

Does Voting Build Democracy? Evidence from Community Deliberation in Mozambique*

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Abstract:

Many local development interventions introduce voting in decision-making. The hope is to build democracy from the bottom-up. We study community deliberation in the context of a substantial resource discovery in Mozambique. We have designed and conducted an RCT by which deliberation groups were assigned to secret voting, hand voting, or default. We find that secret voting, not hand voting, changes policy decisions away from elite preferences. We also observe that the voting treatments decrease local corruption and increase local accountability. However, views about democracy deteriorate, which could be a sign that the path from local to national will be difficult.

JEL Codes: D72, C93, O55.

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1. Introduction

Democracy assumes the power is with the People. This is an important pursuit when it comes to development policy. There is often a clear sense that policies in developing countries do not cater to the interests of the majority, with the emergence of prominent institutional problems like corruption and misgovernance. International donor organizations, aware of the difficulties of meddling directly into the politics of developing countries, have been trying hard to produce political accountability from the bottom-up. The ideas of direct democracy (Matsusaka, 2005) and decentralization (Bardhan, 2002) have taken a new impetus. Community-driven Development (CDD) have been central to these efforts, with the main idea being to incentivize participatory decision-making processes at the local level that could build up demand for accountability, promote democracy, and produce inclusive development policies. Still, reviews of CDD (Mansuri and Rao, 2013; Casey, 2018) have found little evidence of transformation of local decision-making and limited results on improving welfare.

An important part of a typical CDD bundle is the explicit introduction of voting in local community decision-making. The hope is that voting for specific policies as plebiscites or for electing local representatives minimizes elite capture and provides the truest representation of the interests of the majority. Despite some studies randomizing voting processes in participatory interventions (Olken, 2010; Beath et al., 2017) we still have a limited understanding of the mechanisms of voting processes on policy outcomes, local political behaviors, and views about local and national politics. The anonymity of secret voting could be an important driver of change. However, it could come with limitations if individual voting becomes less constructive under secret voting (Brennan and Pettit, 1990). Publicly observable voting, more prone to elite capture on one side, could lead to more efficient solutions on the other side. At the same time, we have a limited knowledge about the impacts of the voting experience at the local level on political behaviors such as willingness to engage in corruption and on views about national politics which CDD hopes to benefit.

In this paper, we ask whether voting changes policymaking, local political behaviors, and views about politics. We do so in the context of a participatory deliberation intervention that happened in the Northern Mozambican province of Cabo Delgado after a substantial natural gas discovery in

2017.¹ The hope of the sponsors of the intervention was to increase political accountability at the local level to counter the potential institutional deterioration that comes with the political resource curse in low accountability settings (Robinson et al., 2006). At the time of the research project Cabo Delgado ranked lowest in human development among all the provinces of Mozambique (Global Data Lab, 2016), where accountability and the management of natural resources also scored weakly in international rankings (Freedom House, 2017; NRGI, 2017).² Participatory deliberation at the local level in Mozambique counters the important historical role of local chiefs in conveying the will of the colonial power (West and Kloeck-Jenson, 1999) and more recently of the ruling party (Buur and Kyed, 2005).

Our research design is based on a randomized controlled trial we conducted in 51 villages of Cabo Delgado. In each village, several deliberation groups were set up to decide on local policy priorities for spending resource revenues. We randomly drew three conditions for the decision-making process at the level of the deliberation group. In the first, *secret voting* was the method for decision-making in the groups, by which citizens voted anonymously using ballot paper. In the second, *hand voting* was instituted, by which citizens voted publicly in the context of the meetings. In the third, which we take as the control group, there was *default* decision-making by which typically a consensus was achieved. We measure the impact of secret voting and of hand voting on a wide range of outcome variables. First, we look at the top policy priorities decided for in each deliberation group. We can compare effects there to effects on preferences for policies at the individual level and to account for village leader preferences. Second, we analyze a range of behavioral and survey outcomes related to local political behaviors and views. Fearon et al. (2009) and Casey et al. (2012) pioneered the use of behavioral measurements in field experiments related to CDD. We specifically include a novel behavioral measure of willingness to corrupt local leaders. Finally, we also check treatment effects on survey views about democracy and national politics.

