, precious stones, and heavy minerals being in rapid expansion. The extractive industries offer potential for investment and creation of wealth. The first mention of the importance of the natural gas reserves discovered in the Rovuma Basin happens at this point. According to the IMF (2016), during the 2020s, the natural gas industry will account for half of the country's wealth. This discovery has the potential to place Mozambique in the top producers of natural gas worldwide and the future of its economy may be heavily influenced by the management of the revenues generated by the extraction.

3. **Natural resources**. Presenters discuss the formal definition of a natural resource, and the difference between renewable and non-renewable resources. This distinction is important for the communities to understand that many of their resources are non-renewable, and therefore sustainability is an issue. Proper management of natural resources generates sustainable development, meaning the benefits of the exploitation are also enjoyed by future generations.

[2]The content of the manual and this section is based on information available in 2016, at the time of the design of the information campaign.

Hence, environmental considerations should be taken into account. To deepen this point, presenters cover the types of natural resources relevant for Cabo Delgado. The most important ones are mineral resources (such as limestone, marble, gold, sand, ruby, and graphite), forest resources (such as wood and charcoal), fishing resources, and natural gas.

4. **Natural gas**. Presenters provide detailed information about the natural gas discovery, including where in Cabo Delgado it was discovered, and the plans over the next few years for the exploitation and transformation of natural gas. A large natural gas reserve was discovered in the Rovuma River basin in the northern part of Mozambique off the district of Palma. After investments in research activities, gas was found on the seabed by the American company ANADARKO, and by the Italian company ENI (ENH, 2016a). Other companies are involved in the project, such as the Empresa Nacional de Hidrocarbonetos (ENH), Galp, Statoil, Petronas, and Exxon Mobil. In total, reserves are estimated at more than 180 trillion cubic feet, enough to set Mozambique as one of countries with the largest reserves in the world (IMF, 2016). The total investment expected to be made in the project exceeds US$ 100 billion, more than 6 times the revenue generated by the Mozambican economy last year. Tax revenues from the project from the start-up to 2045 could reach US$ 500 billion, more than 34 times the revenue generated by the country's economy last year (IMF, 2016).

   The project to be developed in Cabo Delgado aims at collecting, processing, and exporting the natural gas that will be extracted from the Rovuma Basin. This requires the creation of infrastructures offshore (i.e., the creation of floating extraction plants), onshore (i.e., the construction of docks), and inland (i.e., the construction of a processing plant, housing, offices, and an airport) (Anadarko, 2016). The Mozambican Ministry of Mineral Resources and Energy, together with the National Institute of Petroleum, define the main use of the extracted natural gas in the Gas Master Plan (INP/MIREME, 2014). It will serve the national and international market for the generation of electricity for private households, to promote productivity among small and medium enterprises, as source of fuel in the transport sector, and as raw material in the industrial production of fertilizers, methanol and liquefied gases, or in the industrial transformation processes generating heating or electricity. By specifying a framework for the social protection of affected communities, the Master Plan also shows the commitment of the government and other agents in the creation of instruments supporting social issues related with the exploitation of natural gas. So far no gas has been removed from the sea to be sold (Frühauf, 2014).

   Presenters mention that Inhambane, another province in Mozambique, discovered natural gas in the past. The natural gas project in Inhambane province in Pande and Temane was the first commercial gas-related project in Mozambique. Production started in 2004 and the project included the construction of 865 km of pipeline to export gas from Temane (Mozambique) to Secunda (South Africa) (ENH, 2016b). This example highlights the importance of having a

share of the gas produced for the national market. The project in Inhambane did not create a large number of jobs, underlining the importance of developing support industries in order to create larger gains in terms of employment.

5. **The importance of natural resources for the communities and citizens**. This part shed light on what the local population can expect from the exploitation of natural resources. According to the Constitution of the Republic of Mozambique (Article 109), land belongs to the State, and indirectly to all Mozambican citizens. When resources are found in the Mozambican territory, all citizens have the right to exploit them, under the conditions and terms defined by the law, or to enjoy the benefits of their exploitation when this is done by third parties (DNFFB, 2003). Since some resources are non-renewable, their exploitation must consider the needs of future generations (MIREME, 2016).

   As part of this section, facilitators discuss the benefits that the exploitation of natural gas can generate for local communities. First, natural gas is a direct source of subsistence for households when it is used for day-to-day consumption (e.g., heating), energy production, farming, or any other economic activity. Second, natural resources can be a direct source of income for families as they generate formal employment. According to the National Institute of Petroleum, the initial period of the exploitation, characterized by the construction of the infrastructure, will be characterized by a large creation of jobs, the majority of these targeting the local population and being located in the proximity with the Rovuma Basin and the town of Palma (INP/MIREME, 2014; INP, 2016). Finally, natural gas is a source of revenue for the Government, and part of these revenues should be invested for the social and economic development of the areas where the resources are exploited. In summary, according to CIP (2015), gas exploitation will have the following impacts on the local and the national economy: development of infrastructures; development of citizens' technical skills; development of integrated projects, such as the production of fuels and fertilizers, and the generation of electricity; development of national industries and companies, with a particular focus on small and medium enterprises; increase in the capacity to provide electricity to the population; employment creation; increase in the Government revenues.

6. **Examples**. Three examples of countries that discovered natural resources, including how they impacted their populations, are discussed. These exemplify both desirable and undesirable consequences from the discovery of natural resources, and are presented to participants in order to highlight the main factors of success versus failure. The first two examples, Norway and Botswana, represent a positive experience. Norway has large oil and natural gas reserves, and based the success of their management on transparency and long-term planning, which includes the creation of a Development Fund established by the law to support the government in the long-term management of the revenues (EITI, 2015). Botswana is the second country in the

world by diamond production (BGS, 2016). Since the discovery of this resource, the country experienced fast economic growth thanks to the efficient management of the resource, political stability, and the investment of revenues in water infrastructure, transportation, education, and health (IMF, 2015). The third example, Nigeria, represents instead a negative example. Despite being the biggest oil producer in Sub-Saharan Africa, Nigeria experienced a failing management of the resource, with exploitation being linked with extreme levels of pollution, high rates of poverty, and instability associated with violent conflict (KPMG, 2016). Further details about the resource management experience for these countries are provided by Holden (2013) for Norway, Robinson et al. (2003) for Botswana, and Terry (1997) and Ross (2012) for Nigeria.

7. **Conclusion**. The meeting is concluded with a brief review of the topics covered, emphasizing the main lessons. Although citizens are allowed to raise questions during the meeting, this is typically the moment when most participants express their opinion.

During the presentation, the facilitators covered the main citizens' rights related with the exploitation of natural resources, as established by Mozambican law and stated by the government in programmatic documents (INP/MIREME, 2014). These included the rights to be informed, have revenues invested locally, be compensated if directly affected, and be given priority in employment in the sector. We provide here the specific laws and articles that were covered during the presentations:

> **Right to be informed**
>
> *Law of land-use planning (Law n.19/2007) – Article 21.* 1) Every citizen, local community and collective organization, public or private, have the right to a complete information about the content and the alterations of the land-use planning instruments. 2) The right to information covers the whole process of land-use planning, guaranteeing the diffusion of the respective programs, plans and projects. *Law of land-use planning (Law n.19/2007) – Article 22.* 4) Every citizen, local communities and collective organization, public or private, have the right to collaborate in land-use planning actions, to participate in the elaboration, execution, modification and revision of the land-use planning instruments. 5) The right to participate includes the demand for clarifications, the opportunity to offer suggestions, and public intervention.
>
> *Mining Law – Article 32.* 3) Previous consultation with communities is mandatory to obtain authorization to begin mining exploitation. 4) The government should create mechanisms of community involvement in mining projects in the area where they live. *Decree n.54/2015 – Articles 8 and 9.* All activities likely to have an impact on the environment must be subject to a pre-assessment. The results of the evaluation of the proposed activity will be determined on the basis of the following factors: the number of persons and communities affected; ecosystems, plants and animals affected, and their importance

for biodiversity and the ecosystem; the location and the extension of affected areas; the reversibility of the impact; the identification of potential impacts; and the specific elements of the project.

Social Development Actions (Resolution n.89/2013). The following actions should be introduced: to continue with communication and dialogue to consult communities about the execution and development of mining and related activities; to promote the role of the civil society, including the participation of the media, in raising awareness and increasing the general knowledge about mining, specially in relation to the benefits and the impacts for the development of the country.

Investment of part of the revenues generated by the extractive activity

New regulation on oil operations (Decree n.34/2015) – Article 17. The concessionary is subject to the payment of fees.

Mining Law – Article 20. 1) A percentage of the revenues derived from mining extraction is allocated to the development of communities living in the areas where mining occurs. 2) The percentage referred to in point 1) is fixed by the Law in the State Budget, according to the expected revenues and relative to overall mining activity.

Law of the forest and the wildlife (Law n.10/1999) – Article 102. Twenty percent of any fee related to forest or wildlife exploitation is use for the benefit of local communities living in the area where the resources are extracted, under the terms of the article 35 of this law.

Fishing Law – Article 23. 2) In the application of the participative management model, there is need to guarantee the benefit of the communities living where fishing occurs, in the form of a percentage of the revenues obtained.

Social Development Actions (Resolution n.89/2013). The following actions should be introduced: to establish binding provisions about the sharing of the economic benefits and the participation in the capital of big projects; to formalize and contextualize "Social Enterprise Responsibility" of mining and oil enterprises through specific policies and regulations.

Right to a fair compensation

Law of land-use planning (Law n.19/2007) – Article 22. 2) The expropriation by interest, necessity or public utility gives place to a fair compensation regulated by law, to compensate for: a) the loss of tangible and intangible goods; b) social cohesion ruptures; c) the loss of production goods.

Decree n.31/2012 – Article 10. The rights of the populations that are directly affected are the following: a) to have access to the same or superior quality of housing; b) to enjoy the same or superior standard of living; c) to be transported with his/her goods to the new residency; d) to live in a physical building, with access to social appliances; e) to have space to practice subsistence activities; f) to give opinions throughout the resettling process.

Resolution n.21/2014 – Article 3. b) The exploitation of mineral resources should be conducted with respect for the dignity and the human rights, for the right to social stability of the local communities, and for the right to the economic and social progress of all national citizens.

Social Development Actions (Resolution n.89/2013). The following action should be introduced: to

continue with the compliance of good practices in the resettlement processes, compensations for the goods, and the management of other social impacts.

Priority in employment in the sector

Decree-Law n. 2/2014 – Article 18 (Natural Gas). 1) Priority should be given to the recruitment of national citizens with appropriate qualifications at all levels of the organization, including specialists in positions characterized by technical and managerial complexity, without prejudice to being able to hire foreign nationals under this labor regime. 8) The recruitment of workers [..] should be published in newspapers with the largest circulation in the country, through the radio, television and the internet.

Decree-Law n.2/2014 – Article 19 (Natural Gas). 1) The Dealerships and the Specific Objective Entities (defined by the law) should submit within 60 days before the end of the civil year a training plan for consultation with the National Institute of Oil to the National Institute of Employment and Professional Training. This plan should aim at the gradual increase in the percentage of Mozambican citizens working in any project of Bacia do Rovuma and in every level of the organizations.

Decree n.63/2011 – Article 3. 8) Employers should make the best efforts to create conditions for the integration of skilled Mozambican workers into technically-complex jobs, and managerial and administrative posts.

Figure A1: Information leaflet

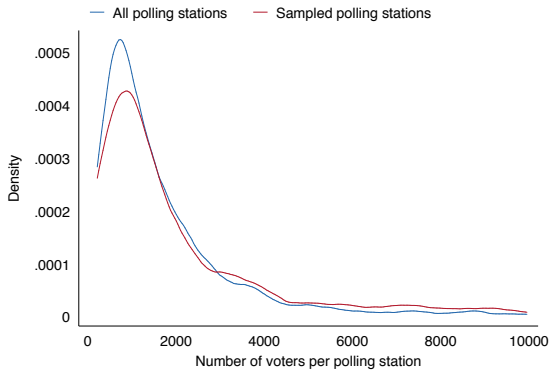
Note. The information leaflet was designed by the research team in collaboration with a large number of governmental and non-governmental organizations. The full list is provided in Appendix A.

B Sampling and randomization

The 206 communities in the final sample were randomly drawn from the sampling frame of 421 polling stations. To obtain the sampling frame, 54 polling stations that were not operating in both the 2009 and 2014 general elections were excluded. Moreover, the smallest 5^{th} percentile by voter size (corresponding to a cutoff of 207 voters) was also excluded. The polling locations were located within the following 16 districts in Cabo Delgado: Ancuabe, Balama, Chiure, Macomia, Mecufi, Meluco, Metuge, Mocimboa da Praia, Montepuez, Mueda, Muidumbe, Namuno, Nangade, Palma, Pemba, and Quissanga. The Ibo district was excluded since it is an island, together with two other polling stations in another island. Eleven polling stations in Palma's *posto administrativo* were also excluded to avoid areas that had already experienced some violence related to relocation of communities.

Sampled communities were stratified by the two urban areas (Pemba and Montepuez), semi-urban communities (i.e., the main *posto administrativo* in each district), and rural communities. In urban strata, 8 polling locations were selected in Pemba and 4 in Montepuez; in semi-urban strata, 2 polling stations were selected per town (1 if only 1 was available); the remaining 165 stations were sampled from all other polling stations. To secure representation of the few urban settlements in the province, sampling embeds an oversampling of urban and semi-urban locations. Figure B1 presents a comparison of the distribution of registered voters in the sampling frame and the sampled locations. Figure B2 presents the distribution among different districts of the number of polling locations and the number of sampled polling locations. The stratified random sampling we employed tends to replicate the distribution of polling stations in the sampling frame.

Figure B1: Distribution of voters in sampled polling locations versus all locations



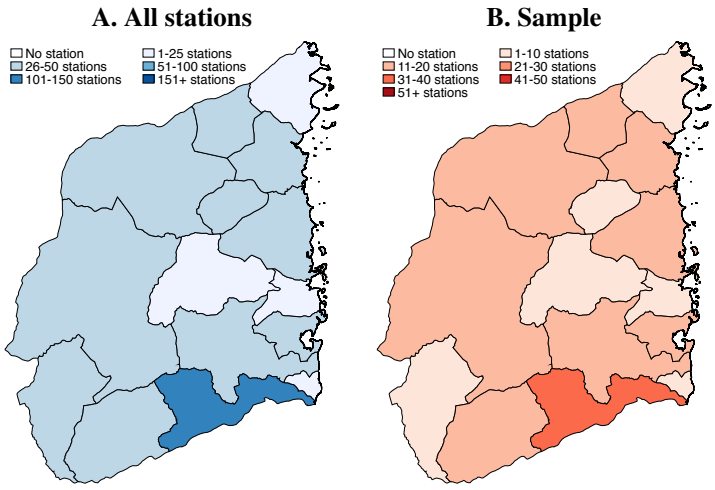
Note. The blue line presents the distribution of the number of registered voters per polling location in the sampling frame, while the red line presents the same distribution in the sampled polling locations.

Before implementing the randomization procedure, blocks of four communities were built through a code using Mahalanobis-distance and employing the richness of baseline information. The fol-

lowing variables were used to compute the corresponding metric:

- *Household characteristics*. For each community, the mean household was constructed averaging the gender, age, education and income of the respondents, their household size, as well as employing the share of Muslim households, the share of households from different ethnic groups (Macua, Maconde, Mwani), an asset index averaging ownership of all different assets, and a self-reported violence index (built using information on whether the respondent observed or has been affected by violent events). Additional controls include average trust in the community, share of respondents who know an influential person, a religious leader, or a community leader, share of respondents participating in organizations, the average attitudes towards bribes and towards the allocation of public funds, the share of respondents born in the village, the share of respondents earning money, and the share looking for a job.
- *Leader and community characteristics*. Variables included are gender, age, education of the community leader, his/her trust, his/her knowledge of influential people, his/her attitudes towards bribes and towards the allocation of public funds, whether he/she is Muslim, and whether he/she is active as member of an organization. Community characteristics are measured by two indices averaging binary variables, one on the quality of infrastructures and one on the presence of natural resources.

Figure B2: Geographic distribution of polling locations and sampled polling locations



Note. Panel A presents the geographic distribution of the number of polling locations. Panel B shows the same information, but restricted to sampled polling locations. In maps, Metuge is included in Pemba district and Ibo is included in Quissanga district.

Sampling of citizens within communities was the product of physical random walks during the baseline survey. Enumerators were told to select houses by departing in different directions from the center of the community as defined by the polling location. They were given a sampling interval for each community, which was a function of the number of registered voters in that community. The sampling interval defined the number of houses in between sampled houses.

At endline, baseline households were re-interviewed. Attrition was handled through substitutions in the same household, when possible. Households or respondents interviewed at endline as a result of these substitutions constitute the refresher sample. Columns (1)–(2) in Table B1 present probit regressions of household-level attrition under different specifications. The dependent variable is equal to 1 if the household was interviewed at baseline and not re-interviewed at endline, and zero if the household was interviewed in both rounds. Columns (3)–(4) check whether the refresher sample at endline was added differently in different treatment arms. The dependent variable is a dummy variable equal to 1 if the endline respondent was not interviewed at baseline, and zero otherwise.

Table B1: Attrition and sample selection at endline

Dep.var.:	**Attrition from baseline to endline**		**Refresher sample at endline**	
	(1)	(2)	(3)	(4)
(T1) Leader treatment	0.014	0.018	-0.015	-0.010
	(0.018)	(0.019)	(0.017)	(0.017)
(T2) Community treatment	-0.010	-0.010	-0.022	-0.022
	(0.015)	(0.014)	(0.014)	(0.014)
Observations	2065	2065	2103	2103
Mean (control group)	0.083	0.083	0.114	0.114
Randomization strata	No	Yes	No	Yes

Note. Estimates based on probit regressions (marginal effects). Standard errors are reported in parentheses and clustered at the community level. Dependent variables by column: (1)–(2) Attrition from baseline to endline: dummy variable equal to 1 if the household was interviewed at baseline and not re-interviewed at endline, and zero if the household was interviewed in both rounds; (3)–(4) Refresher sample at endline: dummy variable equal to 1 if the endline respondent was not interviewed at baseline, and zero otherwise.

B.1 Balance checks

Tables B2 and B3 present randomization checks for citizen, leader, and community-level characteristics. For each outcome of household/leader i in community j, Y_{ij}, balance is first tested using the following OLS regression:

$$Y_{ij} = \alpha + \beta\, T_j + \epsilon_{ij}$$

where T_j is an indicator variable for living in a community in either treatment 1 or treatment 2. ϵ_{ij} is an individual-specific error term clustered at the community level for household-level outcomes. A second specification is also estimated:

$$Y_{ij} = \alpha + \beta_1\, T1_j + \beta_{2A}\, T2A_j + \beta_{2B}\, T2B_j + \epsilon_{ij}$$

where $T1_j$, $T2A_j$ and $T2B_j$ are indicator variables for living in a community in treatment groups 1, 2A (community treatment without deliberation), and 2B (community treatment with deliberation). ϵ_{ij} is an individual-specific error term clustered at the community level. A test for joint-significance of β_1, β_{2A} and β_{2B} using an F-test is also provided. For community-level outcomes, the subscript i is dropped.

Table B2: Descriptive statistics – Main characteristics of citizens

			Difference to control, by treatment group				
	All	Control	Any	T1	T2A	T2B	Joint test
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	mean	mean	diff.	diff.	diff.	diff.	p-value
	[std.dev.]	[std.dev.]	(std.err.)	(std.err.)	(std.err.)	(std.err.)	[N]
Female	0.250	0.274	-0.033	-0.036	-0.037	-0.026	0.668
	[0.433]	[0.446]	(0.027)	(0.034)	(0.036)	(0.034)	[2065]
Age in years	45.041	44.880	0.220	0.280	0.655	-0.285	0.884
	[16.210]	[16.860]	(1.010)	(1.296)	(1.255)	(1.178)	[2058]
Household size	5.663	5.588	0.102	-0.098	0.208	0.193	0.329
	[2.922]	[2.861]	(0.168)	(0.198)	(0.214)	(0.198)	[2063]
No formal education	0.295	0.310	-0.020	-0.022	-0.017	-0.022	0.889
	[0.456]	[0.463]	(0.027)	(0.032)	(0.033)	(0.034)	[2065]
Primary education	0.577	0.575	0.002	0.025	0.010	-0.029	0.516
	[0.494]	[0.495]	(0.030)	(0.036)	(0.037)	(0.037)	[2065]
Secondary or higher education	0.128	0.114	0.018	-0.002	0.006	0.052	0.423
	[0.334]	[0.319]	(0.024)	(0.027)	(0.027)	(0.035)	[2065]
Muslim	0.568	0.555	0.017	0.015	0.044	-0.007	0.897
	[0.495]	[0.497]	(0.060)	(0.075)	(0.073)	(0.072)	[2065]
Macua ethnic group	0.635	0.599	0.049	0.083	0.031	0.033	0.784
	[0.482]	[0.491]	(0.065)	(0.081)	(0.081)	(0.083)	[2065]
Maconde ethnic group	0.261	0.294	-0.045	-0.054	-0.061	-0.020	0.839
	[0.439]	[0.456]	(0.063)	(0.078)	(0.075)	(0.078)	[2065]
Mwani and other ethnic groups	0.104	0.107	-0.004	-0.029	0.029	-0.013	0.556
	[0.305]	[0.309]	(0.032)	(0.035)	(0.044)	(0.038)	[2065]
Generalized trust	0.544	0.517	0.037	0.056	0.033	0.020	0.601
	[0.498]	[0.500]	(0.034)	(0.042)	(0.041)	(0.046)	[2049]
Awareness of natural gas discovery	0.489	0.487	0.002	-0.053	0.026	0.033	0.381
	[0.500]	[0.500]	(0.047)	(0.056)	(0.055)	(0.058)	[2064]
Listens to radio frequently	0.406	0.394	0.017	-0.017	0.039	0.028	0.362
	[0.491]	[0.489]	(0.028)	(0.034)	(0.035)	(0.036)	[2063]

Note. Columns (1)-(2) report the mean and standard deviation for the whole sample and for the control group. Column (3) reports the difference between all treatment groups pooled together and the control group using an OLS regression of the corresponding characteristic on the treatment indicator. Columns (4)–(6) report the difference between each treatment group and the control group. Standard errors clustered at community level are reported in parentheses. $T1$, $T2A$ and $T2B$ indicates communities in treatment groups 1, 2A (community treatment without deliberation), and 2B (community treatment with deliberation). Column (7) presents a joint test of significance of the coefficients for each treatment dummy ($T1$, $T2A$ and $T2B$). *Generalized trust* is an indicator variable equal to 1 if the respondent agrees more with the sentence "In general, most people are trustworthy" rather than "In general, you need to be very careful in dealing with people and trusting them."