We find that secret voting changed the policy choices of the deliberation groups we study. We identify a change from health to other sectors, namely for education. This is different from hand voting, which produced no significant changes, which suggests that it does not suffice to implement non-anonymous voting mechanisms. We can rule out that the referred changes stem from changes

¹ This was the discovery of 180 trillion cubic feet of natural gas in the Rovuma basin, Cabo Delgado province (IMF, 2016), the third largest worldwide (Sandrea, 2006), which has the potential to turn Mozambique into the third-largest exporter of liquefied natural gas in the world (Fruhauf, 2014; World Bank, 2014).

² Since the end of 2017, Cabo Delgado has seen the emergence of an Islamist insurgency that has made more than five thousand deaths and close to one million internally displaced (ACLEDD, 2024, UNHCR, 2024).

in individual preferences. We are also able to provide evidence that these changes are away from decision-making strongly influenced by the local elite. This set of results suggests that a (secret) voting mechanism is effective at decreasing elite capture in local policymaking. We also find that both voting treatments are at least somewhat effective at improving local political outcomes, including decreasing local corruption in the lab game and in survey attitudes, increasing social capital, local expectations, and views about local accountability. However, we also find that the voting interventions we follow deteriorate general political views about democracy in Mozambique, namely views about the power of the President and sympathy towards violence to defend a cause.

Our paper relates most closely to the work of Olken (2010) and Beath et al. (2017) who follow the randomization of the process for community selection of development projects, namely by employing either secret-ballot plebiscites or representative-based meetings. While Olken (2010) in Indonesia finds no clear effects of secret-voting on the type of projects chosen, Beath et al. (2017) in Afghanistan find that plebiscites reduce the influence of local elites over both project type and location. Both studies find clear effects of secret-voting on satisfaction with local governance.³ Arora (2022) applies a similar structure to the selection of local politicians in India, by implementing either a secret-ballot election or community consensus. This author finds that consensus leads to more elite capture, although through selecting more educated politicians. Beath et al. (2018) follow a more extreme approach over empowering communities for decision-making and allow community members in the Solomon Islands to use development funds privately. As a result, they find increased community participation in local public decision-making and improved community satisfaction.

Other strands of literature describe what happens in deliberation meetings, namely in terms of elite capture, and the political outcomes of direct democracy. Labonne and Chase (2009) follow a CDD intervention in the Philippines and analyze how communities select their projects and how resources are allocated across villages. They find that village leaders are particularly influential in more unequal villages, where they are more likely to override community preferences. Ban et al. (2012) analyze transcripts of deliberation in village parliaments in Southern India. These authors find evidence that these parliaments are both democratically representative and assigning roles to

³ Baldwin and Mvukiyehe (2015) find different results when introducing elections in traditional political structures in Liberia, namely that elections increase contentious collective action and lower levels of contributions to public goods.

credible (median voter) agents in their deliberative processes. Nourani et al. (2021) find that democratically run farmer groups in Malawi are more cooperative compared to groups with leader-driven decision-making. An important part of literature is devoted to the political outcomes of local interventions: Funk and Gathmann (2011) find that direct democracy produces less local spending in Swiss cantons; Fujiwara and Wantchekon (2013) observe that programmatic town meetings reduced clientelism with no changes in political participation; Avdeenko and Gilligan (2015) find that a CDD intervention increased political participation in Sudan but not through social capital; Banerjee et al. (2018) report that an information intervention led to lower leakage of funds in a development project in Indonesia; Madajewicz et al. (2021) find that delegating decisions to the community improves welfare relative to a top-down provider making the same decisions, but only when the first approach limits elite influence.

Differently from this literature, when analyzing plebiscites, we distinguish between secret voting and hand voting. This allows a better understanding of the role of elections in community decision-making: in one hand, secret voting adds freedom to act according to one's preferences; on the other hand, hand (public) voting may add a sense of responsibility to one's vote. Although we find effects of voting on policies selected, we do not find clear departures from the preferences of chiefs. We also distinguish between local political outcomes and views about politics in the country and find quite different results: while local political outcomes improve, views about democracy in Mozambique deteriorate. This pattern of results is like the one found by Bauer and Fatke (2014) who study elections in Switzerland. In their interpretation of the negative effects on national views about democracy, the actual use of direct democratic instruments may initiate distrust as it signals to citizens that political authorities do not act in the public's interest.