Table B3: Descriptive statistics – Main characteristics of leaders and communities

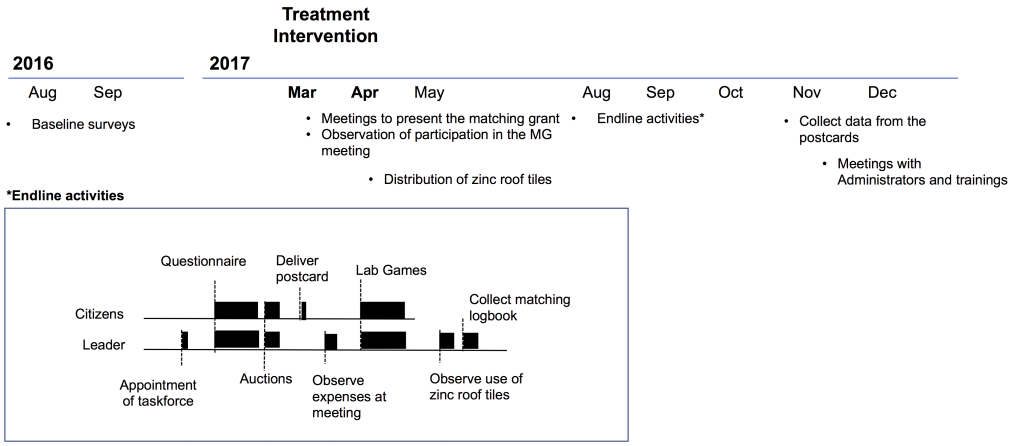
	All	Control	Difference to control, by treatment group: Any	T1	T2A	T2B	Joint test
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	mean	mean	diff.	diff.	diff.	diff.	p-value
	[std.dev.]	[std.dev.]	(std.err.)	(std.err.)	(std.err.)	(std.err.)	[N]
Panel A. Leaders							
Female	0.024	0.036	-0.016	-0.036	0.003	-0.016	0.556
	[0.154]	[0.189]	(0.024)	(0.030)	(0.030)	(0.030)	[206]
Age in years	54.461	54.091	0.505	0.549	0.517	0.449	0.991
	[9.860]	[10.624]	(1.556)	(1.940)	(1.930)	(1.940)	[206]
Household size	6.757	6.836	-0.108	0.064	-0.091	-0.296	0.956
	[3.377]	[2.942]	(0.533)	(0.664)	(0.661)	(0.664)	[206]
No formal education	0.049	0.036	0.017	0.024	0.003	0.024	0.908
	[0.215]	[0.189]	(0.034)	(0.042)	(0.042)	(0.042)	[206]
Primary education	0.752	0.691	0.084	0.009	0.113	0.129	0.287
	[0.433]	[0.466]	(0.068)	(0.084)	(0.084)	(0.084)	[206]
Secondary or higher education	0.199	0.273	-0.101	-0.033	-0.116	-0.153	0.179
	[0.400]	[0.449]	(0.063)	(0.078)	(0.077)	(0.078)	[206]
Muslim	0.583	0.582	0.001	-0.002	0.046	-0.042	0.853
	[0.494]	[0.498]	(0.078)	(0.097)	(0.097)	(0.097)	[206]
Macua ethnic group	0.655	0.600	0.075	0.100	0.067	0.060	0.752
	[0.476]	[0.494]	(0.075)	(0.094)	(0.093)	(0.094)	[206]
Maconde ethnic group	0.267	0.291	-0.033	-0.071	-0.036	0.009	0.795
	[0.443]	[0.458]	(0.070)	(0.087)	(0.087)	(0.087)	[206]
Mwani and other ethnic groups	0.078	0.109	-0.043	-0.029	-0.031	-0.069	0.630
	[0.268]	[0.315]	(0.042)	(0.053)	(0.052)	(0.053)	[206]
Generalized trust	0.654	0.600	0.073	0.053	0.086	0.080	0.783
	[0.477]	[0.494]	(0.075)	(0.094)	(0.093)	(0.094)	[205]
Awareness of natural gas discovery	0.845	0.873	-0.038	-0.033	-0.030	-0.053	0.905
	[0.363]	[0.336]	(0.057)	(0.071)	(0.071)	(0.071)	[206]
Listens to radio frequently	0.723	0.636	0.119	0.104	0.109	0.144	0.385
	[0.448]	[0.485]	(0.070)	(0.088)	(0.087)	(0.088)	[206]
Years in power	8.811	9.109	-0.407	-0.189	-0.227	-0.809	0.972
	[8.924]	[10.141]	(1.409)	(1.756)	(1.747)	(1.756)	[206]
Panel B. Communities							
Urban	0.066	0.091	-0.034	-0.031	-0.023	-0.048	0.805
	[0.249]	[0.290]	(0.040)	(0.049)	(0.051)	(0.050)	[196]
Semi-urban	0.107	0.109	-0.003	-0.009	-0.018	0.019	0.950
	[0.310]	[0.315]	(0.049)	(0.061)	(0.063)	(0.062)	[196]
Natural resources index	0.043	0.044	-0.001	-0.014	0.013	-0.004	0.180
	[0.062]	[0.060]	(0.010)	(0.012)	(0.012)	(0.012)	[206]
Infrastructure index	0.494	0.483	0.014	-0.000	0.032	0.011	0.702
	[0.158]	[0.150]	(0.025)	(0.031)	(0.031)	(0.031)	[206]

Note. Panel A reports descriptive statistics for leaders, while Panel B reports descriptive statistics for communities. Columns (1)-(2) report the mean and standard deviation for the whole sample and for the control group. Column (3) reports the difference between all treatment groups pooled together and the control group using an OLS regression of the corresponding characteristic on the treatment indicator. Columns (4)–(6) report the difference between each treatment group and the control group. Standard errors clustered at community level are reported in parentheses. $T1$, $T2A$ and $T2B$ indicates communities in treatment groups 1, 2A (community treatment without deliberation), and 2B (community treatment with deliberation). Column (7) presents a joint test of significance of the coefficients for each treatment dummy ($T1$, $T2A$ and $T2B$). *Generalized trust* is an indicator variable equal to 1 if the respondent agrees more with the sentence "In general, most people are trustworthy" rather than "In general, you need to be very careful in dealing with people and trusting them." *Natural resources index* is built averaging 10 dummy variables indicating the presence in the community of different natural resources (limestone, marble, sands, forest, ebony, exwood, gold, charcoal, graphite, semi-precious and precious stones, mercury, fishing resources, salt, and natural gas). *Infrastructure index* is built averaging 14 dummy variables indicating the presence in the community of a kindergarten, a primary school, a lower secondary school, an high school, an health center, a facilitator, a water pump, a market, a police station, a religious building, an amusement area, a room for community activities, access to electricity, and connection to sewage.

C Timeline of activities and details of measurement

Figure C1 displays the timeline of all activities, including the timing of each measurement activity.

Figure C1: Timeline of activities



Note. The timeline presents the activities of the project from the implementation of the baseline survey in August 2016 to the completion of all SCAs in December 2017. The lower part of the figure presents the detailed timeline of the endline activities.

Household, leader, and community-level data have been collected by the research team. These include survey-based measurements (Appendix C.1), as well as the observation of behavior during structured community activities (Appendix C.2) and lab-in-the-field experiments (Appendix C.3). Finally, we add details about other data sources we employ, namely the ones related to violent events (Appendix C.4).[3]

C.1 Surveys

The household questionnaire was answered by the household head and included questions on the demographic traits of the respondent and his/her household, knowledge relating to natural resources, expectations, trust, social capital and networks, political views, and violence. The leader questionnaire had a similar structure. The community questionnaire included questions on the existence of different types of local infrastructures and natural resources, distance to markets, local associations, community meetings, and local political structures; small groups of (self-selected) community representatives answered that questionnaire. Most questions in all three questionnaires were present in both baseline and endline surveys.

[3]For a discussion about the validity of behavioral measurements in capturing real world behaviors, see, e.g. Levitt and List, 2007; Falk and Heckman, 2009; Charness and Fehr, 2015; Gneezy and Imas, 2017.

C.2 Structured community activities

SCAs are "concrete, real-world scenarios that allow unobtrusive measurement of leader and community decision-making, more objectively than lab experiments, hypothetical vignettes, or surveys" (Casey et al., 2012). SCAs are conducted with local leaders, with citizens, and with both.

C.2.1 Appointing a taskforce (leaders)

This activity is intended to measure propensity for favoritism or nepotism by leaders choosing individuals for specific tasks. In this case, the leader was asked to select five individuals to take a Raven's test (Raven, 1936), a nonverbal test used in measuring abstract reasoning and regarded as a means of estimating intelligence, particularly in settings of low literacy. The test was composed of 10 questions, each of which asked respondents to complete a logical sequence of images. Leaders were told that if all five individuals got at least 5 out of 10 questions correct, they could earn a monetary prize of 1,000 Meticais (US$16, as of mid-2017) for their community. Leaders were also told that selected individuals would receive a show-up bonus of 100 Meticais. Measurement thus centered on the test performance of the selected individuals. All surveyed household representatives also took the Raven's test at endline, producing an estimate of the average score in the community. We can then observe a continuous measure of the appropriateness of the leader's choices, in absolute terms and relative to the corresponding community.

C.2.2 Auctions (leaders and citizens)

This SCA is meant to measure the propensity of both leaders and citizens to engage in potential rent-seeking activities. An auction for one or two activities was implemented. The first activity was a meeting with the district administrator (i.e., the main politician at the district level), including lunch and costs of transportation. This activity was thought to provide an environment conducive to rent-seeking activities, and was available to both local leaders and community members. The second activity was related to entrepreneurship and provided a productive alternative to the rent-seeking activity. It consisted of a training session, including lunch and transportation, on poultry farming, focusing on the creation and management of a business in this sector. Only community members participated in this auction. The meetings with district administrators and the training were implemented in November and December 2017.

Each player in these auctions received 100 Meticais and was asked to bid for each activity. To ensure incentive compatibility of the auctions, the Becker-DeGroot-Marschak (BDM) mechanism (Becker et al., 1964) was used. A set of prices was placed in a box, and after the individual had stated willingness-to-pay (WTP), the actual price was drawn at random. If the WTP was greater

than the price, the bidder was forced to purchase the activity at the drawn price; otherwise, nothing was paid or purchased. This was repeated for the two auctions in the case of community members, with one being chosen by the toss of a coin afterwards. Thus, citizen bidders had an incentive to bid independently for each activity. All bidders in all auctions were allowed to bid more than 100 Meticais using their own funds and were truthfully told that there could be prices over 100 in the box. The primary outcomes of interest are the (log) amounts bid in the auction to meet the district administrator, and in the case of community members, the share amount bid for the meeting with the district administrator while considering the amount bid for the entrepreneurial activity.

C.2.3 Funds for meetings (leaders)

This SCA examines another form of elite capture, i.e., whether leaders appropriated funds that had been set aside to cover food items for the community members during their meetings. Leaders were given 400 Meticais (US$6) and were requested to use the funds to purchase the food items. Quantities and types of food items purchased were observed and recorded by enumerators during the meetings. The cost of each item was inquired at the nearest store. The difference between the 400 Meticais and the amount spent on food items is assumed to be appropriated by the leader. The main outcomes of interest are whether leaders appropriated any amount, and the share appropriated.

C.2.4 Matching grants and related meetings (citizens)

The motivation for this SCA is the measurement of social cohesion and contribution to local public good provision. Communities had the opportunity to raise funds towards a community objective, similarly to an SCA implemented in Casey et al. (2012). Funds were matched at a rate of 50% until a maximum of 2,500 Meticais (US$40) if the community raised 5,000 Meticais or more. Communities were asked to form a committee that would raise and keep individual contributions until August 2017, and offered a book to record contributions. At the endline visit, the amounts they raised were verified and the corresponding matching grant given. Both survey data on awareness and reported contributions, and administrative data on registered contributions are available.[4]

To discuss whether to participate in the matching activity, and, if so, to select the objective for the funds raised, each community held an official public meeting. Further behavioral outcomes related to the functioning of this meeting were collected. Enumerators recorded attendance, characteristics of participants, decisions made, and method of decision-making. The main outcomes of interest

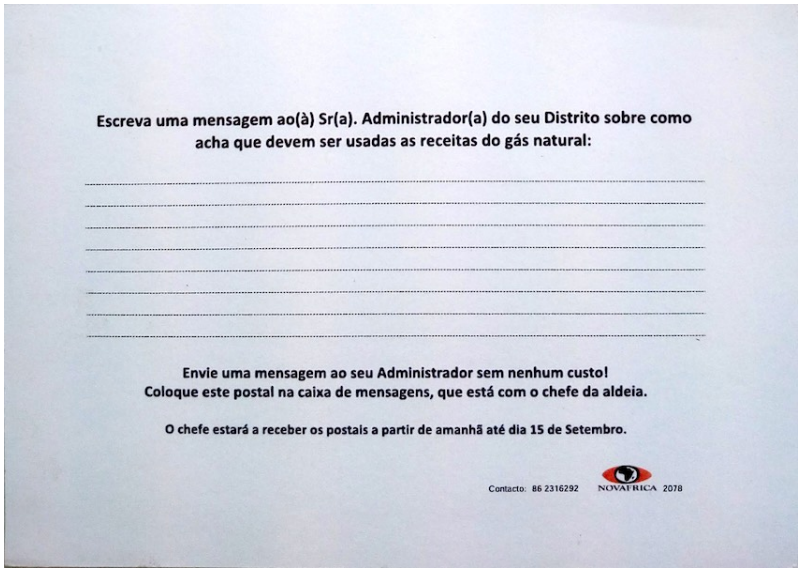
[4]Both sources of data could be imperfect. The first because of social desirability bias, the second because fraudulent book entries for the purpose of inflating the matching grant cannot be ruled out completely.

are participation and whether decisions were made democratically (by voting).

C.2.5 Postcards (citizens)

This SCA is an individual measure of demand for political accountability. At the endline survey, each respondent received a pre-stamped postcard (Figure C2) on which to write a message to the district administrator about how to use revenues from natural gas. All respondents could choose to ignore the postcard or to return the postcard with a message. The postcard had to be delivered to the local leader, who was provided with a sealed box in which respondents could deposit their postcards. The assumption is that respondents were more likely to incur the cost of filling out and returning the postcard, the more they wanted to make politicians accountable for specific policies in the face of the natural gas windfall. A similar instrument is used by Batista and Vicente (2011) and Collier and Vicente (2014).

Figure C2: Postcard used in the activity



Note. The figure shows the front page of the postcard. The text translates as follows: "*Write a message to the District Administrator about how you think the revenues from natural gas should be used.*" (upper message); "*Sending the message to the Administrator is costless. Leave this postcard in the message box kept by the community leader. The leader will be ready to receive the postcard starting from tomorrow until September 15th.*" (lower part).

Approximately one month after the endline survey, members of the research team collected the sealed boxes containing the returned postcards. While postcard messages were anonymous, numbering the postcards permitted the identification of individual behavior. The content was then recorded, and the messages were delivered to the respective district administrators. The main outcomes of interest are whether subjects sent the postcard, and the analysis of the message contents.

C.2.6 Zinc roof tiles (leaders)

This activity aims to measure elite capture of resources. The leader received eight zinc roof sheets and instructions that they were "to be used in a way that benefits the community." Each zinc sheet was worth approximately 300 Meticais, equal to a total value of 2,400 (US$38). As the person representing the community, the leader was given the zinc sheets in private, and the activity was not announced publicly to the rest of the community. Leaders were told they had until the end of August 2017 to use the zinc sheets; otherwise, they would be redistributed to other needier communities. Casey et al. (2012) and Jablonski and Seim (2017) implemented versions of this activity. At the time of the endline visit to each community, leaders were asked whether the community (or the local elite) had decided on the use of the zinc sheets, and to show each one of them. Their use was then recorded. The outcomes of interest are whether the elite or the community decided on the use of the zinc sheets and whether the zinc sheets were being used for private or public benefit, interpreting private purposes as elite capture.

C.3 Lab-in-the-field experiments

Three types of lab-in-the-field experiments were conducted to further measure behavioral preferences: a trust game, a rent-seeking game, and a public goods game. All games involved the participation of the 10 community members surveyed. The trust and rent-seeking games also included the leader as a player. The sequence of play was randomized in each community.

C.3.1 Trust game

The trust game measures elite capture, trust in local leaders from citizens, and citizens' demand for leader accountability. The game involved the 10 sampled household heads in addition to the leader. The version implemented was standard. Each citizen received an endowment of 100 Meticais in the form of 10 tokens worth 10 Meticais each. They had to decide to keep this income for themselves or send a portion to the leader. The funds sent to the leader were tripled. The leader then had to decide how much of this tripled amount to give back to the citizen. For the leader's decision, the strategy method was used; that is, the leader was asked for every possible positive amount sent from 1 to 10 tokens (which became 3 to 30), how much the leader would like to send back to the citizen. The game also included a punishment option at the end, before any decisions or outcomes were revealed. This option was phrased as: "Do you want to punish the leader if he/she sends back less than 50 Meticais, after having received 150 Meticais? Punishment costs 10 Meticais, and reduces the payoff of the leader by 30 Meticais." All citizens were paid according to the leader's full set of decisions, while the leader's payoff was determined by being randomly

matched with one individual from the community.[5] The dominant strategy is not sending any tokens to one's counterpart in this game, as well as not punishing the leader.

C.3.2 Rent-seeking game

The rent-seeking game is a novel lab game specifically designed for this field experiment and intended to measure the willingness to engage in rent-seeking behavior at the expense of a more productive activity.[6] The participants are the 10 citizens and the leader. Each citizen received an endowment of 10 tokens worth 10 Meticais each, for a total of 100 Meticais. Next, each citizen had to choose how many of the 10 tokens to send as a "gift" to the leader (understood as rent-seeking), with the remaining units being "put aside" (understood as a productive activity). The leader had to choose one citizen after observing the behavior of them all. The leader never observed the identity of the individuals, but only the amounts sent. In the case of a citizen not chosen by the leader, the units he/she sent as a gift accrued to the leader, while the units put aside stayed with the citizen. In the case of a citizen chosen by the leader, the leader received the units put aside in addition to the gift sent, while the citizen received a bonus of 300 Meticais for being chosen.

The leader receives all units sent as gifts and the units put aside by the person he/she chooses. The dominant strategy is to choose the person who sets aside the most funds. An individual's best response is to put aside all of the endowment and do no rent-seeking at all. The main outcomes we consider are whether citizens sent gifts, how much value they chose for the gifts they sent, and the extent to which leaders selected winners on the basis of the gifts they sent.

C.3.3 Public goods game

The public goods game measures social cohesion and contribution to a common goal. The version implemented was standard and involved the 10 citizens from the community, always excluding the leader. Each individual received an endowment of 100 Meticais in 10 tokens of 10 Meticais each and had to decide whether to keep it or contribute to a public account. All contributions in the public account were doubled, and divided equally among participants, independent of their contribution. The marginal per-capita return (MPCR) on contributing is 0.2, on the lower side of public goods experiments. The dominant strategy is not to contribute any token to the public account. The main outcome of interest is the extent to which participants invested in the public account.

[5] Community members were aware of this matching procedure. Punishment regarded leaders' decisions when faced with the scenario of receiving 150 Meticais (considered by the randomly selected citizen).

[6] Related literature supports the generalizability of lab-in-the-field measures of corruption or other "immoral behaviors" such as cheating or lying. See, e.g., Armantier and Boly (2012); Beekman et al. (2014); Potters and Stoop (2016); Cohn and Maréchal (2018); Dai et al. (2018).

C.4 Additional data sources

Table C1 presents a description of additional data sources used in the paper. Survey measures are supplemented with administrative data about violence at the highest disaggregated level. As standard practice in the conflict literature, this study employed the Armed Conflict Location & Event Data Project (ACLED, Raleigh et al., 2010). ACLED is supplemented with the Global Database on Events, Location and Tone (GDELT, Leetaru and Schrodt, 2013). In both datasets, post-treatment data starting in April 2017 and ending May 2018 was employed. The period between April 2015 and May 2016 was taken for baseline data. Appendix E provides additional information about the nature and timing of events in these periods. Variables were built for whether any event was recorded in proximity to a community. Appendix E.1 describes the procedure followed to assign an event to a community.

Table C1: Additional data sources

Data (source)	**Description**
Basemaps (Esri)	Basemaps throughout the paper were created using ArcGIS® software by Esri®. Basemaps are used in line with the Esri Master License Agreement, specifically for the inclusion of screen captures in academic publications. We use the *World Light Gray Base* (sources: Esri, HERE, Garmin, ®OpenStreetMap contributors, and the GIS User Community).
Violence (ACLED)	Event-based and geolocated information on violent events from the Armed Conflict Location & Event Data Project (ACLED, Raleigh et al., 2010). Information is scrutinized by a team of dedicated researchers. We select the event-category "*violence against civilians*", described as attacks by violent groups on civilians.
Violence (GDELT)	News-based and geolocated information on violent events from the Global Database on Events, Location and Tone (GDELT, Leetaru and Schrodt, 2013). Information is generated using automated textual analysis from news sources in print, broadcast, and web formats. We select the following categories: *unconventional violence*, characterized by the "use of unconventional forms of violence that do not require high levels of organization or conventional weaponry" and by "repression, violence against civilians, or their rights or properties;" and *conventional military force*, defined as "all uses of conventional force and acts of war typically by organized armed groups not otherwise specified." A larger number of observations is observed as compared to ACLED, with a large percentage found to be wrongly assigned to the study area. Each event reported by GDELT in the study area was hand-verified, and only verified events were included. The direction of results is not affected by this correction (Appendix E.2).

D Outcome variables and detailed results

D.1 Outcome variables

Tables D1–D4 present all outcome variables studied in this paper. Each table represents a set of outcomes as described in Section 3, namely: violence, information and perceived benefits, and political outcomes. Within each table, variables are grouped by topic. Appendix Section D.2 discuss detailed results for each outcome variable, including a presentation of the procedure followed for multiple hypothesis testing. As an alternative strategy to multiple inference, Appendix Section D.3 discusses results when individual outcomes are aggregated into indices by topic using the Kling et al. (2007) procedure.

Table D1: Set of outcome variables for violence

TOPIC	VARIABLE AND DESCRIPTION
Presence of violent events	**ACLED**. Indicator variable equal to 1 if an event was recorded in ACLED dataset (attacks against civilians) and occurred in the post-intervention period in proximity to the community, and zero otherwise. The post-intervention period is the first year following the intervention (May 2017-April 2018). The baseline (or lagged) value of the variable is the value corresponding to the period May 2015-April 2016. An event is considered to be in proximity if it occurred within 5 km from the community. The georeferenced coordinate of each community is determined using the average of all available data points from the household, leader, and community interviews. Appendix E.1 describes in detail the procedure followed to assign an event to a community. See Appendix C.4 for information about ACLED.
	GDELT. Indicator variable equal to 1 if an event was recorded in GDELT dataset (conventional and non-conventional violence) and occurred in the post-intervention period in proximity to the community, and zero otherwise. The post-intervention period is the first year following the intervention (May 2017-April 2018). The baseline (or lagged) value of the variable is the value corresponding to the period May 2015-April 2016. An event is considered to be in proximity if it occurred within 5 km from the community. The georeferenced coordinate of each community is determined using the average of all available data points from the household, leader, and community interviews. Appendix E.1 describes in detail the procedure followed to assign an event to a community. See Appendix C.4 for information about GDELT.
	ACLED+GDELT. Indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) or GDELT (conventional and non-conventional violence) datasets and occurred in the post-intervention period in proximity to the community, and zero otherwise. The post-intervention period is the first year following the intervention (May 2017-April 2018). The baseline (or lagged) value of the variable is the value corresponding to the period May 2015-April 2016. An event is considered to be in proximity if it occurred within 5 km from the community. The georeferenced coordinate of each community is determined using the average of all available data points from the household, leader, and community interviews. Appendix E.1 describes in detail the procedure followed to assign an event to a community. See Appendix C.4 for information about ACLED and GDELT.
Perceived violence	**Sympathy for violence**. Indicator variable equal to 1 if the respondent believes violence is justified to defend a cause, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys).
	Involved in violence. Indicator variable equal to 1 if the respondent reports having witnessed and being involved in any type of violence (physical, against women, verbal, theft, and property destruction) in the 3 months prior to the interview, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys).

Table D2: Set of outcome variables for information and perceived benefits

TOPIC	VARIABLE AND DESCRIPTION
Leaders' information	**Awareness**. Indicator variable equal to 1 if the leader heard about the natural gas discovery, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys).
	Knowledge. Constructed index that averages 15 indicator variables related to knowledge about the location of the discovery, whether exploration has started, whether the government is receiving revenues, when extraction is expected to start, and which firms are involved. Appendix F.2 provides additional information about the construction of the index. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys).
	Salience. Indicator variable equal to 1 if the leader used the word "gas" when asked about the three major events in the district in the 5 years prior to the interview. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys).
Leaders' perceived benefits	**Perceived benefit to the community**. Indicator variable equal to 1 if the leader agrees or fully agrees that the community will benefit from natural gas, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys). This variable is available only for the leaders aware of the natural gas discovery (see variable *Awareness*).
	Perceived benefit to the household. Indicator variable equal to 1 if the leader agrees or fully agrees that his/her household will benefit from natural gas, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys). This variable is available only for the leaders aware of the natural gas discovery (see variable *Awareness*).
Citizens' information	**Awareness**. Indicator variable equal to 1 if the respondent heard about the natural gas discovery, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys).
	Knowledge. Constructed index that averages 15 indicator variables related to knowledge about the location of the discovery, whether exploration has started, whether the government is receiving revenues, when extraction is expected to start, and which firms are involved. Appendix F.2 provides additional information about the construction of the index. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys).
	Salience. Indicator variable equal to 1 if the respondent used the word "gas" when asked about the three major events in the district in the 5 years prior to the interview. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys).
Citizens' perceived benefits	**Perceived benefit to the community**. Indicator variable equal to 1 if the respondent agrees or fully agrees that the community will benefit from natural gas, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys). This variable is available only for the respondents aware of the natural gas discovery (see variable *Awareness*).
	Perceived benefit to the household. Indicator variable equal to 1 if the respondent agrees or fully agrees that his/her household will benefit from natural gas, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys). This variable is available only for the respondents aware of the natural gas discovery (see variable *Awareness*).

Table D3: Set of outcome variables for political outcomes I

TOPIC	VARIABLE AND DESCRIPTION
Elite capture	**Attitudes towards corruption**. Average between an indicator variable equal to 1 if the leader agrees with the statement "the best way to overcome problems is to pay bribes," and zero otherwise, and an indicator variable equal to 1 if the leader would demand a job for him/herself when asked "Imagine that you had the opportunity to have a meeting with the Governor of Cabo Delgado and that you could make a request. Please tell me what you would request.", and zero otherwise. The variables are built from self-reported data (see Appendix C.1 for further details about the surveys).
	Elite decided about use. Indicator variable equal to 1 if the elite decided about use in the zinc roof tiles SCA (Appendix C.2.6), and 0 if the decision was made by the community. Information is self-reported by the leader.
	Private use. Indicator variable equal to 1 if the zinc roof tiles were used for individual purposes in the zinc roof tiles SCA (Appendix C.2.6), and 0 if the tiles were used for the community or not used yet. Use is observed and recorded by enumerators at endline.
	Leader appropriated funds. Indicator variable equal to 1 if the leader used less than 350 out of 400 Meticais in the funds for meeting SCA (Appendix C.2.3), and zero otherwise. Information is observed and recorded by enumerators during the meetings.
	Appropriation. Share difference between available funds and expenses in the funds for meeting SCA (Appendix C.2.3). Information is observed and recorded by enumerators during the meetings.
	Average Raven's scores. Average score on Raven's test performed by individuals chosen by the leader in the taskforce SCA (Appendix C.2.1). Information is recorded by enumerators implementing the activity.
	Preference for mid-performers. Indicator variable equal to 1 if the community is in the 2^{nd}, 3^{rd}, or 4^{th} quintiles of the sample distribution of the difference between the average Raven's scores of individuals chosen by the leader in the taskforce SCA (Appendix C.2.1), and of representative individuals selected for the survey in the same community. Information is recorded by enumerators implementing the activity.
	Preference for men. Percentage of men chosen by the leader in the taskforce SCA (Appendix C.2.1). Information is recorded by enumerators implementing the activity.
	Amount kept by leader. Amount (rescaled between 0 and 1) kept by the leader in the trust game (Appendix C.3.1). Information is recorded by enumerators implementing the game.
Rent-seeking	**Interaction between leaders**. Indicator variable equal to 1 if the leader reports having talked to or called another political leader in the 6 months prior to the interview, and zero otherwise. Other political leaders include chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys). Appendix F.4 provides further details about the construction of leaders' individual networks.
	Bid to meet the administrator. Amount (reported in logarithms) bid by the leader in the auctions SCA (Appendix C.2.2) to attend the meeting with the district administrator. District administrators are the main political representative above the community but below the provincial level. Information is recorded by enumerators implementing the activity.
	Response to citizens' rent-seeking. Amount (rescaled between 0 and 1) chosen by the leader in the set of gifts sent by citizens in the rent-seeking game (Appendix C.3.2). It ranges from 0 (lowest rent-seeking) to 1 (full rent-seeking). The variable takes value 0 if the leader behaves rationally when at least one citizen put aside the whole amount for productive activities. Information is recorded by enumerators implementing the activity.
	Citizen-chiefs interaction. Indicator variable equal to 1 if the respondent reports having talked to or called chiefs in the 6 months prior to the interview, and zero otherwise. Chiefs include the formal community leader and his/her closest collaborators. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys). Appendix F.4 provides further details about the construction of citizens' individual networks.
	Citizen-other political leaders interaction. indicator variable equal to 1 if the respondent reports having talked to or having called another political leader in the 6 months prior to the interview, and zero otherwise. Other political leaders include chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys). Appendix F.4 provides further details about the construction of citizens' individual networks.
	Share bid for meeting. Share of total bids allocated by the citizen in the auctions SCA (Appendix C.2.2) to attend the meeting with the district administrator. District administrators are the main political representative above the community but below the provincial level. Information is recorded by enumerators implementing the activity.
	Any gift sent to the leader. Indicator variable equal to 1 if the citizen sent any tokens as gift to the leader in the rent-seeking game (Appendix C.3.2), and zero otherwise. Information is recorded by enumerators implementing the game.
	Gifts sent to the leader. Number of tokens (rescaled between 0 and 1) sent as gift by the citizen to the leader in the rent-seeking game (Appendix C.3.2). Information is recorded by enumerators implementing the game.

Table D4: Set of outcome variables for political outcomes II

TOPIC	VARIABLE AND DESCRIPTION
Citizens' mobilization	**Community meetings attendance**. Indicator variable equal to 1 if the respondent attended at least one community meeting in the 12 months prior to the interview, and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys).
	Awareness of matching grants. Indicator variable equal to 1 if the respondent heard about the matching grants SCA (Appendix C.2.4), and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys).
	Contributed. Indicator variable equal to 1 if the respondent reports having contributed a positive amount in the matching grants SCA (Appendix C.2.4), and zero otherwise. The variable is self-reported (see Appendix C.1 for further details about the surveys), and verified in the community logbooks used for the activity. This variable is available only for the respondents that were aware of matching grants (see variable *Awareness of matching grants*).
	Contribution. Amount (reported in logarithms) contributed by the respondent in the matching grants SCA (Appendix C.2.4). The variable is self-reported (see Appendix C.1 for further details about the surveys), and verified in the community logbooks used for the activity. This variable is available only for the respondents that were aware of matching grants (see variable *Awareness of matching grants*).
	Attendance among adults. Share of adults in the community who attended the community meeting to decide about whether to participate in the matching grants SCA (Appendix C.2.4). Information is observed and recorded by enumerators during the meetings. Because this variable is at community-level, for the construction of the index in this topic, the value is repeated for each observation in the same community.
	Voting. Indicator variable equal to 1 if the decision to participate in the matching grants SCA (Appendix C.2.4) was determined by voting, and zero otherwise. Information is observed and recorded by enumerators during the meetings. Because this variable is at community-level, for the construction of the index in this topic, the value is repeated for each observation in the same community.
	Contribution in the public goods game. Amount (rescaled between 0 and 1) contributed by the participant in the public goods game (Appendix C.3.3). Information is recorded by enumerators implementing the game.
Demand for accountability	**Voice**. Average level of voice with provincial and national authorities (1 = no voice / 4 = full voice). The variables are self-reported (see Appendix C.1 for further details about the surveys).
	Political accountability. Average of three variables capturing whether the respondent agrees with the statements "Communities should demand more from their leaders," "When communities ask accountability from their leaders things change," and "If someone asks accountability from the leader, other members will support the process" (1 = fully disagree / 5 = fully agree). The variables are self-reported (see Appendix C.1 for further details about the surveys), and are available at endline only.
	Average trust. Average trust on family, neighbors, local leaders, local people, district government, provincial government, Mozambicans, and national leaders (0 = not at all / 3 = trust a lot). The variables are self-reported (see Appendix C.1 for further details about the surveys).
	Trust on leaders personally known. Trust on leaders that are personally known by the respondent (0 = not at all / 3 = trust a lot). Leaders include community and religious leaders, high officials, and influential people. The variable is built from self-reported data (see Appendix C.1 for further details about the surveys). Appendix F.4 provides further details about the construction of citizens' individual networks.
	Amount sent to the leader. Amount (rescaled between 0 and 1) sent by the citizen to the leader in the trust game (Appendix C.3.1). Information is recorded by enumerators implementing the game.
	Desire to punish the leader. Indicator variable equal to 1 if the citizen expressed the desire to punish the leader in the trust game (Appendix C.3.1), and zero otherwise. Information is recorded by enumerators implementing the game.
	Postcard sent. Indicator variable equal to 1 if the respondent sent the postcard in the corresponding SCA (Appendix C.2.5), and zero otherwise. Information is recorded by enumerators after collecting the boxes left with local leaders to allow citizens to return the postcards.

D.2 Results by set of outcomes

This section reports the detailed results for all outcome variables presented in Appendix Section D.1, by set of outcomes. For the detailed description of each variable, refer to Tables D1–D4. Treatment effects are estimated using equation (1), and controlling for the baseline value of the dependent variable when available. Because the set of outcome variables presented in Appendix Section D.1 is large, we address issues related to multiple inference. Below the typical standard errors, displayed in parentheses, two sets of p-values adjusting for multiple hypothesis testing are presented in squared brackets. The first corresponds to jointly testing all coefficients at the row-level of the table. The second p-value is for a more demanding test that jointly considers all treatment coefficients at the table level, including the difference between treatments (see Section 4 for details). A test is considered as "passed" if the p-value is smaller or equal than 0.1.

For multiple hypothesis testing, we follow the Studentized k-StepM method for the two-sided setup (Romano and Wolf, 2005). This procedure improves on the ability to detect false hypotheses of program impact by capturing the joint-dependence structure of individual test statistics on treatment impacts. Data is represented by a data matrix X_N, where N is the number of observations generated from some underlying unknown probability mechanism P. Interest focuses on the parameter vector $\theta = (\theta_{T1} \ \ \theta_{T2})'$, where each $\theta_t = (\beta_{t,1}, ..., \beta_{t,K})$, and $\beta_{t,k}$ is the parameter on the treatment vector $t = (T1 \ \ T2)'$ corresponding to equations (1) estimated with outcome variable k. Individual hypotheses concern all elements of θ, and are two-sided: $H_{t,k} : \beta_{t,k} = 0$ vs. $H_{t,k}^{'} : \beta_{t,k} \neq 0$. For each element of θ, the test of the difference between treatment effects is analogously considered. For a given set of hypotheses, the following procedure is implemented:

1. Let $\hat{\theta}_N$ denote an estimator of θ (with standard errors $\hat{\sigma}_{N,t,k}$) computed from the original data matrix X_N using specifications presented in Section 4. For each hypothesis $H_{t,k}$, the absolute studentized test statistics $|z_{N,t,k}| = \left|\hat{\beta}_{N,t,k}/\hat{\sigma}_{N,t,k}\right|$ is computed from the data matrix X_N and relabeled in descending order from r_1 to r_S, such that $z_{N,r_1} \geq z_{N,r_2} \geq ... \geq z_{N,r_S}$.

2. Generate M bootstrap data matrices $X_N^{*,m}$ with $1 \leq m \leq M$ (M is set at 2,000). Due to the design of the experiment, bootstrap data matrices are clustered at the community level. From each bootstrap data matrix, estimates $\hat{\beta}_{N,t,1}^{*,m}, ..., \hat{\beta}_{N,t,K}^{*,m}$ and standard errors $\hat{\sigma}_{N,t,1}^{*,m}, ..., \hat{\sigma}_{N,t,K}^{*,m}$ are computed using the same specifications as in Step 1. Then set $j = 1$ and $R_0 = 0$.

3. For $1 \leq m \leq M$, compute $max_{N,j}^{*,m} = max_{R_{j-1}+1 \leq s \leq S} \left(\left| \hat{\beta}_{N,r_s}^{*,m} - \hat{\beta}_{N,r_s} \right| / \hat{\sigma}_{N,r_s}^{*,m} \right)$. Using the M $max_{N,j}^{*,m}$, compute $\hat{d}_j$ as the $1 - \alpha$ empirical quantile of the M values $max_{N,j}^{*,m}$. For $R_{j-1} + 1 \leq s \leq S$, if $|z_{N,r_s}| > \hat{d}_j$, reject the null hypothesis H_{r_s}. α is set at 10%.

4. If no further hypotheses are rejected, the procedure stops. Otherwise, denote by R_j the number of hypotheses rejected so far, let $j = j + 1$ and return to Step 3.

To compute p-values, we follow the procedure for the computation of p-values adjusted for step-down multiple testing (see Algorithm 4.1 in Romano and Wolf, 2016). Iterations where at least one estimation cannot be performed due to lack of variation in the dependent variable are excluded.

D.2.1 Violence

Results for outcomes related to violence and listed in Table D1 are reported in the main text of the paper (Section 4.2.1).

D.2.2 Information and perceptions

Tables D5 and D6 present treatment effects for outcomes related to information and perceptions for leaders and citizens respectively. Outcome variables are detailed in Table D2. Concerning leaders' and citizens' information, in both tables, column (1) focuses on awareness of the natural gas discovery, column (2) focuses on the level of knowledge about the natural gas discovery, and column (3) measures the effect on salience of the natural gas discovery. Appendix F.2 provides detailed results for each component of the knowledge index. Concerning instead leaders' and citizens' perceived benefits, columns (4)–(5) display the analysis of their perceived benefits for the community and their specific households by restricting the attention to respondents aware of the natural gas discovery.

Beginning with local leaders (Table D5), awareness increases by roughly 4–5 percentage points in both treatment groups. The information campaign was indeed effective for leaders, especially given the high pre-treatment awareness among the local elite. No differential effect is observed when information dissemination also targets citizens. Knowledge about the discovery also increased significantly across both treatment groups (4–6 percentage points). Relatively small effects on knowledge translated into large effects in terms of salience of the natural gas discovery, but only where the information was also distributed to citizens. This suggests that changes along this dimension might be associated with the level of information among citizens. In treatment 2, 34% more leaders used the word "gas." No significant effect is observed on perceived benefits. All significant coefficients for treatment 2, as well as the tests of differences between coefficients for salience, pass multiple hypothesis testing.

Table D6 focuses instead on citizens' outcomes. When information was distributed to citizens, the intervention created a large increase in awareness of 25 percentage points. No effect is observed when the information is distributed only to the leader instead, suggesting that leaders did not introduce any clear within-community effort to disseminate information. This is particularly true given that citizens report increased interaction with leaders in treatment 1 (Appendix D.2.3). Treatment 2 not only increased awareness, but also made citizens more knowledgeable: the knowledge index

increased by 17 percentage points. Similar to awareness, no effect of distributing the information to the leader is observed. In terms of salience of the natural gas discovery, a significant increase in both treatment groups is observed, with a significantly larger effect for treatment 2. In this treatment, 24% more citizens used the word "gas." This pattern suggests that information targeted at leaders is mainly increasing salience among citizens who were already aware of the discovery at baseline, perhaps in closer connection to the leader's network. Note that pre-treatment knowledge is mainly determined by individual characteristics (Appendix F.2).

Differently from leaders, citizens become optimistic regarding the future benefits to their community and their households, but only when the information is targeted at the whole community. All significant coefficients or tests of differences between coefficients are strong enough to pass multiple hypothesis testing. The exceptions are the coefficients on treatment 1 for salience and on treatment 2 for the perceived benefit to the community (only for the test at the table level).

Table D5: Leaders' knowledge and perceptions about the natural gas discovery

Dep.Var.:	**Awareness**	**Knowledge**	**Salience**	**Perceived benefit to the...**	
				community	**household**
Sample:	All	All	All	Respondents aware of the discovery	
	(1)	(2)	(3)	(4)	(5)
(T1) Leader treatment	0.043	0.038	0.045	0.016	0.014
	(0.019)	(0.018)	(0.087)	(0.065)	(0.079)
	[0.09-0.15]	[0.09-0.17]	[0.90-0.98]	[0.94-0.99]	[0.94-0.99]
(T2) Community treatment	0.052	0.056	0.340	-0.008	-0.042
	(0.018)	(0.016)	(0.079)	(0.059)	(0.072)
	[0.02-0.03]	[0.01-0.01]	[0.00-0.00]	[0.89-0.99]	[0.72-0.97]
Observations	203	203	203	204	204
R^2	0.146	0.273	0.333	0.154	0.125
Mean (control group)	0.964	0.627	0.291	0.868	0.830
T1 = T2 (p-value)	0.648	0.255	0.000	0.671	0.430
T1 = T2 (adj. p-value, row-level)	0.750	0.492	0.001	0.750	0.652
T1 = T2 (adj. p-value, table-level)	0.976	0.752	0.003	0.976	0.903
Lagged dependent variable	Yes	Yes	Yes	No	No

Note. Estimates based on OLS regressions. Columns (1)–(3) present estimates using equation (1), including the lagged value of the dependent variable. Columns (4)–(5) present estimates using equation (1). Standard errors are reported in parentheses. P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Dependent variables by column: (1) Awareness: indicator variable equal to 1 if the leader heard about the natural gas discovery, and zero otherwise; (2) Knowledge: constructed index that averages 15 indicator variables related to knowledge about the location of the discovery, whether exploration has started, whether the government is receiving revenues, when extraction is expected to start, and which firms are involved (Appendix F.2 provides additional information about the construction of the index); (3) Salience: indicator variable equal to 1 whether the leader used the word "gas" when asked about the three major events in the district in the 5 years prior to the interview; (4) Perceived benefit to the community: indicator variable equal to 1 if the leader agrees or fully agrees that the community will benefit from natural gas, and zero otherwise; (5) Perceived benefit to the household: indicator variable equal to 1 if the leader agrees or fully agrees that his/her household will benefit from natural gas, and zero otherwise. Additional details about the dependent variables are presented in Appendix D.1. In columns (5)–(6), the sample is restricted to respondents aware of the natural gas discovery. All specifications include community and leader-level controls. The full list of controls is presented in Section 4.