In face of the setting of the interventions we study, i.e., deliberation about how to use revenues of natural resources locally, our paper also relates to the literature on the political mechanisms of the natural resource curse. In the applied theory literature, natural resource booms have been associated with rent-seeking, corruption, and inefficient public policies from the work of Baland and Francois (2000), Torvik (2002), and Robinson et al. (2006). Mehlum et al. (2006) as well as Bhattacharyya and Hodler (2010) tested the assertion that quality of political institutions is key for a resource curse to happen. Vicente (2010), Brollo et al. (2013), as well as Andersen and Aslaksen (2013) devoted attention to the microeconomic mechanisms of the political resource curse by looking at the behaviors of politicians in face of resource shocks. The main implication of this literature is that political accountability interventions can counter the political resource curse. Deliberation

meetings at the community level constitute one such intervention. Humphreys et al. (2006) studied deliberation meetings in Sao Tome and Principe in the aftermath of a major resource discovery. They focus on the impacts of leaders on decision-making and find that leaders accounted for over one-third of all variation in the outcomes of deliberation. Armand et al. (2020) test and verify that political accountability interventions, namely through deliberation meetings, countered the political resource curse in Northern Mozambique.⁴

A related literature on natural resources has also found positive microeconomic effects of natural resource discoveries in developing contexts. This is an important ingredient in the deliberation meetings of our paper, given the clear opportunity that resources entail from the point of view of the local population, namely in terms of potential welfare improvements. Aragon and Rud (2013) find evidence of a positive effect of a Peruvian mine's demand for local inputs on real income, which implies positive spillovers in the local economy. Toews and Vezina (2022) find a positive natural resource-related FDI multiplier in terms of local jobs in Mozambique.

2. Experimental design

2.1. Treatments

The treatments we analyze in this study were integrated in a broader field experiment described in Armand et al. (2020) which was centered around an information and deliberation campaign on the management of natural resources in the province of Cabo Delgado while focusing on the recent natural gas discoveries. This campaign was sponsored by a wide coalition of international, national, and local institutions, and 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. The campaign provided details about the discovery of natural gas in Cabo Delgado, including plans for exploration, and the expected consequences for local communities. 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. Importantly, the

⁴ In doing so, they also find that these interventions decreased the prevalence of conflict, which links to the parallel literature on the relation between natural resources, rapacity, and conflict (e.g., Dube and Vargas, 2013; Berman et al., 2017; McGuirk and Burke, 2020).

government had not yet made any decisions on how to channel fiscal revenues to local authorities. All sponsoring organizations involved in the project discussed and approved the final content of the information package to guarantee widespread support and maintain neutrality.

The broader experiment included three treatments submitted at the community level. In the first treatment, the information module was delivered to the corresponding community leaders only. In the second treatment, the information dissemination was targeted not only to local leaders, but also to communities at large through community meetings and door-to-door contact.⁵ In the third treatment, on top of what happened in the second treatment, communities went through a deliberation intervention, which is the focus of this study.

The deliberation intervention 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. Importantly, the deliberation intervention had three treatment variations, randomly assigned to deliberation groups. The first variation (*Treatment 1* or *T1*) was deliberation through *secret voting*, which had deliberation group members decide on the three top policy priorities through voting on paper for one policy priority and using a closed ballot box. The second variation (*Treatment 2* or *T2*) was deliberation through *hand voting*, which had deliberation group members decide on the three top policy priorities through voting by raising hands publicly for one policy priority. The third variation was deliberation through a *default* method, which was typically through debated consensus in the group. Note that this default option is particularly open to elite capture, given the lack of structure in the decision process and the fact that local village leaders were assigned to observe this group.

2.2. Sampling and assignment to treatment

The sample in our study is composed of 51 communities, which are representative of the province of Cabo Delgado. Figure 1 displays a map with the locations of these communities. We first selected

⁵ Due to the low level of literacy among study participants, information was mainly delivered verbally in local languages. Note that community meetings included a live community-theater presentation with the intention of mobilizing communities and communicating the information informally. Verbal communication was supplemented with the distribution of a pamphlet door-to-door.

a sample of communities for the broader field experiment. These were randomly drawn from the list of all polling locations in the Cabo Delgado sampling frame, stratified on urban, semiurban, and rural areas. To randomly allocate polling stations to different interventions, blocks of four were built using Mahalanobis-distance while exploiting the richness of baseline information. Within each block communities were randomly allocated with equal probability to each treatment. We focus our attention on the 51 communities of the deliberation treatment.