D.2.3 Political outcomes I: elite capture and rent-seeking

Table D7 presents estimates of the effect of the interventions on measures of elite capture by local leaders, while Table D8 presents the analysis of treatment effects on rent-seeking for both local

Table D6: Citizens' knowledge, and perceptions about the natural gas discovery

Dep.Var.:	**Awareness**	**Knowledge**	**Salience**	**Perceived benefit to the...**	
				community	**household**
Sample:	All	All	All	Respondents aware of the discovery	
	(1)	(2)	(3)	(4)	(5)
(T1) Leader treatment	-0.003	-0.001	0.066	-0.009	0.015
	(0.033)	(0.020)	(0.032)	(0.031)	(0.031)
	[0.99-0.99]	[0.99-0.99]	[0.16-0.23]	[0.97-0.97]	[0.95-0.95]
(T2) Community treatment	0.251	0.169	0.238	0.044	0.071
	(0.023)	(0.015)	(0.029)	(0.023)	(0.026)
	[0.00-0.00]	[0.00-0.00]	[0.00-0.00]	[0.06-0.23]	[0.02-0.07]
Observations	1886	1886	1890	1592	1573
R^2	0.272	0.396	0.154	0.135	0.114
Mean (control group)	0.671	0.449	0.182	0.779	0.692
T1 = T2 (p-value)	0.000	0.000	0.000	0.046	0.050
T1 = T2 (adj. p-value, row-level)	0.001	0.001	0.001	0.088	0.088
T1 = T2 (adj. p-value, table-level)	0.001	0.001	0.001	0.228	0.228
Lagged dependent variable	Yes	Yes	Yes	No	No

Note. Estimates based on OLS regressions. Columns (1)–(3) present estimates using equation (1), including the lagged value of the dependent variable. Columns (4)–(5) present estimates using equation (1). Standard errors are reported in parentheses. P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Dependent variables by column: (1) Awareness: indicator variable equal to 1 if the respondent heard about the natural gas discovery, and zero otherwise; (2) Knowledge: constructed index that averages 15 indicator variables related to knowledge about the location of the discovery, whether exploration has started, whether the government is receiving revenues, when extraction is expected to start, and which firms are involved (Appendix F.2 provides additional information about the construction of the index); (3) Salience: indicator variable equal to 1 whether the respondent used the word "gas" when asked about the three major events in the district in the 5 years prior to the interview; (4) Perceived benefit to the community: indicator variable equal to 1 if the respondent agrees or fully agrees that the community will benefit from natural gas, and zero otherwise; (5) Perceived benefit to the household: indicator variable equal to 1 if the respondent agrees or fully agrees that his/her household will benefit from natural gas, and zero otherwise. Additional details about the dependent variables are presented in Appendix D.1. In columns (4)–(5), the sample is restricted to respondents aware of the natural gas discovery. All specifications include community and household-level controls. The full list of controls is presented in Section 4.

leaders and citizens.

We begin by focusing on elite capture (Table D7). Column (1) focuses on attitudes towards corruption by leaders. When information is targeted only at leaders, attitudes in favor of corruption increase by 10 percentage points, significant at the 5% level. The coefficient is also positive for treatment 2 with a magnitude of 7 percentage points, but it does not pass multiple hypothesis testing.[7] Differences across treatments are not significant.

Columns (2)–(3) are devoted to the zinc roof tiles SCA (Appendix C.2.6). Column (2) focuses on whether the local elite (including the local leader) decided about the use of the zinc roof tiles. The leader provided this information. Column (3) considers instead whether the tiles were used for individual purposes or alternatively for the community (including the case in which they were not used). This measurement is based on direct observation at the endline. Despite the risk of losing the tiles if unused, only 22% had been used, with 80% of those used allocated privately. Despite the limited adherence of this SCA, treatment 2 led to a reduction by 19 percentage points of the probability that the elite decided about the use. This effect is significant at the 1% level and

[7] Similar results are found for alternative measures of leader's attitudes against corruption, such as leader's attitudes relative to average attitudes in the community.

significantly different from the effect of treatment 1. In terms of observed use, despite negative point estimates for both coefficients of interest, no significant effects or differences across treatment effects were found. The effect of treatment 2 on the probability that the elite decided about the use is the only difference that passes the procedure for multiple hypothesis testing, namely at the row level.

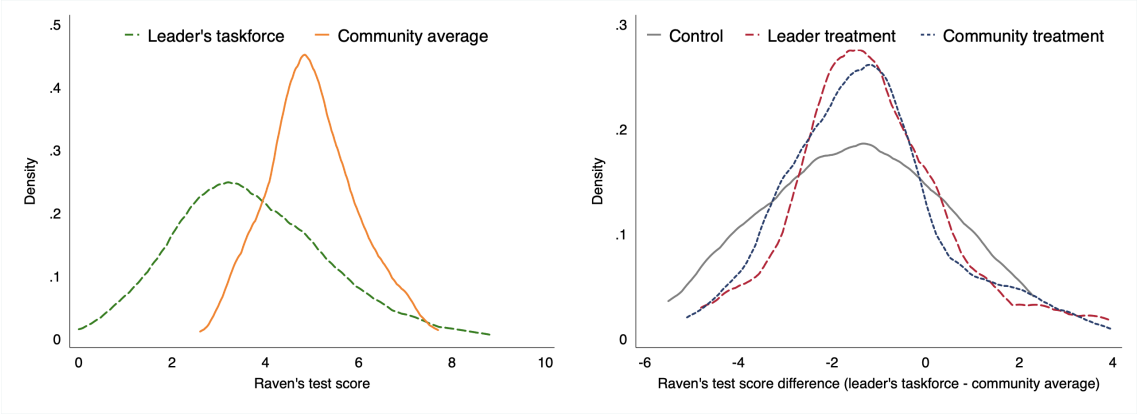
Columns (5)–(6) are dedicated to the funds-for-meetings SCA (Appendix C.2.3). Column (5) relates to whether the leader appropriated any funds. To conservatively allow for measurement error, any amount spent equal to or above 350 Meticais is considered equivalent to the full funds (400 Meticais). Column (6) displays the share appropriated, defined as the share of the full funds not spent in the meetings. In the control group, 47% of leaders appropriated funds, with an average share appropriated of 23%. Some leaders used their own funds and spent more than 400 Meticais. Treatment 1 increases both the probability of a leader appropriating funds and the share appropriated. Point estimates are large in absolute values and are statistically significant at the 1% level (27 percentage points for the extensive margin and 14 percentage points for the intensive margin). The effects are also statistically different between treatments. Multiple hypothesis testing yields a significant effect of treatment 1 for the extensive margin, and a significant difference between the treatments for the intensive margin. The effect of treatment 1 for the intensive margin only passes multiple hypothesis testing at the row level.

Columns (6)–(8) show outcome variables related to the taskforce SCA (Appendix C.2.1). Column (6) employs the average score in the Raven's test for the taskforce selected by the leader. Column (7)–(8) focuses instead on the leaders' preferences for mid-performers and for men in the appointed taskforce. On average, individuals in the household survey got 5 out of 10 correct answers, while those chosen by the leader performed worse on average, scoring 3.7. The left panel of Figure D1 presents the distribution of Raven's test scores for both the taskforce selected by the leader and citizens. No effects are found for the average scores of the taskforce selected by the leader. However, treatment 1 increases the probability of selecting mid-performers. These effects are clear in the distributions of the Raven's test score difference between the taskforce and the community (right panel of Figure D1). Treatment 1 also led to an increase in the percentage of men selected for the taskforce by 7 percentage points. This effect is statistically different from the one of treatment 2, which is not distinguishable from zero. However, these effects do not pass multiple hypothesis testing.[8]

Column (9) regards the behavior of leaders in the trust game (Appendix C.3.1), specifically the amount (rescaled between 0 and 1) that the leader kept after receiving the transfer from a citizen. The average amount sent by citizens was 4 out of 10 tokens, indicating some degree of trusting behavior. On average, leaders returned slightly more, taking home just under two-thirds of the

[8]No statistically significant effects are observed for selecting friends or family members in the taskforce.

Figure D1: Raven's test distributions



Note. The left panel shows a comparison in the distribution of Raven's test scores among the average Raven's Test Score among the individuals selected for the taskforce activity and community members. The right panel shows the distributions of the difference between the leader's taskforce and the community average in the control group and the two treatment groups.

surplus. No significant differences appear between comparison groups for the amounts kept by leaders. However, positive point estimates for both treatments are found, with greater magnitude for treatment 1.

We continue by analyzing treatment effects on rent-seeking for both local leaders and citizens (Table D8). Columns (1), (4) and (5) concern leaders' and citizens' interactions with political leaders in the community. We assume two individuals interacted if one of the two reported having talked to or called the other in the 6 months prior to the interview. The procedure for the construction of this information is detailed in Appendix F.4. The focus is on the interaction with *chiefs* (i.e., formal community leader and closest collaborators) and with *other political leaders* (i.e., chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives).

Column (1) focuses on interaction between the local leader and other political leaders. Columns (4)–(5) reports instead whether citizens interacted with chiefs and other political leaders respectively. Both treatments increase interaction between leaders: 16 percentage points for treatment 1 and 11 percentage points for treatment 2, statistically significant at the 1% and 5% levels respectively. In the case of treatment 1, the effect passes multiple hypothesis testing at all levels. For citizens, treatment 1 increases by 9 percentage points the probability of interaction with chiefs in their own communities. This effect is statistically significant at the 1% level, passing multiple hypothesis testing at the row level. The effect of treatment 1 is also statistically different from that of treatment 2 (which is not significant), even though this difference does not always pass multiple hypothesis testing. No significant effects were found for both treatments when considering the interaction of citizens with other political leaders.

Columns (2) and (6) show outcomes related to the auctions SCA (Appendix C.2.2) for leaders and

citizens respectively. Column (2) presents estimates for the amount (reported in logarithms) that the leader bid to attend the meeting with the district administrator. Column (6) focuses instead on the share of total bids (including the bid to attend the business training) allocated by citizens to attending the meeting with the district administrator. Although treatments have no significant effect for leaders, treatment 1 increases by 3 percentage points the share allocated by citizens to attend the meeting with the administrator. This effect is statistically significant at the 5% level, and statistically different from that of treatment 2.[9] None of these effects is large enough to pass multiple hypothesis testing.

Columns (3) and (7)–(8) show the actions of leaders and citizens in the rent-seeking game (Appendix C.3.2). Column (3) focuses on the leaders' responses to citizens' rent-seeking, defined as the size of the gift chosen by the leader. This can range from 0 (lowest rent-seeking) to 1 (highest rent-seeking). Despite positive coefficients and a higher magnitude for treatment 1, no statistically significant effect is observed for this outcome. For citizens, column (7) reports the effects on whether the citizens sent any gift to the leader (extensive margin), while column (8) focuses on the size of the gift (intensive margin). On average, citizens in the control group sent 4 tokens as gifts, with the remaining 6 being set aside for productive activities. Only 11% of the citizens in the control group chose the rational action of sending a gift of 0. Treatment 1 generates positive effects of 6 and 4 percentage points for the extensive and intensive margins respectively. These are significant at the 5% and 10% levels. A positive and marginally significant effect for treatment 2 occurs on the extensive margin. The two treatment effects in any of these two regressions are indistinguishable. None of the referred significant effects pass multiple hypothesis testing.

[9] The same conclusion is reached when looking at the difference in levels between the two amounts bid.

Table D7: Elite capture

	SURVEY	ZINC ROOF TILES		FUNDS FOR MEETINGS		TASKFORCE ACTIVITY			TRUST GAME
Dep.Var.	**Attitudes towards corruption**	**Elite decided about use**	**Private use**	**Leader appropriated funds**	**Appropriation**	**Average Raven's scores**	**Preference for mid-performers**	**Preference for men**	**Amount kept by leader**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(T1) Leader treatment	0.099	-0.067	-0.101	0.271	0.144	0.281	0.193	0.073	0.032
	(0.040)	(0.079)	(0.075)	(0.095)	(0.053)	(0.314)	(0.097)	(0.041)	(0.038)
	[0.09-0.23]	[0.71-0.99]	[0.51-0.88]	[0.04-0.10]	[0.06-0.14]	[0.71-0.99]	[0.25-0.53]	[0.30-0.67]	[0.71-0.99]
(T2) Community treatment	0.069	-0.187	-0.084	0.120	0.005	0.204	0.122	-0.004	0.026
	(0.037)	(0.071)	(0.068)	(0.086)	(0.048)	(0.283)	(0.087)	(0.037)	(0.034)
	[0.36-0.60]	[0.07-0.17]	[0.68-0.92]	[0.67-0.88]	[0.99-1.00]	[0.89-0.99]	[0.67-0.88]	[0.99-1.00]	[0.89-0.99]
Observations	203	206	206	205	205	206	206	206	206
R^2	0.171	0.295	0.209	0.169	0.235	0.169	0.145	0.243	0.119
Mean (control group)	0.073	0.855	0.255	0.473	0.227	3.516	0.491	0.782	0.605
T1 = T2 (p-value)	0.413	0.095	0.806	0.079	0.004	0.784	0.422	0.038	0.861
T1 = T2 (adj. p-value, row-level)	0.919	0.395	0.985	0.381	0.037	0.985	0.919	0.220	0.985
T1 = T2 (adj. p-value, table-level)	0.992	0.721	0.999	0.672	0.095	0.999	0.992	0.465	0.999
Lagged dependent variable	Yes	No	No	No	No	No	No	No	No

Note. Estimates based on OLS regressions. Column (1) presents estimates using equation (1), including the lagged value of the dependent variable. Columns (2)-(9) present estimates using equation (1). Standard errors are reported in parentheses. P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Dependent variables by column: (1) Attitudes towards corruption: average between an indicator variable equal to 1 if the leader agrees with the statement "the best way to overcome problems is to pay bribes," and zero otherwise, and an indicator variable equal to 1 if the leader would demand a job for him/herself when asked "Imagine that you had the opportunity to have a meeting with the Governor of Cabo Delgado and that you could make a request. Please tell me what you would request.", and zero otherwise; (2) Elite decided about use: indicator variable equal to 1 if the elite decided about use in the zinc roof tiles SCA (Appendix C.2.6), and 0 if the decision was made by the community; (3) Private use: indicator variable equal to 1 if the tiles were used for individual purposes in the zinc roof tiles SCA (Appendix C.2.6), and 0 if the tiles were used for the community or not used yet; (4) Leader appropriated funds: indicator variable equal to 1 if the leader used less than 350 out of 400 Meticais in the funds for meeting SCA (Appendix C.2.3), and zero otherwise; (5) Appropriation: share difference between available funds and expenses in the funds for meeting SCA (Appendix C.2.3); (6) Average Raven's scores: average score on Raven's test performed by individuals chosen by the leader in the taskforce SCA (Appendix C.2.1); (7) Preference for mid-performers: indicator variable equal to 1 if the community is in the 2nd, 3rd, or 4th quintiles of the sample distribution of the difference between the average Raven's score of individuals chosen by leader in the taskforce SCA (Appendix C.2.1), and of representative individuals selected for the survey in the same community; (8) Preference for men: percentage of men chosen by the leader in the taskforce SCA (Appendix C.2.1); (9) Amount kept by leader: amount (rescaled between 0 and 1) kept by the leader in the trust game (Appendix C.3.1). Additional details about the dependent variables are presented in Appendix D.1. All specifications include community and leader-level controls. The full list of controls is presented in Section 4.

Table D8: Rent-seeking

	AMONG LOCAL LEADERS			AMONG CITIZENS				
Dep.Var.	**Interaction between leaders**	**Bid to meet the administrator**	**Response to citizens' rent-seeking**	**Citizen-chiefs interaction**	**Citizen-other political leaders interaction**	**Share bid for meeting**	**Any gift sent to the leader**	**Gifts sent to the leader**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(T1) Leader treatment	0.162	0.058	0.044	0.092	0.001	0.025	0.059	0.040
	(0.053)	(0.120)	(0.052)	(0.035)	(0.034)	(0.012)	(0.026)	(0.023)
	[0.01-0.02]	[0.62-0.93]	[0.62-0.84]	[0.05-0.12]	[0.97-0.98]	[0.13-0.34]	[0.09-0.25]	[0.19-0.52]
(T2) Community treatment	0.114	0.067	0.002	0.022	0.009	0.005	0.043	0.031
	(0.048)	(0.108)	(0.047)	(0.029)	(0.030)	(0.010)	(0.025)	(0.021)
	[0.05-0.12]	[0.75-0.89]	[0.97-1.00]	[0.83-0.95]	[0.87-0.98]	[0.87-0.98]	[0.34-0.51]	[0.48-0.67]
Observations	203	206	204	1890	1890	2077	2027	2027
R^2	0.212	0.198	0.131	0.101	0.133	0.021	0.026	0.078
Mean (control group)	0.818	4.217	0.243	0.531	0.451	0.499	0.880	0.408
T1 = T2 (p-value)	0.311	0.939	0.372	0.022	0.789	0.025	0.361	0.615
T1 = T2 (adj. p-value, row-level)	0.633	0.931	0.633	0.100	0.838	0.100	0.716	0.838
T1 = T2 (adj. p-value, table-level)	0.834	0.997	0.842	0.245	0.979	0.251	0.937	0.979
Lagged dependent variable	Yes	No	No	Yes	Yes	No	No	No

Note. Estimates based on OLS regressions. Columns (1) and (4)–(5) present estimates using equation (1), including the lagged value of the dependent variable. Columns (2)-(3) and (6)–(8) present estimates using equation (1). Standard errors are reported in parentheses and clustered at the community level, except in columns (1)-(3). P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Testing is performed separately for columns (1)–(3) and columns (4)–(8). Columns (1)–(3) refer to outcomes related to rent-seeking among local leaders, while columns (4)–(8) refer to rent-seeking among citizens. For local leaders, depending on the column, the dependent variables are defined by the following: (1) Interaction between leaders: indicator variable equal to 1 if the leader reports having talked to or called another political leader (chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives) in the 6 months prior to the interview, and zero otherwise; (2) Bid to meet the administrator: amount (reported in logarithms) bid by the leader in the auctions SCA (Appendix C.2.2) to attend the meeting with the district administrator; (3) Response to citizens' rent-seeking: amount (rescaled between 0 and 1) chosen by the leader in the set of gifts sent by citizens in the rent-seeking game (Appendix C.3.2). For citizens, depending on the column, the dependent variables are defined by the following: (4) Citizen-chiefs interaction: indicator variable equal to 1 if the respondent reports having talked to or called chiefs (formal community leader and its closest collaborators) in the 6 months prior to the interview, and zero otherwise; (5) Citizen-other political leaders interaction: indicator variable equal to 1 if the respondent reports having talked to or called another political leader (chiefs in other communities, political representatives at the municipal, district, and provincial levels, as well as local party representatives) in the 6 months prior to the interview, and zero otherwise; (6) Share bid for meeting: share of total bids allocated by the citizen in the auctions SCA (Appendix C.2.2) to attend the meeting with the district administrator; (7) Any gift sent to the leader: indicator variable equal to 1 if the citizen sent any tokens as gift to the leader in the rent-seeking game (Appendix C.3.2), and zero otherwise; (8) Gifts sent to the leader: number of tokens (rescaled between 0 and 1) sent as gift by the citizen to the leader in the rent-seeking game (Appendix C.3.2). Additional details about the dependent variables are presented in Appendix D.1. Specifications in columns (1)–(3) include community and leader-level controls. Specifications in columns (4)–(8) include community and household-level controls. The full list of controls is presented in Section 4.

D.2.4 Political outcomes II: citizens' mobilization and demand for accountability

Table D9 presents estimates of treatment effects on measures of citizens' mobilization, including the contributions to public goods. Column (1) concerns the self-reported participation in community meetings. Among control respondents, 90% participated in at least one meeting in the last year. Treatment 2 induces a significant increase in participation in meetings by 4 percentage-points, statistically significant at the 5% level. However, it only passes multiple hypothesis testing at the row level. The null that both effects are equal is rejected, even though this difference does not pass multiple hypothesis testing.

Columns (2)–(6) explore the outcomes of the matching grants SCA and the related meetings (Appendix C.2.4). Column (2) focuses on the respondent's awareness of the matching grants activity, while column (3) is devoted to whether the respondent reported having contributed a positive amount of money in the activity. The corresponding intensive margin variable is found in column (4). As a number of individuals report large contributions, with a maximum of 2,600, we take a logarithmic transformation of this variable. Variables relating to contributions are checked with the information in the community logbooks for the matching grants activity. Seventy percent of individuals in the control group report being aware of the contribution activity, while 22% report contributing positive amounts. Average contributions by survey respondents are 30 Meticais, although the median contribution is 0.

Positive effects of treatment 2 are found on awareness and participation in this activity, both on the extensive and intensive margins. The magnitudes are 11 percentage points for awareness, 15 percentage points for participation, and 48% for contributions. All estimates are statistically significant at the 1% level, and different from the effects of treatment 1. The effects for awareness and participation pass multiple hypothesis testing, while the effect on the size of contributions passes multiple hypothesis testing at the row level only. In the case of awareness, results enable rejection of equality of the two treatment effects when considering multiple hypothesis testing.

The dependent variables in columns (5)–(6) are measured at the community level and refer to the community meeting that decided about the participation in the matching grants initiative. The first outcome is attendance among adults in the community.[10] The second outcome indicates whether the community made a decision through voting. Both are directly observed by the enumeration team. No significant coefficients or differences between coefficients are found. On the voting variable, the difference between coefficients approaches individual significance with the effect of treatment 2 being higher.

Column (7) examines behavior in the public goods game (Appendix C.3.3). The outcome variable

[10]The average number of participants in the meeting was 43 individuals, ranging from less than 1% to 45% of adults in the communities of our study. The number of adults per community is estimated using the number of voters.

is the participant's contribution (rescaled between 0 and 1) to the public account. Average contributions in the public goods game were 4.5 out of 10 tokens, with only 6% contributing zero. No significant effects of the treatments are found, despite a larger point estimate for treatment 2.

Table D10 analyzes outcomes on citizens' demand for accountability, broadly construed, i.e., including trust on political leaders. Columns (1)-(4) refer to survey-based measures of accountability and trust. Column (1) explores the average reported levels of voice that citizens have with provincial and national leaders, while column (2) employs an index of reported political accountability relating to leaders. The effect of treatment 2 for voice with provincial and national leaders is positive and significant, with a magnitude of 12 percentage points of the subjective scale, significant at the 1% level, and passing multiple hypothesis testing at the row level. A similar pattern emerges for the index of political accountability, even though the significant effect is negative for treatment 1. The size of the effect is 14 percentage points, statistically significant at the 5% level, but not passing multiple hypothesis testing. The differences between treatments 1 and 2 are significant in both regressions, but only in the second multiple hypothesis testing is passed (at the row level).

Turning to survey-based outcomes on trust, column (3) concerns the average of all self-reported measures of trust, and column (4) relates to trusting leaders personally known to the respondent. This measure is the average trust on leaders listed in the network section of the survey questionnaire; each trust measure is therefore relative to a specific individual and can differ from the trust level felt towards the local leader if the respondent does not know him/her personally (Appendix D.2.3). The levels of trust are already quite high in the control group: 2.2 out of 3 for average trust and 2.9 for trust on leaders personally known. Treatment 1 has a negative effect of 6 percentage points on average trust, significant at the 10% level, and a negative effect on trusting known leaders, which is not statistically significant. Treatment 2 has an opposite effect on both variables. It increases average trust, although not significantly, and trust on leaders known by 5 percentage points, which is significant at the 1% level. For both outcomes, the effect of treatment 1 is statistically different from the effect of treatment 2 – this is robust to multiple hypothesis testing.

Columns (5)–(6) are related to behavior of citizens in the trust game played with the local leader (Appendix C.3.1). Column (8) focuses on the amount sent by the citizens to the leader (rescaled between 0 and 1), while column (9) relates to an indicator variable taking value 1 if the citizen expressed the desire to punish the leader in the trust game, and 0 otherwise. In the control group, citizens send on average 4 tokens out of 10, and 40% choose to punish the leader. No statistically significant effects are found on any of these outcomes. These results can differ from the results on self-reported trust as the game is played with the local leader, who might not be personally known to the participant.

Column (7) is devoted to the postcard SCA (Appendix C.2.5). This activity measures the demand for political accountability in an incentive-compatible manner. The dependent variable is an indi-

cator taking value 1 if the respondent sends the postcard, and zero otherwise. An extensive analysis of the contents of postcards is presented in Appendix F.7. Eighty-eight percent of the respondents sent the postcard, which demonstrates a high level of interest in this activity. Although no significant effects on the sending of postcards are observed, both treatments yield positive magnitudes. The content analysis shows that, even though it is not possible to reject that treatment effects are different from each other on any of the outcome variables considered, treatment 2 yields positive and significant effects on protests and requests at the provincial level. Treatment 1 also yields a positive and significant effect on requests at the provincial level. Higher demand for political accountability could translate into higher turnover of community leaders. Since there are no formal elections or set mandate for these leaders in Mozambique, leader turnover is low, with a sample average of the number of years in power equal to 8.8 years. No effects on turnover of leaders between baseline and endline are found (Appendix F.6).

Table D9: Citizens' mobilization

	SURVEY	MATCHING GRANTS			MATCHING GRANTS MEETINGS		PUBLIC GOODS GAME
Dep.Var.	**Community meetings attendance**	**Awareness of matching grants**	**Contributed**	**Contribution**	**Attendance among adults**	**Voting**	**Contribution**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(T1) Leader treatment	0.004	0.024	0.058	0.152	0.017	-0.030	-0.003
	(0.022)	(0.036)	(0.048)	(0.191)	(0.011)	(0.033)	(0.020)
	[0.98-0.99]	[0.90-0.99]	[0.70-0.93]	[0.90-0.98]	[0.57-0.79]	[0.86-0.96]	[0.98-0.99]
(T2) Community treatment	0.039	0.108	0.152	0.478	0.005	0.015	0.001
	(0.016)	(0.029)	(0.046)	(0.180)	(0.010)	(0.030)	(0.020)
	[0.08-0.24]	[0.01-0.02]	[0.01-0.03]	[0.06-0.16]	[0.95-0.99]	[0.95-0.99]	[0.96-0.99]
Observations	1803	2072	1510	1510	184	196	2027
R^2	0.086	0.100	0.075	0.065	0.266	0.093	0.057
Mean (control group)	0.892	0.704	0.223	0.892	0.025	0.019	0.448
T1 = T2 (p-value)	0.076	0.004	0.032	0.070	0.237	0.123	0.770
T1 = T2 (adj. p-value, row-level)	0.358	0.048	0.198	0.358	0.507	0.377	0.765
T1 = T2 (adj. p-value, table-level)	0.630	0.091	0.393	0.620	0.927	0.772	0.994
Lagged dependent variable	Yes	No	No	No	No	No	No

Note. Estimates based on OLS regressions. Column (1) presents estimates using equation (1), including the lagged value of the dependent variable. Columns (2)-(7) present estimates using equation (1). Standard errors are reported in parentheses and clustered at the community level, except in columns (5) and (6). P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Dependent variables by column: (1) Community meetings attendance: indicator variable equal to 1 if the respondent attended at least one community meeting in the 12 months prior to the interview, and zero otherwise; (2) Awareness of matching grants: indicator variable equal to 1 if the respondent heard about the matching grants SCA (Appendix C.2.4), and zero otherwise; (3) Contributed: indicator variable equal to 1 if the respondent reports having contributed a positive amount in the matching grants SCA (Appendix C.2.4), and zero otherwise; (4) Contribution: amount (reported in logarithms) contributed by the respondent in the matching grants SCA (Appendix C.2.4); (5) Attendance among adults: share of adults in the community who attended the community meeting to decide about whether to participate in the matching grants SCA (Appendix C.2.4); (6) Voting: indicator variable equal to 1 if the decision to participate in the matching grants SCA (Appendix C.2.4) was determined by voting, and zero otherwise; (7) Contribution: amount (rescaled between 0 and 1) contributed by the participant in the public goods game (Appendix C.3.3). Additional details about the dependent variables are presented in Appendix D.1. Specifications in columns (1)–(4) and (7) include community and household-level controls. Specifications in columns (5)–(6) include community and leader-level controls. The full list of controls is presented in Section 4.

Table D10: Demand for accountability

	SURVEY-BASED ACCOUNTABILITY AND TRUST				TRUST GAME		POSTCARD
Dep.Var.	**Voice**	**Political accountability**	**Average trust**	**Trust on leaders personally known**	**Amount sent to the leader**	**Desire to punish the leader**	**Postcard sent**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(T1) Leader treatment	0.025	-0.136	-0.062	-0.033	0.029	0.025	0.034
	(0.053)	(0.066)	(0.032)	(0.023)	(0.018)	(0.037)	(0.032)
	[0.76-0.99]	[0.26-0.45]	[0.30-0.53]	[0.50-0.83]	[0.49-0.79]	[0.76-0.98]	[0.66-0.94]
(T2) Community treatment	0.123	0.022	0.029	0.050	0.014	0.017	0.030
	(0.044)	(0.059)	(0.026)	(0.017)	(0.018)	(0.032)	(0.021)
	[0.04-0.13]	[0.86-0.99]	[0.72-0.94]	[0.03-0.08]	[0.84-0.98]	[0.86-0.99]	[0.56-0.83]
Observations	1718	1997	1770	1614	2027	2007	1891
R^2	0.068	0.080	0.128	0.153	0.114	0.037	0.087
Mean (control group)	2.463	3.834	2.297	2.848	0.405	0.398	0.881
T1 = T2 (p-value)	0.035	0.009	0.002	0.000	0.378	0.805	0.864
T1 = T2 (adj. p-value, row-level)	0.183	0.079	0.023	0.001	0.785	0.963	0.963
T1 = T2 (adj. p-value, table-level)	0.441	0.168	0.049	0.005	0.972	0.989	0.989
Lagged dependent variable	Yes	No	Yes	Yes	No	No	No

Note. Estimates based on OLS regressions. Columns (1) and (3)-(4) present estimates using equation (1), including the lagged value of the dependent variable. Columns (2) and (5)-(7) present estimates using equation (1). Standard errors are reported in parentheses and clustered at the community level. P-values adjusted for multiple hypothesis testing are presented in brackets (see Section 4 for details). The first p-value corresponds to jointly testing coefficients grouped by rows (row-level), the second p-value corresponds to jointly testing that T1, T2, and T1-T2 are different from zero (table-level). Dependent variables by column: (1) Voice: average level of voice with provincial and national authorities (1 = no voice / 4 = full voice); (2) Political accountability: average of three variables capturing whether the respondent agrees with the statements "Communities should demand more from their leaders," "When communities ask accountability from their leaders things change," and "If someone asks accountability from the leader, other members will support the process" (1 = fully disagree / 5 = fully agree); (3) Average trust: average trust on family, neighbors, local leaders, local people, district government, provincial government, Mozambicans, and national leaders (0 = not at all / 3 = trust a lot); (4) Trust on leaders personally known: trust on leaders that are personally known by the respondent (0 = not at all / 3 = trust a lot); (5) Amount sent to the leader: amount (rescaled between 0 and 1) sent by the citizen to the leader in the trust game (Appendix C.3.1); (6) Desire to punish the leader: indicator variable equal to 1 if the citizen expressed the desire to punish the leader in the trust game (Appendix C.3.1), and zero otherwise; (7) Postcard sent: indicator variable equal to 1 if the respondent sent the postcard in the corresponding SCA (Appendix C.2.5), and zero otherwise. Additional details about the dependent variables are presented in Appendix D.1. All specifications include community and household-level controls. The full list of controls is presented in Section 4.

D.3 Results for aggregated outcomes

This section presents estimates of treatment effects on aggregated outcomes. Outcomes are grouped in indices according to the topics presented in Appendix D.1. Indices are built using the Kling et al. (2007) procedure. The specific components of each index are described in Appendix D.1. Outcome variables are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each topic. If one of the variables composing the index is missing, the index is set to missing. Estimates of the effect of the interventions on the indices are presented in Table D11. The discussion of these results is presented in the main text in Section 4.1.

Table D11: Aggregation of outcome variables

	(T1) Leader treatment		**(T2) Community treatment**			
Outcome variable	Coeff. (1)	S.E. (2)	Coeff. (3)	S.E. (4)	F-test equality (p-value) (5)	N (6)
Violence						
Presence of violent events	-0.067	0.098	-0.167	0.088	0.156	206
Perceived violence	0.045	0.047	-0.051	0.038	0.062	1855
Information and perceptions						
Leaders' information	0.183	0.099	0.458	0.090	0.000	206
Leaders' perceived benefits	0.042	0.181	-0.068	0.164	0.781	204
Citizens' information	0.040	0.057	0.552	0.046	0.000	2072
Citizens' perceived benefits	0.011	0.066	0.139	0.053	0.012	1565
Political outcomes						
Elite capture	0.196	0.062	0.011	0.056	0.001	205
Rent-seeking among leaders	0.046	0.120	0.045	0.109	0.902	204
Rent-seeking among citizens	0.110	0.038	0.054	0.033	0.015	2027
Citizens' mobilization	0.064	0.060	0.136	0.056	0.048	1701
Demand for accountability	-0.018	0.034	0.058	0.028	0.005	1573

Note. Estimates based on OLS regressions (equation 1). Standard errors are reported in columns (2) and (4), and clustered at community level when employing citizen-level outcomes. The specifications include community and household-level controls (for citizen-level outcomes) or community-level controls (for community-level outcomes). The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the Kling et al. (2007) procedure. Outcomes are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category. Indices and their specific components are described in Appendix D.1.

E Violent events

Panel A in Figure E1 presents the time series of events in selected categories recorded in ACLED and in GDELT for the province of Cabo Delgado. A significant increase in violence occurs starting in October 2017. The rise is attributed to extremist groups recruiting support within the Muslim community in the province. From the analysis of events, violence is targeted mainly against governmental institutions (such as the police and local government infrastructures), or against civilians. It developed first for semi-urban targets and then spread to rural locations in different districts. National and international news are linking this uprise in violence to poverty and discontent, in a province with significant resources where Muslims account for the majority of the population.

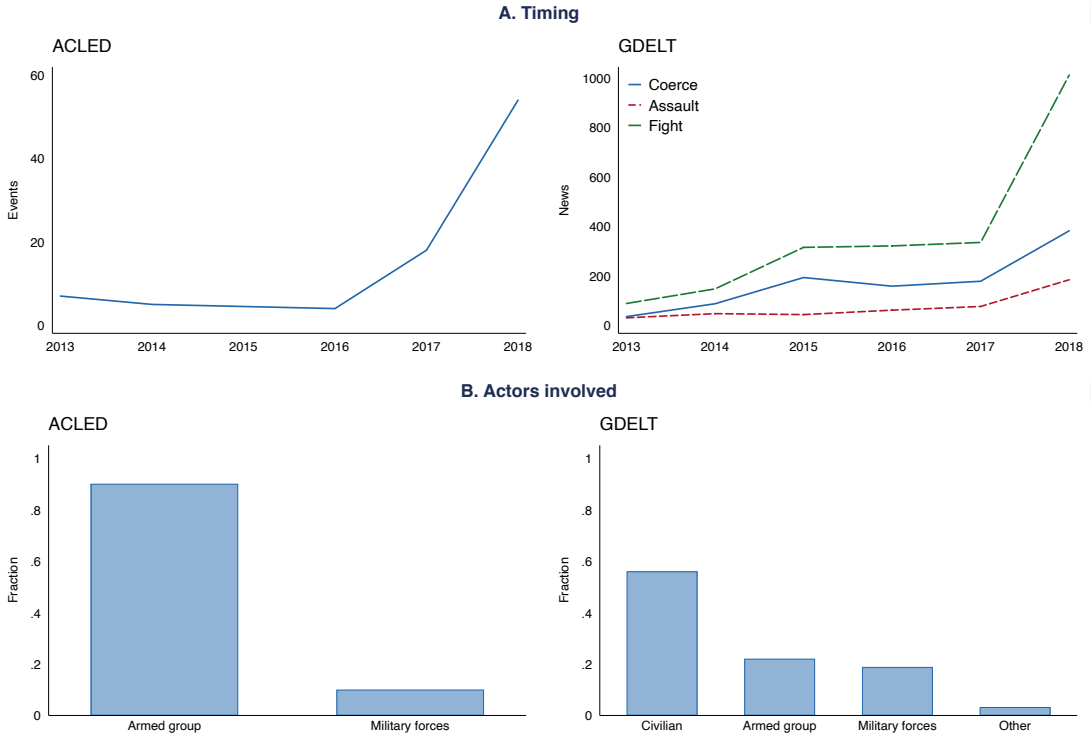
Panel B in Figure E1 presents the share of events in the endline period (May 2017 to April 2018) by actors involved. For ACLED, the figure shows the perpetrator of violence, since by definition the victims are always civilians. Most violence is perpetrated by armed groups. For GDELT, all actors involved in GDELT events (typically two actors per event) are grouped – we graph the share of actors for each category. Civilians are the main victims: most events targeting civilians resulted in deaths (including beheadings), burning of houses, and/or theft of supplies. A few confrontations between armed groups and military forces are also observed.

E.1 Assignment of events to communities

An event is assigned to a community if it happened within a buffer area from the community's geolocation. Each community's location is computed as the median latitude and longitude using all observations collected in the community during the surveys, including households' and leaders' geolocations. Figure E2 shows the geographic distribution of ACLED and verified GDELT events for the period 2013-2018 and an example of this assignment rule.

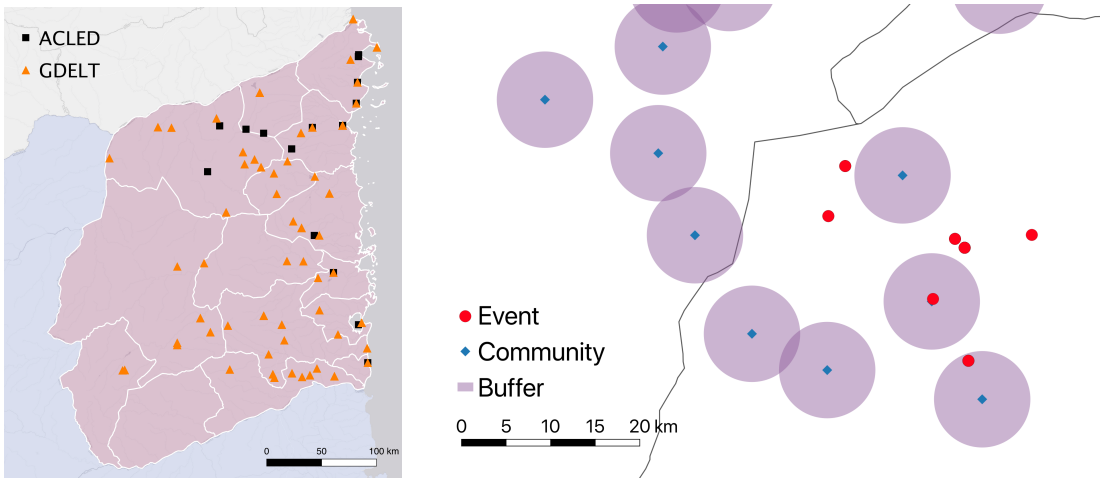
Since the median distance between two communities of different treatments is roughly 10 km, a buffer area with a radius of 5 km around each community is defined. This buffer area is used for the results in the main text (Table 1). To check robustness of results with respect to the choice of the radius of the buffer, Table E1 presents estimates of treatment effects on the presence of violent events by varying the radius of the buffer. As alternative radiuses, we consider 3, 4, 6, and 7 km. In uneven columns, the whole sample of communities is considered, while in even columns the sample is restricted by removing urban areas. Results are robust to alternative radiuses.

Figure E1: Timing and composition of violent events



Note. Panel A shows the evolution of violent events and news coded in the ACLED and GDELT datasets for the period from 2013 to 2018 (all observations are presented). For ACLED, violence against civilians is selected, while for GDELT, observations coded as Coerce, Assault, and Fight are plotted separately. Panel B shows the share of events by actors involved as coded in ACLED and the share of observations by actors as coded in GDELT. For ACLED, we show the share of perpetrators, since by definition the victims are always civilians. "Military forces" includes the government and other authorities. "Other" includes civil society organizations. In Panel B, the sample is restricted to events happening in the post-intervention period (May 2017-April 2018).

Figure E2: Geographical distribution of violent events



Note. The left panel shows the geographical distribution of events coded in the ACLED and GDELT datasets in the period January 2013 - April 2018. Borders highlight the province of Cabo Delgado and its districts. The right panel shows an example of the procedure to assign events to communities. Dots indicate the geographic location of events, rhombi indicate the geographic centroid of the community, and the shaded area highlights the buffer surrounding the community. Basemap source: Esri (see Appendix C for details and attributions).

Table E1: The effect on the presence of violent events, by radius of buffer area

Dep.Var.:	**PRESENCE OF VIOLENT EVENTS (ACLED+GDELT)**									
Buffer area (radius):	**3km**		**4km**		**5km**		**6km**		**7km**	
Exclude urban areas:	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(T1) Leader treatment	-0.027	-0.016	-0.047	-0.036	-0.047	-0.036	-0.054	-0.032	-0.049	-0.031
	(0.031)	(0.028)	(0.035)	(0.034)	(0.035)	(0.034)	(0.035)	(0.034)	(0.037)	(0.035)
(T2) Community treatment	-0.073	-0.047	-0.085	-0.070	-0.085	-0.070	-0.081	-0.060	-0.062	-0.056
	(0.029)	(0.025)	(0.032)	(0.031)	(0.032)	(0.031)	(0.032)	(0.030)	(0.033)	(0.032)
Observations	206	193	206	193	206	193	206	193	206	193
R^2	0.660	0.482	0.656	0.427	0.656	0.427	0.665	0.421	0.666	0.426
Mean (control group)	0.109	0.040	0.127	0.060	0.127	0.060	0.145	0.060	0.145	0.060
T1 = T2 (p-value)	0.100	0.213	0.223	0.265	0.223	0.265	0.403	0.363	0.689	0.441
Lagged dependent variable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

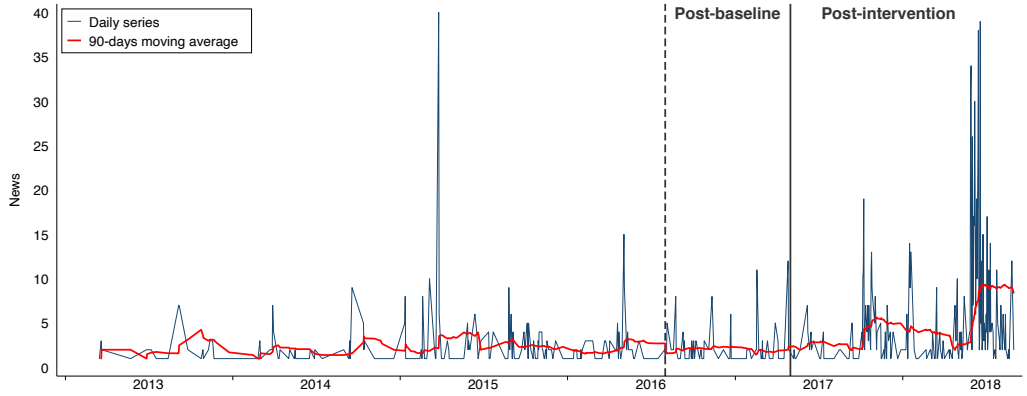
Note. Estimates based on OLS regressions. All regressions present estimates using equation 1, including the lagged value of the dependent variable. Standard errors are reported in parentheses. The dependent variable is *ACLED+GDELT*: indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) or GDELT (conventional and non-conventional violence) and occurred within a buffer area from the community's location, and zero otherwise. The radius of the buffer area to assign an event to a community is indicated in the columns' headers. In columns (1), (3), (5), (7), and (9), the whole sample of communities is considered, while in columns (2), (4), (6), (8), and (10) the sample is restricted by removing urban areas. Additional details about the dependent variable are presented in Appendix D.1. All specifications include community and leader-level controls. The full list of controls is presented in Section 4.

E.2 Verification process of violent events in GDELT

Since GDELT events are generated through an automated process, it is possible that some events are mistakenly reported as events happening in the study area. For this reason, all observations characterized by unconventional and conventional violence and happening in Cabo Delgado province in the period of analysis are first selected. Unconventional violence events are coded in GDELT as *Assault* or *Coerce*, and conventional military force events are coded as *Fight*. *Assault* includes the following actions: abduct, hijack, or take hostage; physically or sexually assault; torture; kill by physical assault; conduct suicide, car, or other non-military bombing; use as human shield; attempt to assassinate; assassinate; and other unconventional violence. *Coerce* includes the following actions: seize or damage property; confiscate property; destroy property; impose administrative sanctions; impose restrictions on political freedoms; ban political parties or politicians; impose curfew; impose state of emergency or martial law; arrest, detain, or charge with legal action; expel or deport individuals; use tactics of violent repression; and cybernetic attack. *Fight* includes the following actions: impose blockade; restrict movement; occupy territory; fight with small arms and light weapons; fight with artillery and tanks; employ aerial weapons; violate cease-fire; and other conventional use of military force.

A total of 1062 observations in the period January 1, 2013, to April 30, 2018 is obtained. Figure E3 shows the daily time series of news as recorded in GDELT for the province of Cabo Delgado. Each news item was then analyzed to check whether events are correctly specified as violent events happening in Cabo Delgado and whether each event is correctly georeferenced. Out of 1062 observations, only 238 verified events are obtained (22%), 714 (67%) are wrongly reported, and 110 (10%) cannot be verified as the source is not accessible anymore (i.e., the link is broken). In the corresponding period, ACLED registers 38 events.

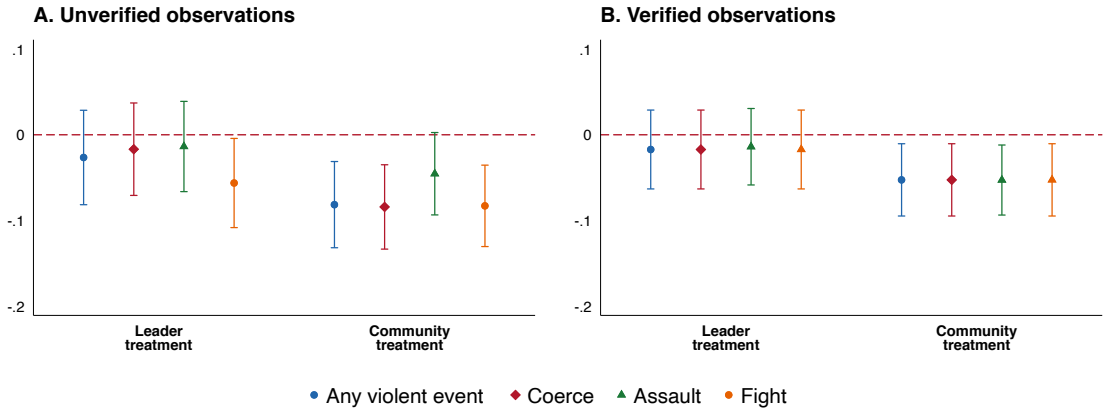
Figure E3: GDELT news about events in Cabo Delgado province



Note. The figure shows the daily series and the 90-days moving average of news related to Cabo Delgado coded in GDELT for the period 2013-2018. The sample is restricted to news coded as Coerce, Assault, and Fight. The post-baseline period refers to August 2016-April 2017. The post-intervention period refers to the first year following the information campaign (May 2017-April 2018). Appendix C provides a detailed timeline of activities.

To check whether events wrongly coded in GDELT present a non-random pattern, treatment effects on violent events are estimated using verified and unverified GDELT events as dependent variables. Figure E4 presents treatment effects employing specification (1). Each dependent variable is an indicator variable equal to 1 if an event was recorded in GDELT dataset in the corresponding sub-category and occurred in proximity to the community. We find no clear differences between employing unverified and verified observations.

Figure E4: The effect of interventions on unverified versus verified GDELT events



Note. Estimates based on OLS regressions (equation 1). Confidence intervals are built using statistical significance at the 10% level. For both panels, the dependent variable is GDELT, an indicator variable equal to 1 if an event was recorded in GDELT (conventional and non-conventional violence) and occurred in proximity to the community, and zero otherwise. Additional details about the dependent variable are presented in Appendix D.1. In Panel A, violent events are used as extracted from the dataset. In Panel B, violent events are verified. The specifications include community and leader-level controls, and the lagged value of the dependent variable. The full list of controls is presented in Section 4.

E.3 Effect on fatalities

To supplement the analysis related to the presence of violent events, we use information about fatalities from the ACLED database. Because all conflicts, even the ones that have a short duration, can generate long-lasting effects on a wide variety of dimensions (Blattman and Miguel, 2010), by focusing on fatalities we can provide further insights about the benefits of the interventions in relation to violence. To compute community-level fatalities, we sum the fatalities from each ACLED event assigned to the community in the corresponding period (see Appendix E.1 for the assignment procedure). Table E2 presents estimates of the impact of the leader and the community treatments on the number of fatalities in the post-intervention period. As is standard in the literature, we present results using alternative transformations of the number of fatalities as dependent variables. In column (1), the dependent variable is the logarithm of the number of fatalities, adding one to accommodate zero values. In column (2), the dependent variable is the logarithm of the number of fatalities, adding 0.5 to accommodate zero values. In column (3), the dependent variable is the square root of the number of fatalities. Finally, in column (4), the dependent variable is an indicator variable equal to one if the community experienced fatalities, and zero otherwise. We

observe a significant reduction in fatalities for the community treatment across all specifications.

Table E2: The effect on fatalities

Dep.Var.:	**FATALITIES IN ATTACKS AGAINST CIVILIANS**			
Functional form:	**Log(y+1)**	**Log(y+0.5)**	**$y^{0.5}$**	**Positive fatalities**
	(1)	(2)	(3)	(4)
(T1) Leader treatment	-0.050	-0.065	-0.065	-0.025
	(0.050)	(0.068)	(0.064)	(0.031)
(T2) Community treatment	-0.099	-0.133	-0.127	-0.057
	(0.046)	(0.062)	(0.059)	(0.028)
Observations	206	206	206	206
R^2	0.299	0.297	0.296	0.275
Mean (control group)	0.096	-0.565	0.124	0.055
T1 = T2 (p-value)	0.275	0.265	0.286	0.245
Lagged dependent variable	Yes	Yes	Yes	Yes

Note. Estimates based on OLS regressions. All regressions present estimates using equation 1, including the lagged value of the dependent variable. Standard errors are reported in parentheses. The dependent variables are different transformations of the number of fatalities recorded in ACLED and occurring in proximity to the community in the post-intervention period, namely: in column (1), the logarithm of the number of fatalities, adding one to accommodate zero values; in column (2), the logarithm of the number of fatalities, adding 0.5 to accommodate zero values; in column (3), the square root of the number of fatalities; in column (4), an indicator variable equal to one if the community experienced positive fatalities, and zero otherwise. Appendix E.1 details the procedure for the assignment of events to communities. All specifications include community and leader-level controls. Since ACLED records zero fatalities in the baseline period, we control for the baseline value of the presence of violent events as defined by the ACLED+GDELT variable (see Appendix D.1 for a definition of this variable). The full list of controls is presented in Section 4.

Similar to the analysis concerning the presence of violent events in Table E1, Table E3 presents estimates of treatment effects on the number of fatalities (reported in logarithms, adding one unit to accommodate zero values) by varying the radius of the buffer. As alternative radiuses, we consider 3, 4, 6, and 7 km. In uneven columns, the whole sample of communities is considered, while in even columns the sample is restricted by removing urban areas. Results are robust to alternative radiuses.

Table E3: The effect on fatalities, by radius of buffer area

Dep.Var.:	**FATALITIES (ACLED)**									
Buffer (radius):	**3km**		**4km**		**5km**		**6km**		**7km**	
Exclude urban areas:	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(T1) Leader treatment	-0.029	-0.042	-0.050	-0.065	-0.050	-0.065	-0.050	-0.065	-0.048	-0.064
	(0.044)	(0.046)	(0.050)	(0.053)	(0.050)	(0.053)	(0.050)	(0.053)	(0.053)	(0.056)
(T2) Community treatment	-0.077	-0.092	-0.099	-0.119	-0.099	-0.119	-0.099	-0.119	-0.095	-0.115
	(0.040)	(0.042)	(0.046)	(0.048)	(0.046)	(0.048)	(0.046)	(0.048)	(0.049)	(0.051)
Observations	206	193	206	193	206	193	206	193	206	193
R^2	0.313	0.342	0.299	0.326	0.299	0.326	0.299	0.326	0.299	0.323
Mean (control group)	0.076	0.084	0.096	0.106	0.096	0.106	0.096	0.106	0.096	0.106
T1 = T2 (p-value)	0.226	0.225	0.275	0.253	0.275	0.253	0.275	0.253	0.333	0.313
Lagged dependent variable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. Estimates based on OLS regressions. All regressions present estimates using equation 1, including the lagged value of the dependent variable. Standard errors are reported in parentheses. The dependent variable is the logarithm of the number of fatalities (adding one to accommodate zero values) recorded in ACLED and occurred in the post-intervention period within a buffer area from the community's location. The radius of the buffer area to assign an event to a community is indicated in the columns' headers. In columns (1), (3), (5), (7), and (9), the whole sample of communities is considered, while in columns (2), (4), (6), (8), and (10) the sample is restricted by removing urban areas. Appendix E.1 details the procedure for the assignment of events to communities. All specifications include community and leader-level controls. Since ACLED records zero fatalities in the baseline period, we control for the baseline value of the presence of violent events as defined by the ACLED+GDELT variable (see Appendix D.1 for a definition of this variable). The full list of controls is presented in Section 4.

E.4 Displacement of violent events

Table E4 shows whether the effect observed on conflict is driven by displacement of violence from communities in treatments 1 or 2 to communities in the control group. The sample is restricted to communities in the control group and OLS regressions are presented in which our dependent variables measure the presence of violent events and distance to a community in treatments 1 or 2 is the explanatory variable of interest. An additional control is the distance to another community in the control group. Distances have no significant effect, providing evidence against the hypothesis of displacement.

Table E4: Displacement of violent events

Dep.Var.:	**ACLED**		**GDELT**		**GDELT+ACLED**	
	(1)	(2)	(3)	(4)	(5)	(6)
Minimum distance to a T1/T2 community	0.006	0.005	0.002	0.002	0.003	0.004
	(0.004)	(0.005)	(0.002)	(0.003)	(0.005)	(0.005)
Minimum distance to another control		0.001		-0.000		-0.002
		(0.003)		(0.002)		(0.003)
Observations	55	55	55	55	55	55
R^2	0.618	0.620	0.919	0.919	0.781	0.784
Lagged dependent variable	Yes	Yes	Yes	Yes	Yes	Yes

Note. Estimates based on OLS regressions. All regressions present estimates using equation 1, including the lagged value of the dependent variable. Standard errors are reported in parentheses. Dependent variables by column: (1)–(2) ACLED: indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) and occurred in proximity to the community, and zero otherwise; (3)–(4) GDELT: indicator variable equal to 1 if an event was recorded in GDELT (conventional and non-conventional violence) and occurred in proximity to the community, and zero otherwise; (5)–(6) ACLED+GDELT: indicator variable equal to 1 if an event was recorded in ACLED (attacks against civilians) or GDELT (conventional and non-conventional violence) and occurred in proximity to the community, and zero otherwise. Additional details about the dependent variables are presented in Appendix D.1. Specifications include community and leader-level controls. The full list of controls is presented in Section 4. Distances are computed in kilometers from the geographical centroids of each community.

F Additional analysis

F.1 The effect of the deliberation meetings

The impact of holding deliberation meetings is estimated with the following specification, while restricting the sample to communities in the community treatment:

$$\Omega_{ij}^{m} = \alpha + \psi\, T2B_j + \gamma\, \mathbf{Z}_j + \delta\, \mathbf{X}_{ij} + \epsilon_{ij} \tag{2}$$

where Ω_{ij}^{m} are indices aggregating individual outcome variables by topic (Appendix D.1), and $T2B_j$ is an indicator variable for living in a community where both the information dissemination and the deliberation activities are implemented. The other variables are defined as in equation (1).

Table F1 presents the results. Overall, there are no clear effects of deliberation. The exceptions are the effects on citizens' mobilization, where deliberation had a positive impact, and demand for accountability where deliberation had a negative effect. The magnitudes are 13 and 6% of a standard deviation, respectively. These effects are statistically significant at the 10% level. It is intuitive that the deliberation meetings may have led to additional mobilization of citizens at the local level. The negative effect on demand for accountability is more difficult to explain, but may be related to the low levels of political accountability in Mozambique, particularly in rural areas. Citizens could have perceived deliberation as captured by a few, with negative implications for trusting leaders.

Table F1: Deliberation

Modules offered:	**Information only**	**Information plus deliberation**		
Outcome variable	Mean	Coeff.	S.E.	N
	(1)	(2)	(3)	(4)
Violence				
Presence of violent events	-0.150	-0.059	0.098	101
Perceived violence	-0.068	0.010	0.040	910
Information and perceptions				
Leaders' information	0.439	-0.006	0.089	101
Leaders' perceived benefits	0.070	-0.163	0.209	101
Citizens' information	0.482	0.006	0.036	1014
Citizens' perceived benefits	0.163	-0.013	0.057	893
Political outcomes				
Elite capture	-0.020	0.049	0.072	100
Rent-seeking among leaders	0.029	0.093	0.153	100
Rent-seeking among citizens	0.028	-0.008	0.031	989
Citizens' mobilization	0.032	0.131	0.067	830
Demand for accountability	0.083	-0.059	0.032	778

Note. Estimates based on OLS regressions (equation 2). The sample is restricted to communities in the community treatment. Standard errors are reported in column (3) and clustered at the community level when employing citizen-level outcomes. The specifications include community and household-level controls (for citizen-level outcomes) or community-level controls (for community-level outcomes). The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the Kling et al. (2007) procedure. Outcomes are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category.

An alternative way to explore the effects of deliberation is to estimate the effects of attending the deliberation meetings, as well as estimating the effects of attending the information campaign meeting, and contrasting the two. To measure these effects, individual-level information on whether the respondent was present during the information campaign ($info_{ij}$) and whether the respondent was present during the deliberation meeting ($delib_{ij}$) are used. Attendance is indicated using dummy variables equal to 1 if the citizen was present and zero otherwise. The effect of participation is estimated employing the following specification:

$$Y_{ij} = \alpha + \beta_1 \, info_{ij} + \beta_2 \, delib_{ij} + \gamma \, Z_j + \delta \, X_{ij} + \epsilon_{ij} \tag{3}$$

where Z_j, X_{ij} and ϵ_{ij} are defined as in equation (1). Since participation is endogenous, the equation (3) is estimated using Two-Stage Least Squares (2SLS) and instrumenting $info$ and $delib$ using the treatment indicators. Instrumental variables are the treatment indicators ($T2$ for $info$ and $T2B$ for $delib$). Table F2 presents the results grouped by categories of citizen-level outcomes. Attending deliberation meetings has no significant effects, except for a positive effect on citizens' mobilization and a negative effect on demand for accountability. On the contrary, information campaign meetings have effects on most outcome variables. Both sets of results are in line with the reduced form effects.

Table F2: Participation in the information campaign and deliberation meetings

	Attended information campaign meeting		**Attended deliberation meeting**		Test of equality	N
Outcome variable	Coeff.	S.E.	Coeff.	S.E.	(p-value)	
	(1)	(2)	(3)	(4)	(5)	(6)
Citizens' information	0.633	0.049	-0.006	0.066	0.000	2072
Rent-seeking among citizens	-0.005	0.032	0.007	0.041	0.982	2027
Citizens' mobilization	0.039	0.052	0.228	0.095	0.013	1701
Demand for accountability	0.112	0.025	-0.077	0.045	0.000	1573
Perceived violence	-0.097	0.042	0.029	0.058	0.059	1855

Note. Estimates based on 2SLS regressions where attendance to information campaign and to deliberation meetings are instrumented with the treatment indicators (equation 3). Standard errors are reported in columns (2) and (4) and clustered at the community level. *Attended information campaign meeting* is an indicator variable equal to 1 if the respondent was present during the information campaign, and 0 otherwise. *Attended deliberation meeting* is an indicator variable equal to 1 if the respondent was present during the deliberation meeting, and 0 otherwise. The specification includes community and household-level controls. The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the procedure followed by Kling et al. (2007): outcomes are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category. Column (5) presents the p-value of an F-test for the equality of the coefficients in columns (1) and (3).

F.2 Information about the natural gas discovery

Table F3 presents the main correlates of awareness and knowledge by citizens about the natural gas discovery at baseline. Columns (1) and (3) include only household-level controls, while columns (2) and (4) include community and leader-level controls in addition to the household-level controls. Individual characteristics are the main determinants of citizen awareness and knowledge at the baseline.

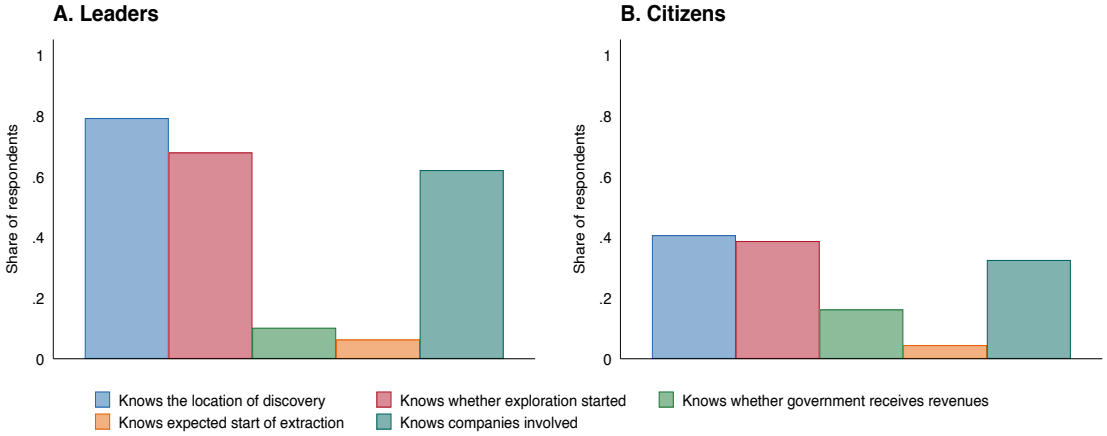
Table F3: Correlates of awareness and knowledge at baseline

Dep.Var.	Awareness		Knowledge	
	(1)	(2)	(3)	(4)
Female respondent	-0.195	-0.213	-0.134	-0.152
	(0.026)	(0.025)	(0.017)	(0.016)
Age in years	0.014	0.014	0.011	0.010
	(0.004)	(0.003)	(0.002)	(0.002)
Age (squared)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Primary education	0.099	0.111	0.072	0.078
	(0.022)	(0.021)	(0.015)	(0.014)
Secondary or higher education	0.408	0.362	0.301	0.254
	(0.037)	(0.038)	(0.026)	(0.025)
Muslim	0.140	0.065	0.096	0.031
	(0.025)	(0.024)	(0.017)	(0.016)
Macua ethnic group	-0.289	-0.074	-0.229	-0.058
	(0.038)	(0.038)	(0.031)	(0.027)
Maconde ethnic group	0.149	-0.117	0.055	-0.084
	(0.047)	(0.049)	(0.035)	(0.034)
Household size	0.015	0.012	0.010	0.008
	(0.003)	(0.003)	(0.002)	(0.002)
Born in the village	0.022	0.025	0.018	0.023
	(0.021)	(0.020)	(0.015)	(0.014)
In monogamous marriage	-0.035	-0.020	-0.036	-0.022
	(0.022)	(0.021)	(0.015)	(0.014)
Subsistence farmer	-0.065	-0.055	-0.043	-0.032
	(0.022)	(0.022)	(0.016)	(0.015)
Infrastructure index		-0.008		-0.033
		(0.097)		(0.073)
Natural resources index		-0.258		-0.206
		(0.191)		(0.133)
Number of voters		0.001		0.003
		(0.008)		(0.006)
Below median distance from Palma		0.225		0.177
		(0.044)		(0.031)
Share of community of Macua ethnic group		-0.116		-0.120
		(0.071)		(0.059)
Share of community of Maconde ethnic group		0.240		0.068
		(0.076)		(0.061)
Share of community with secondary or higher education		0.106		0.087
		(0.080)		(0.055)
Observations	2055	2055	2055	2055
R^2	0.229	0.301	0.248	0.341
District indicator variables	No	Yes	No	Yes
Stratum indicator variables	No	Yes	No	Yes

Note. Estimates based on OLS regressions. Standard errors are reported in parentheses and clustered at the community level. For the detailed description of each dependent variable, refer to Table D2. Stratum indicator variables include dummy variables for semi-urban and urban strata (excluded category is rural stratum). Number of voters is measured as the number of tables at the polling station. The full list of variables is presented in Section 4 when describing control variables.

The knowledge index we employ is built from the following 5 questions: "*Where was natural gas discovered?*", "*Do you think that the exploration of natural gas has begun?*", "*Do you think that the government has already started receiving revenues from natural gas?*", "*What year do you think the extraction of natural gas will begin?*", and "*What are the names of the companies involved in the exploration of natural gas?*". At baseline, awareness of the discovery is low among citizens, while almost all leaders are aware. Even among individuals aware of the discovery, the level of knowledge about the details is highly limited. Figure F1 reports the share of respondents who know the correct answer for each of these questions at baseline.

Figure F1: Knowledge of the natural gas discovery at baseline



Note. The figure shows the share of the respondents who know the correct answer to questions related to knowledge of the natural gas discovery. The sample is restricted to baseline observations. Panel A reports the share for leaders, while Panel B reports the share for citizens.

Table F4 reports estimates of treatment effects on whether the respondent knows the correct answer to each of the above questions. Due to the open-ended nature of some of these questions, knowledge of the correct answer is built using one or more indicator variables for each question. Each indicator variable is equal to 1 if the respondent reports the correct information, and zero if the respondent reports wrong information or does not know the answer. We construct a total of 15 indicator variables. For knowledge about the location of the discovery, we use 3 indicator variables: one for whether the respondent reports knowing the location, one for whether the respondent mentions Palma or the Rovuma basin, and one for whether the respondent does not mention other wrong locations. For knowledge about the start of the exploration, about whether the government receives revenues, and about the expected start of extraction, we employ one indicator variable for each. These indicator variables are equal to 1 if the respondent reports the information distributed during the information campaign, and zero otherwise. For knowledge about the companies involved, we make use of 9 indicator variables: one for whether the respondent reports knowing the companies involved, and 8 indicator variables for different companies. For each company-specific indicator, we assign value 1 if the respondent reports the correct company and does not report an incorrect company. The knowledge index employed in Section 4.2.2 is built by averaging these 15 indicator variables into a single index, with 1 indicating full knowledge of the discovery.

F.3 Information spillovers

The sample is split in communities close to (or far from) another community in the leader treatment and in communities close to (or far from) another community in the community treatment. Being close to or far from are defined using the sample median of the minimum distance to another

Table F4: Knowledge of the natural gas discovery

Outcome variable	(T1) Leader treatment Coeff. (1)	S.E. (2)	(T2) Community treatment Coeff. (3)	S.E. (4)	T1 = T2 (p-value) (5)	N (6)
Leaders' knowledge						
Knows the location of discovery	0.025	0.026	0.237	0.022	0.000	2072
Knows whether exploration started	-0.017	0.034	0.242	0.028	0.000	2072
Knows whether government receives revenues	-0.044	0.026	0.086	0.024	0.000	2072
Knows expected start of extraction	0.024	0.020	0.175	0.021	0.000	2072
Knows companies involved	-0.008	0.021	0.154	0.016	0.000	2072
Citizens' knowledge						
Knows the location of discovery	0.019	0.047	0.093	0.042	0.058	206
Knows whether exploration started	0.158	0.069	0.160	0.062	0.023	206
Knows whether government receives revenues	0.027	0.082	-0.017	0.074	0.836	206
Knows expected start of extraction	0.074	0.084	0.162	0.075	0.095	206
Knows companies involved	0.022	0.014	0.024	0.013	0.150	206

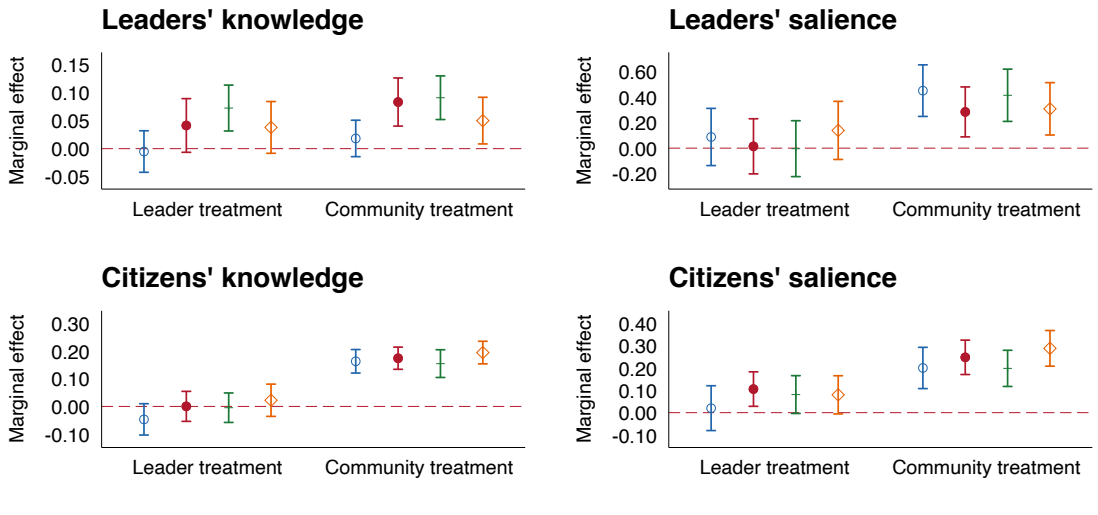
Note. Estimates based on OLS regressions (equation 1). Standard errors are reported in columns (2) and (4) and clustered at the community level for citizen-level outcomes. Each variable ranges from 0 to 1, where 0 indicates zero knowledge, and 1 indicates full knowledge. For leader's knowledge, the specifications include community and leader-level controls. For citizens' knowledge, the specifications include community and household-level controls. The full list of controls is presented in Section 4. Column (5) presents the p-value of an F-test for the equality of the coefficients in columns (1) and (3).

community of the referred types. These median minimum distances are 12 km to a community in the leader treatment, and 9.7 km to a community in the community treatment. The effect of each treatment is then estimated for each sub-group. Figure F2 presents the results relating to the effect of the interventions on leaders' knowledge and salience of the natural gas discovery (upper panels), and on citizens' knowledge and salience of the natural gas discovery (lower panels). No evidence is found of spillover effects since estimates are not statistically different across sub-groups.[11]

Figure F3 shows the evolution between baseline and endline surveys of average awareness, knowledge, and salience of the natural gas discovery in the control group. Panel A focuses on leaders, while Panel B focuses on citizens. To understand the potential diffusion of information in the long-run, we take the example of community leaders. Because they are part of state authority and are in close connection to district and province-level officials, leaders are a good proxy for well-informed individuals in the long-run. At baseline, 87% of the leaders are aware of the natural gas discovery. This number increases to 96% one year later at endline. However, there is virtually no change in their knowledge about the discovery (0.62 at baseline and 0.63 at endline). On the contrary, for citizens we observe an increase in knowledge, but at a much lower level. From baseline to endline the knowledge index increases by 0.14 (from a baseline level of 0.32). These findings suggest that knowledge is capped in the control group: without an information campaign, knowledge will increase over time but converge to a relatively low level, far from the full potential. Since no evidence of contamination across communities is observed, this pattern also suggests that, in the absence of any information campaign, news about the discovery reaches

[11] A similar conclusion is achieved when looking at awareness of the natural gas discovery. Estimates are omitted since in communities close to another community in the community treatment all leaders are aware of the discovery.

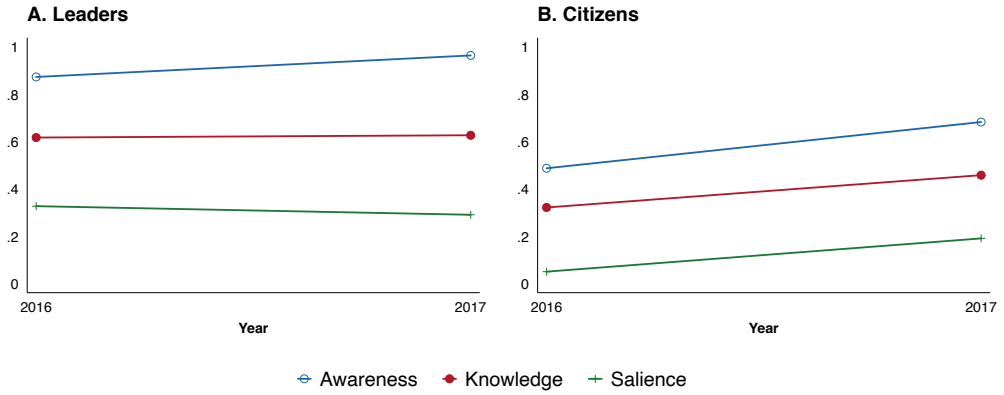
Figure F2: Spillover effects on knowledge and salience about the natural gas discovery



Note. Estimates based on OLS regressions. All regressions present estimates using equation 1, including the lagged value of the dependent variable. Standard errors are clustered at the community level for citizen-level outcomes. Confidence intervals are built using statistical significance at the 10% level. *Close to* and *Far from* are based on the sample median of the minimum distance of a community to another community in the leader and the community treatments. The sample is split in communities closer than the median minimum distance (*close to*) and further away (*far from*). Minimum median distances are 12 km to a community in the leader treatment, and 9.7 km to a community in the community treatment. For leaders' knowledge and salience, the specifications include community and leader-level controls. For citizens' knowledge and salience, the specifications include community and household-level controls. The full list of controls is presented in Section 4. For the detailed description of each variable, refer to Table D2.

citizens through alternative sources.[12]

Figure F3: Evolution of awareness, knowledge, and salience in the control group



Note. The figure shows average awareness, knowledge, and salience of the natural gas discovery at baseline (2016) and endline (2017). The sample is restricted to the communities in the control group. Panel A focuses on leaders, while Panel B focuses on citizens. For the detailed description of each variable, refer to Table D2.

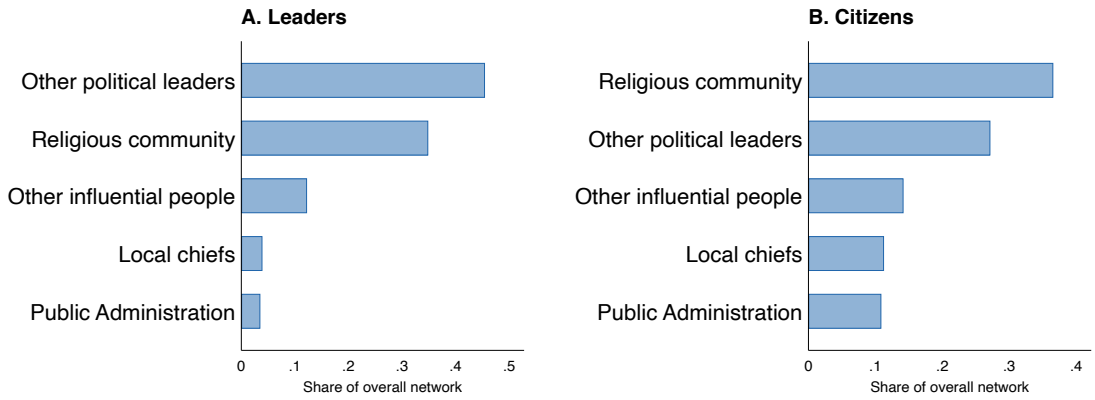
[12]Both treatments induced increases in (self-reported) hearing news from the radio. Results available upon request.

F.4 Network interaction with local leaders

The first step to build information about interaction between different types of local leaders, and between citizens and local leaders, concerns assembling the individual network for all leaders and citizens in the sample. This information is built by asking leaders and citizens to list community leaders, members of the district or provincial government, religious leaders, and other influential people that they could personally contact if they wished, and their interaction with these local leaders in the six months prior to the interview. Using names and roles in the community, unique individuals within and across communities are identified, building a network between local leaders, and between citizens and local leaders.

At baseline, this process identified 3533 individuals composing the network of the 2065 citizens interviewed, and 1021 individuals composing the network of the 206 community leaders. Figure F4 shows the relative importance of different categories in the networks of leaders and citizens. Individuals in these networks are grouped into four major categories: local chiefs, other political leaders, public administration, religious community, and other influential people. *Local chiefs* includes the village chief, his deputy and the chiefs for sub-units of the community. *Other political leaders* includes all higher level politicians (such as district and provincial government officials), members of the ruling party, the members of the community council, and all traditional leaders. *Public administration* includes all individuals working in the public administration. *Religious community* includes all religious leaders (imams and priests) and religious teachers. *Other influential people* is a residual category.

Figure F4: Composition of local leaders' network for leaders and citizens

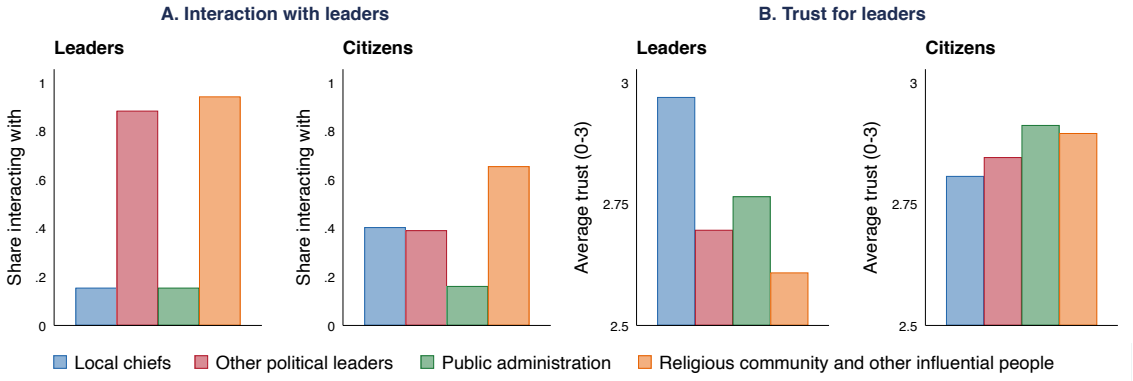


Note. The figure presents the composition at baseline of the network of local leaders for leaders (Panel A) and citizens (Panel B). Categories are ordered from top to bottom in terms of relative importance within the network.

To understand interactions within the network, Panel A in Figure F5 shows whether citizens talked to or called any of these individuals in the 6 months prior to the baseline interview. Panel B in Figure F5 analyzes instead the average level of trust towards these individuals. Figure F6 presents

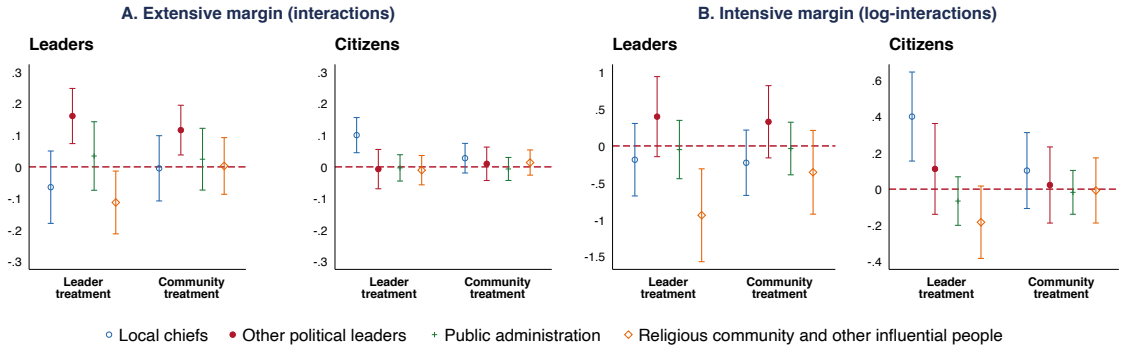
estimates of the effect of the interventions on the interaction of the leader and the citizens with people in their corresponding networks, both employing extensive (left panels) and intensive (right panels) margins. Results are similar across the two margins, and are suggestive that, consistently with Figure F5, the interventions lead to different patterns of interaction with local leaders when comparing leaders to citizens.

Figure F5: Interaction with and trust for local leaders



Note. Panel A shows the share of respondents that interacted with leaders in the corresponding category (for leaders and citizens). Interaction is defined as whether the respondent reports having called or talked with a leader in the 6 months prior to the interview. Panel B presents average trust on known leaders reported by both leaders and citizens. Trust is self-reported (0 = not at all to 3 = trust a lot). The sample is restricted to the baseline survey.

Figure F6: Interaction with leaders and the effect of the interventions



Note. Estimates based on OLS regressions (equation 1). Standard errors are clustered at the community level when employing citizen-level outcomes. Confidence intervals are built using statistical significance at the 10% level. In Panel A, the dependent variable is an indicator variable equal to 1 if the respondent reports having talked to or called a leader in the corresponding category in the 6 months prior to the interview. In Panel B, the dependent variable is the log total number of times the respondent interacted with leaders in the corresponding category. The specifications include community and leader-level controls (for leader-level outcomes) or community-level and household-level controls (for citizen-level outcomes). The full list of controls is presented in Section 4.

F.5 Heterogeneous effects

This section presents an analysis of heterogeneous effects by basic demographics of the citizens (Table F5), by baseline social capital (Table F6), and by baseline wealth, awareness about the resource discovery, aspirations, and risk/patience attitudes (Table F7). Categories are identified in the pre-analysis plan (Armand et al., 2017). Outcomes are grouped in indices using the Kling et al. (2007) procedure. The specific components of each index are described in Appendix D.1.

Table F5: Heterogeneous effects, by basic demographics of citizens

	T1		T2			T1		T2		
Outcome variable	Coeff.	S.E.	Coeff.	S.E.	N	Coeff.	S.E.	Coeff.	S.E.	N
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Below median distance from Palma					**Above median distance from Palma**				
Citizens' information	0.01	0.06	0.29	0.06	1001	0.06	0.08	0.78	0.06	1071
Rent-seeking among citizens	0.17	0.05	0.13	0.04	975	0.03	0.05	-0.03	0.04	1052
Citizens' mobilization	0.05	0.08	0.09	0.07	866	0.10	0.08	0.19	0.09	835
Demand for accountability	0.04	0.04	0.07	0.04	688	-0.03	0.05	0.07	0.04	885
Perceived violence	0.03	0.07	-0.00	0.05	931	0.04	0.07	-0.11	0.06	924
Leaders' information	-0.01	0.10	0.03	0.10	100	0.47	0.17	0.97	0.15	106
Leaders' perceived benefits	0.07	0.23	0.04	0.22	100	0.09	0.30	-0.19	0.28	104
Elite capture	0.13	0.08	0.04	0.07	99	0.19	0.10	-0.09	0.09	106
Rent-seeking among leaders	0.11	0.16	0.24	0.15	99	-0.12	0.19	-0.16	0.17	105
Presence of violent events	-0.25	0.17	-0.40	0.16	100	-0.04	0.07	-0.04	0.07	106
	Younger citizens ($<$ 35 y.o.)					**Older citizens ($\geq$ 35 y.o.)**				
Citizens' information	-0.10	0.09	0.52	0.07	555	0.08	0.06	0.55	0.05	1517
Rent-seeking among citizens	0.13	0.06	0.03	0.04	541	0.11	0.04	0.06	0.04	1486
Citizens' mobilization	0.08	0.07	0.12	0.06	462	0.05	0.06	0.13	0.06	1239
Demand for accountability	-0.05	0.06	0.05	0.05	431	-0.02	0.04	0.05	0.03	1142
Perceived violence	-0.12	0.10	-0.16	0.07	502	0.11	0.05	0.01	0.05	1353
	Less educated ($\leq$ 4 years of schooling)					**More educated ($>$ 4 years of schooling)**				
Citizens' information	0.06	0.07	0.60	0.05	1269	-0.03	0.09	0.44	0.07	803
Rent-seeking among citizens	0.11	0.05	0.08	0.04	1242	0.10	0.05	0.01	0.04	785
Citizens' mobilization	0.07	0.06	0.14	0.06	1069	0.04	0.07	0.13	0.06	632
Demand for accountability	-0.03	0.04	0.03	0.03	922	-0.00	0.05	0.07	0.04	651
Perceived violence	0.04	0.05	-0.03	0.05	1123	0.05	0.09	-0.07	0.06	732
	Female citizen					**Male citizen**				
Citizens' information	-0.03	0.09	0.50	0.08	584	0.07	0.07	0.58	0.05	1488
Rent-seeking among citizens	0.12	0.06	0.11	0.05	574	0.12	0.04	0.03	0.04	1453
Citizens' mobilization	0.13	0.08	0.20	0.07	471	0.05	0.06	0.12	0.06	1230
Demand for accountability	-0.07	0.06	0.03	0.05	424	0.00	0.03	0.07	0.03	1149
Perceived violence	0.08	0.11	-0.01	0.07	511	0.05	0.06	-0.06	0.05	1344

Note. Estimates based on OLS regressions (equation 1). T1 refers to the leader treatment, T2 refers to the community treatment (see Section 1). Standard errors are reported in columns (2), (4), (7), and (9) and clustered at the community level for citizen-level outcome variables. The specifications include community and leader-level controls (for leader-level outcomes) or community-level and household-level controls (for citizen-level outcomes). The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the procedure followed by Kling et al. (2007): outcomes are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category.

Table F6: Heterogeneous effects, by baseline social capital

Outcome variable	T1 Coeff. (1)	T1 S.E. (2)	T2 Coeff. (3)	T2 S.E. (4)	N (5)	T1 Coeff. (6)	T1 S.E. (7)	T2 Coeff. (8)	T2 S.E. (9)	N (10)
	Does not know chiefs					**Knows chiefs**				
Citizens' information	-0.06	0.09	0.46	0.07	737	0.09	0.07	0.61	0.05	1335
Rent-seeking among citizens	0.10	0.06	0.06	0.04	721	0.08	0.04	0.07	0.04	1306
Citizens' mobilization	0.11	0.06	0.25	0.06	597	0.05	0.07	0.10	0.07	1104
Demand for accountability	-0.04	0.07	-0.05	0.06	462	-0.01	0.04	0.10	0.03	1111
Perceived violence	0.02	0.08	-0.04	0.06	633	0.04	0.07	-0.05	0.05	1222
	Does not know other political leaders					**Knows other political leaders**				
Citizens' information	0.03	0.08	0.52	0.07	886	0.06	0.07	0.61	0.05	1186
Rent-seeking among citizens	0.14	0.04	0.06	0.04	874	0.10	0.04	0.05	0.04	1153
Citizens' mobilization	0.08	0.06	0.20	0.05	736	0.06	0.08	0.08	0.07	965
Demand for accountability	-0.02	0.05	0.09	0.05	584	-0.01	0.05	0.04	0.04	989
Perceived violence	0.06	0.07	-0.04	0.06	784	0.03	0.07	-0.05	0.06	1071
	Leader is less network-central					**Leader is more network-central**				
Citizens' information	0.00	0.08	0.65	0.06	1178	-0.04	0.08	0.28	0.09	708
Rent-seeking among citizens	0.05	0.05	0.04	0.04	1156	0.15	0.06	0.03	0.06	693
Citizens' mobilization	0.13	0.08	0.21	0.08	987	-0.04	0.09	-0.00	0.08	567
Demand for accountability	-0.01	0.05	0.07	0.04	892	-0.04	0.04	0.02	0.05	538
Perceived violence	0.04	0.09	-0.10	0.06	1032	-0.01	0.06	-0.03	0.06	659
	Community is less mobilized					**Community is more mobilized**				
Citizens' information	0.04	0.07	0.53	0.05	1341	-0.06	0.11	0.53	0.08	731
Rent-seeking among citizens	0.13	0.05	0.04	0.04	1309	0.04	0.06	0.06	0.04	718
Citizens' mobilization	0.14	0.07	0.16	0.07	1074	0.05	0.12	0.06	0.10	627
Demand for accountability	-0.03	0.04	0.06	0.04	1023	0.03	0.05	0.07	0.04	550
Perceived violence	0.10	0.05	-0.02	0.04	1193	-0.12	0.09	-0.07	0.07	662
	Lower voice					**Higher voice**				
Citizens' information	0.07	0.08	0.56	0.07	1059	-0.01	0.07	0.55	0.06	1013
Rent-seeking among citizens	0.02	0.05	-0.03	0.05	1032	0.19	0.05	0.15	0.04	995
Citizens' mobilization	-0.00	0.08	0.03	0.07	868	0.16	0.08	0.23	0.09	833
Demand for accountability	-0.01	0.04	0.06	0.03	784	-0.03	0.05	0.07	0.05	789
Perceived violence	0.08	0.06	0.05	0.05	980	0.03	0.07	-0.15	0.06	875
	Lower trust					**Higher trust**				
Citizens' information	0.01	0.07	0.47	0.07	792	0.09	0.08	0.65	0.06	1280
Rent-seeking among citizens	0.13	0.05	0.04	0.06	772	0.11	0.06	0.07	0.04	1255
Citizens' mobilization	0.02	0.08	0.05	0.08	630	0.10	0.08	0.25	0.08	1071
Demand for accountability	0.02	0.05	0.07	0.04	566	-0.03	0.04	0.04	0.04	1007
Perceived violence	0.14	0.08	-0.01	0.06	715	-0.05	0.06	-0.09	0.05	1140

Note. Estimates based on OLS regressions (equation 1). T1 refers to the leader treatment, T2 refers to the community treatment (see Section 1). Standard errors are reported in columns (2), (4), (7), and (9) and clustered at the community level for citizen-level outcome variables. The specifications include community and leader-level controls (for leader-level outcomes) or community-level and household-level controls (for citizen-level outcomes). The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the procedure followed by Kling et al. (2007): outcomes are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category. See Section F.4 for the definition of chiefs and other political leaders. Leaders' network centrality is defined as the percentage of citizens reporting to personally know the village leader at baseline ("less" corresponds to a percentage smaller than 50%). Community mobilization is defined as the percentage of citizens reporting to have attended a community meeting at baseline ("less" corresponds to a percentage smaller than 90%, which is the median in the sample). Voice outside the community is defined as the community average at baseline of citizen voice with provincial and national authorities, with 1 = not at all and 4 = totally ("less" corresponds to an average smaller than 2.28, which is the median in the sample). Trust is the baseline community average of all self-reported measures of trust, with 0 being equal to "not at all" and 3 to "trust a lot" ("less" corresponds to an average smaller than 2.19, which is the median in the sample).

Table F7: Heterogeneous effects, by baseline wealth, awareness, aspirations, and attitudes

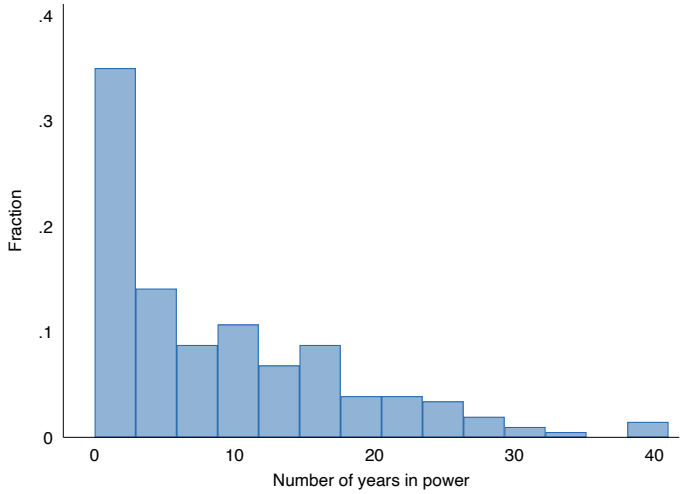
Outcome variable	T1 Coeff. (1)	T1 S.E. (2)	T2 Coeff. (3)	T2 S.E. (4)	N (5)	T1 Coeff. (6)	T1 S.E. (7)	T2 Coeff. (8)	T2 S.E. (9)	N (10)
	Assets are below median					**Assets are above median**				
Citizens' information	0.04	0.07	0.66	0.06	1189	0.04	0.07	0.40	0.06	875
Rent-seeking among citizens	0.09	0.04	0.05	0.04	1173	0.16	0.05	0.07	0.05	846
Citizens' mobilization	0.08	0.07	0.21	0.06	1009	0.05	0.06	0.03	0.06	686
Demand for accountability	-0.01	0.04	0.08	0.03	887	-0.02	0.05	0.03	0.04	679
Perceived violence	0.06	0.06	-0.00	0.06	1045	0.04	0.07	-0.10	0.06	803
	Citizen was not aware of natural gas					**Citizen was aware of natural gas**				
Citizens' information	0.05	0.08	0.80	0.06	965	0.04	0.07	0.24	0.06	921
Rent-seeking among citizens	0.01	0.05	-0.01	0.04	944	0.21	0.05	0.11	0.05	905
Citizens' mobilization	0.09	0.07	0.21	0.07	797	0.04	0.08	0.10	0.06	757
Demand for accountability	-0.04	0.05	0.03	0.04	719	0.02	0.05	0.12	0.04	711
Perceived violence	0.05	0.07	-0.13	0.06	842	-0.01	0.08	-0.04	0.06	849
	Citizen had negative/neutral aspirations					**Citizen had positive aspirations**				
Citizens' information	-0.07	0.09	0.47	0.07	699	0.14	0.08	0.65	0.06	894
Rent-seeking among citizens	0.16	0.06	0.12	0.05	683	0.08	0.05	0.02	0.05	877
Citizens' mobilization	0.01	0.07	0.13	0.06	573	0.09	0.07	0.18	0.06	727
Demand for accountability	-0.01	0.06	0.10	0.05	513	0.00	0.04	0.07	0.04	696
Perceived violence	0.05	0.08	-0.10	0.06	622	-0.01	0.08	-0.12	0.06	811
	Citizen is less risk-averse					**Citizen is more risk-averse**				
Citizens' information	0.09	0.08	0.52	0.07	764	0.02	0.08	0.58	0.06	1106
Rent-seeking among citizens	0.15	0.05	0.07	0.05	750	0.09	0.05	0.03	0.04	1083
Citizens' mobilization	0.00	0.07	0.15	0.07	644	0.10	0.07	0.16	0.06	896
Demand for accountability	-0.01	0.05	0.11	0.05	550	-0.03	0.04	0.03	0.04	870
Perceived violence	0.05	0.09	-0.08	0.08	678	0.00	0.06	-0.08	0.05	998
	Citizen is more patient					**Citizen is less patient**				
Citizens' information	0.12	0.08	0.58	0.06	910	0.01	0.08	0.56	0.06	959
Rent-seeking among citizens	0.08	0.05	0.06	0.05	891	0.13	0.05	0.03	0.04	941
Citizens' mobilization	-0.03	0.06	0.15	0.06	756	0.12	0.07	0.15	0.07	783
Demand for accountability	-0.04	0.05	0.09	0.04	666	0.02	0.05	0.07	0.05	752
Perceived violence	-0.03	0.08	-0.11	0.06	820	0.09	0.06	-0.04	0.05	856

Note. Estimates based on OLS regression (equation 1). T1 refers to the leader treatment, T2 refers to the community treatment (see Section 1). Standard errors are reported in columns (2), (4), (7), and (9) and clustered at the community level for citizen-level outcome variables. The specifications include community and leader-level controls (for leader-level outcomes) or community-level and household-level controls (for citizen-level outcomes). The full list of controls is presented in Section 4. Outcomes are grouped in indices that are built using the procedure followed by Kling et al. (2007): outcomes are first normalized to study mean effect sizes of the indices relative to the standard deviation of the control group and then averaged within each category. Assets are computed as the average of 15 indicator variables for whether the household owns a radio, a television, a bicycle, a motorbike, a car, a fishing boat, a fishing net, an electric or gas oven, an oven for bread, a typical coal oven, a fridge, a bed, a table, a cell phone, and a watch. The citizen has negative/neutral (positive) aspirations if the response to "How do you think your household's economic situation will be five years from now?" is much worse, slightly worse or similar to the current situation (slightly better, much better). Risk-aversion is defined using a non-incentivized version of a lottery game in which the respondent reports stated preferences between a fixed amount (1,000 Meticais) and a 50% chance lottery to win a larger amount ranging from 1,800 to 5,000 Meticais ("less" corresponds to an indifference between the fixed amount and amounts smaller than 5,000 Meticais for the lottery, which is the median in the sample). Patience is defined using a series of stated-preference questions in which the respondent chooses between a fixed amount today (1,000 Meticais) and a larger amount in 1 month, ranging from 1,100 to 2,500 Meticais ("more" corresponds to an implicit discount rate smaller than 0.75, which is the median in the sample).

F.6 Turnover of community leaders

Figure F7 presents the distribution of the number of years in which community leaders have been in power at the baseline. Leaders in the sample have been in power for an average time of 8.8 years. Table F8 presents estimates of treatment effects on the probability of a change in leader from baseline to endline. No significant effects of the treatments are found. This result is robust to the removal of cases in which the change of leader is caused by the death of the previous leader.

Figure F7: Distribution of years in power among leaders



Note. The figure shows the distribution of leaders by the number of years they have been in power. Data is self-reported by the community leaders and collected at the baseline.

Table F8: Probability that a leader changes from baseline to endline

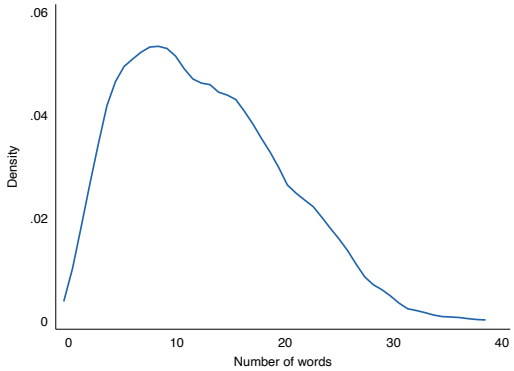
Dep.Var.:	**New leader**	**New leader (excludes deaths)**
	(1)	(2)
(T1) Leader treatment	0.014	0.015
	(0.041)	(0.034)
(T2) Community treatment	0.025	0.001
	(0.037)	(0.030)
Observations	206	206
R^2	0.113	0.120
Mean (control group)	0.018	0.018
T1 = T2 (p-value)	0.762	0.649

Note. Estimates based on OLS regressions (equations 1). Standard errors are reported in parentheses. The dependent variables are indicator variables equal to 1 if at endline the community leader has changed when compared to baseline. Column 1 considers all cases, while column 2 sets the indicator variable to 0 if the replacement of a leader is due to his/her death. All specifications include community and leader-level controls. The full list of controls is presented in Section 4.

F.7 Analysis of postcards

In this section we undertake a detailed analysis of the contents of postcards (Appendix C.2.5). Figure F8 shows the distribution of number of words per postcard. Table F9 presents estimates of the treatment effects on different types of contents. For each postcard, the number of words is computed after cleaning the string by removing prepositions and articles to highlight content.

Figure F8: Distribution of number of words in returned postcards



Note. The figure shows the distribution of the number of words in returned postcards estimated using kernel density. To highlight content, strings are cleaned by removing prepositions and articles. The vertical dashed line represents the sample mean.

Table F9: Postcard contents

				Postcard contains a request for...		
Dep.Var.:	**N. of words (log)**	**Gratitude**	**Complaint**	**Individual**	**Community**	**Province**
	(1)	(2)	(3)	(4)	(5)	(6)
(T1) Leader treatment	-0.127	-0.007	0.009	-0.029	-0.018	0.079
	(0.074)	(0.016)	(0.009)	(0.029)	(0.020)	(0.026)
(T2) Community treatment	-0.142	-0.007	0.018	-0.019	0.002	0.040
	(0.063)	(0.014)	(0.008)	(0.026)	(0.014)	(0.018)
Observations	1702	1700	1700	1700	1700	1700
R^2	0.083	0.047	0.024	0.034	0.089	0.136
Mean (control group)	2.443	0.044	0.011	0.103	0.963	0.076
T1 = T2 (p-value)	0.835	1.000	0.353	0.587	0.314	0.142
Lagged dependent variable	No	No	No	No	No	No

Note. Estimates based on OLS regressions (equations 1). Standard errors are reported in parentheses and clustered at the community level. Dependent variables by column: (1) Number of words: number of words in returned postcards after the strings are cleaned by removing prepositions and articles, reported in logs; (2)–(6): indicator variables equal to 1 if the returned postcard contains greetings or gratitude, a complaint, a personal request, a request for the community, or a request for the province (respectively). All specifications include community and household-level controls. The full list of controls is presented in Section 4.

F.8 Robustness to selection of control variables

Robustness of estimates to control variable selection is tested using the Post-Double Selection LASSO (PDSL) procedure (Belloni et al., 2014b,a; Tibshirani, 1996). The PDSL provides a method for model selection in the presence of a large number of control variables by requiring that the effect of confounding factors can be controlled for up to a small approximation error by including a relatively small number of control variables.

Table F10 presents the variables selected for this procedure. PDSL is performed for each outcome variable analyzed in the main text thus estimating corresponding treatment effects. The sampling strata are partialled out. Table F11 presents estimates of treatment effects on citizen-level outcomes using equation 1. For these outcomes, the procedure is cluster-robust. Table F12 presents estimates of treatment effects on community-level outcomes.

Table F10: Variables included in the PDSL procedure

Variable group	Description
Community characteristics	
Location, size and distances	District and stratum (rural, semi-urban, or urban) indicator variables, number of voters (measured by the number of tables at the polling station), distance (in kilometers) from the community to the main urban centers in the province (Pemba, Montepuez, Palma, Mocimboa da Praia), and average distance to all sampled communities.
Infrastructure	Indicator variables for the presence in the community of a kindergarten, a primary school, a lower secondary school, an high school, an health center, a facilitator, a water pump, a market, a police station, a church, mosque or temple, an amusement area, a room for community activities, as well as for access to electricity and to the sewage system. An index built by averaging the 14 indicator variables is also included.
Presence of natural resources	Average of 10 indicator variables for the presence in the community of limestone, marble, sands and rocks, forest resources, ebony and exotic woods, gold, charcoal, graphite, precious and semi-precious stones, mercury, fishing resource, salt, and natural gas.
Average-citizen	Community-level average of variables included in citizens' characteristics.
Citizens' characteristics	
Demographics	Gender and age of the household head (reported in number of years), household size, education, religion, and ethnic group indicators, indicator for whether the respondent was born in the community.
Occupation	Indicator variables for whether the citizen is a subsistence farmer, a worker, a professional, or is employed in another activity, and an indicator variable for whether members of the family are employed in the extractive sector.
Wealth	Indicator variables for whether the household owns a radio, a television, a bicycle, a motorbike, a car, a fishing boat, a fishing net, an electric or gas oven, an oven for bread, a typical coal oven, a fridge, a bed, a table, a cell phone, and a watch.
Leaders' characteristics	
Demographics	Same variables included in citizens' demographics, but measured for the leader.
Occupation	Same variables included in citizens' occupation, but measured for the leader.
Wealth	Same variables included in citizens' wealth, but measured for the leader.

Note. Citizens' characteristics are included only in the PDSL procedure for citizen-level outcomes. All continuous variables are also included in their squared term and are standardized. In order to have the same sample size between Post-Model Selection and PDSL, missing values are replaced by the value 0 and an indicator variable equal to 1 if the observation had a missing value is introduced for all variables.

Table F11: Comparison with PDSL: citizen-level outcomes

	Post-Model Selection				Post-Double Selection LASSO				
	T1		T2		T1		T2		
Outcome variable	Coeff. (1)	S.E. (2)	Coeff. (3)	S.E. (4)	Coeff. (5)	S.E. (6)	Coeff. (7)	S.E. (8)	N (9)
Perceived violence									
Sympathy for violence	0.01	0.03	-0.01	0.03	0.02	0.03	-0.01	0.03	1886
Involved in violence	0.00	0.02	-0.04	0.02	0.00	0.02	-0.04	0.02	2042
Citizens' information									
Awareness	-0.00	0.03	0.25	0.02	-0.02	0.03	0.23	0.02	2072
Knowledge	-0.00	0.02	0.17	0.02	-0.01	0.02	0.16	0.02	2072
Salience	0.05	0.03	0.23	0.03	0.04	0.03	0.22	0.03	2077
Perceived benefit to the community	-0.01	0.03	0.04	0.02	0.01	0.03	0.04	0.02	1592
Perceived benefit to the household	0.02	0.03	0.07	0.03	0.02	0.03	0.06	0.02	1573
Rent-seeking among citizens									
Citizen-chiefs interaction	0.10	0.03	0.03	0.03	0.11	0.03	0.04	0.03	2077
Citizen-other political leaders interaction	-0.01	0.04	0.01	0.03	-0.01	0.04	0.01	0.03	2077
Share bid for meeting	0.03	0.01	0.00	0.01	0.02	0.01	0.00	0.01	2077
Gifts sent to leader	0.04	0.02	0.03	0.02	0.02	0.02	0.01	0.02	2027
Any gift sent to leader	0.06	0.03	0.04	0.02	0.05	0.03	0.03	0.02	2027
Citizen's mobilization									
Community meetings attendance	0.01	0.02	0.04	0.02	0.00	0.02	0.03	0.02	2019
Awareness of matching grants	0.02	0.04	0.11	0.03	0.02	0.03	0.10	0.03	2072
Contributed	0.06	0.05	0.15	0.05	0.04	0.05	0.15	0.05	1510
Contribution	0.15	0.19	0.48	0.18	0.13	0.19	0.49	0.18	1510
Contribution in the public goods game	-0.00	0.02	0.00	0.02	-0.01	0.02	-0.01	0.02	2027
Demand for accountability									
Voice	-0.01	0.05	0.09	0.04	-0.03	0.05	0.05	0.04	1983
Political accountability	-0.14	0.07	0.02	0.06	-0.12	0.06	0.04	0.06	1997
Average trust	-0.06	0.03	0.03	0.03	-0.06	0.03	0.02	0.03	2042
Trust on leaders personally known	-0.03	0.02	0.05	0.01	-0.03	0.02	0.05	0.01	1958
Amount sent to leader	0.03	0.02	0.01	0.02	0.02	0.02	0.00	0.02	2027
Desire to punish the leader	0.03	0.04	0.02	0.03	0.02	0.04	0.00	0.03	2007
Postcard sent	0.03	0.03	0.03	0.02	0.02	0.03	0.01	0.02	1891

Note. Estimates based on OLS regression (equation 1). T1 refers to the leader treatment, T2 refers to the community treatment (see Section 1). Standard errors are reported in columns (2), (4), (6) and (8) and clustered at the community level. In columns (1)–(4), the specifications are constant across outcome variables (see Section 4). In columns (5)–(8), the specifications are outcome-specific and include community, leader, and household-level controls which are selected using the Post-Double Selection LASSO (PDSL) procedure (Belloni et al., 2014a,b). The full list of variables included in the procedure is presented in Table F10.

Table F12: Comparison with PDSL: community-level outcomes

	Post-Model Selection				Post-Double Selection LASSO				
	T1		T2		T1		T2		
Outcome variable	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	N
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Presence of violent events									
ACLED	-0.03	0.03	-0.06	0.03	-0.03	0.03	-0.05	0.02	206
GDELT	-0.02	0.03	-0.05	0.03	-0.02	0.02	-0.04	0.02	206
ACLED+GDELT	-0.05	0.03	-0.09	0.03	-0.04	0.03	-0.07	0.03	206
Leaders' information									
Awareness	0.04	0.02	0.05	0.02	0.04	0.02	0.04	0.02	206
Knowledge	0.03	0.02	0.05	0.02	0.03	0.02	0.05	0.02	206
Salience	0.03	0.09	0.33	0.08	0.03	0.08	0.31	0.07	206
Perceived benefit to the community	0.02	0.07	-0.01	0.06	-0.03	0.06	-0.01	0.05	204
Perceived benefit to the household	0.01	0.08	-0.04	0.07	-0.03	0.07	-0.06	0.06	204
Elite capture									
Attitudes towards corruption	0.10	0.04	0.06	0.04	0.09	0.04	0.03	0.03	206
Elite decided about use	-0.07	0.08	-0.19	0.07	-0.07	0.07	-0.18	0.06	206
Private use	-0.10	0.07	-0.08	0.07	-0.06	0.06	-0.08	0.05	206
Leader appropriated funds	0.27	0.10	0.12	0.09	0.24	0.09	0.12	0.08	205
Appropriation	0.14	0.05	0.00	0.05	0.16	0.05	0.01	0.04	205
Average Raven's scores	0.28	0.31	0.20	0.28	0.21	0.31	0.17	0.27	206
Preference for mid-performers	0.19	0.10	0.12	0.09	0.18	0.09	0.12	0.08	206
Preference for men	0.07	0.04	-0.00	0.04	0.06	0.04	0.00	0.03	206
Amount kept by leader	0.03	0.04	0.03	0.03	0.03	0.04	0.04	0.03	206
Rent-seeking among leaders									
Interaction between leaders	0.16	0.05	0.12	0.05	0.14	0.05	0.09	0.04	206
Bid to meet the administrator	0.06	0.12	0.07	0.11	0.06	0.11	0.07	0.10	206
Response to citizens' rent-seeking	0.04	0.05	0.00	0.05	0.03	0.05	0.00	0.04	204
Citizen's mobilization									
Attendance among adults	0.02	0.01	0.00	0.01	0.02	0.01	0.01	0.01	184
Voting	-0.03	0.03	0.02	0.03	-0.02	0.03	0.02	0.03	196

Note. Estimates based on OLS regression (equation 1). T1 refers to the leader treatment, T2 refers to the community treatment (see Section 1). Standard errors are reported in columns (2), (4), (6) and (8). In columns (1)–(4), the specifications are constant across outcome variables (see Section 4). In columns (5)–(8), the specifications are outcome-specific and include community and leader-level controls which are selected using the Post-Double Selection LASSO (PDSL) procedure (Belloni et al., 2014a,b). The full list of variables included in the procedure is presented in Table F10.

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