<Figure 1 about here>

Within each of the communities of the deliberation treatment, an average of 3.8 small deliberation groups of around 10 people each were formed with individuals randomly drawn from physical random walks at the time of treatment (selecting households and then heads of households). Blocks of three groups were composed with each one of the groups being randomly allocated to secret voting, hand voting, or default, with equal probability.

Sampling of citizens for measurement was the product of random walks targeting heads of households during the baseline survey. A total of 500 heads of household were interviewed at the baseline in the deliberation treatment communities. Attrition is not significantly different across treatment groups (Armand et al., 2020). We match baseline and endline interviews with individuals attending the deliberation groups and analyze most of our results at the level of this matched random sample, which is composed of 407 individuals (endline).

We show balance across the comparison groups within the deliberation communities in Table 1. We perform 22 individual significance tests of the difference between each of the two voting treatments and the default group. Only one comes out statistically significant: we find that the probability of matched survey respondents having primary education is lower in the hand voting treatment (compared to default). This translates into a marginally significant joint F test of the two treatments for having primary education, the only one significant characteristic at standard levels out of 11 tests performed. Table 1 also enables a characterization of the demographic traits of the sample at baseline, for the default group. Twenty-three percent of the sample is female, with the average age being 44 years old. Households have 6 people on average, and 46 percent of the sample is married. Twenty-four percent have no formal education, and 55 percent are Muslim. The most represented ethnic groups are Macua, followed by Maconde, and Mwani. Average monthly income was 3634 Meticaís (around 51 USD at the time of the study).

<Table 1 about here>

2.3. Measurement

In this paper, we employ a wide range of measurements including administrative data, behavioral data collected from a lab-in-the-field experiment, as well as survey-based data. Administrative data are from records of the deliberation meetings which were recorded during or at the end of treatment. Baseline survey data were collected from August to September 2016. The endline survey and the behavioral experiment were implemented in the period of August to November 2017. Armand et al. (2020) provide full details about the timeline and all measurement activities.

To analyze the response to the interventions, we examine three sets of outcomes that characterize the behavior of individual citizens. The first set of variables relates to policy choices at the end of the deliberation treatment. Each deliberation group was asked to provide its top three policy choices as priorities for future spending out the revenues from natural resources. The possibilities could be health, education, energy, water, mobile network, markets, employment, bank loans, and agriculture. We have aggregated energy, water, and mobile network as *energy/utilities*, and markets, employment, bank loans, and agriculture as *economy*). This decision was taken at the end of the corresponding debate in the group. Enumerators took note of these policy decisions, which were eventually channeled to politicians at the district level as anticipated by participants in the process. Note that we also collected individual preferences about policy choices for village leaders and citizens at the time of the baseline and endline surveys we conducted.

The second set of variables relates to attitudes and behaviors related to local politics. See Appendix Table A1 for details. These include a behavioral measurement of giving corrupt gifts to leaders (Armand et al., 2020; Armand et al., 2023). There are 10 citizens and the village leader in this game. Each citizen received an endowment of 10 tokens worth 10 Meticaï each, for a total of 100 Meticaï. Each citizen had to choose how many of the 10 tokens to send as a “gift” to the leader (understood as corruption), 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.⁶ 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

⁶ The leader never observed the identity of the individuals, but only the amounts sent.

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 Meticaïcs 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 for the leader is to choose the person who sets aside the most funds. An individual's best response is to put aside all the endowment and do no corruption at all. The main outcome we consider is whether citizens sent gifts.

We also include related survey measures of views about local corruption, including sympathy towards local corruption and whether local leaders deserve part of the natural resources. In addition, we look at survey measures of social capital, namely of trusting local leaders and of whether respondents belong to local associations. Finally, we analyze local expectations of whether the community will benefit from the discovery of natural gas, and the perception about whether local leaders respond to the demands of the community.

The third set of variables relates to attitudes about democracy in Mozambique at the national level. Details of these variables are given in Table A1 in the Appendix. These are survey questions about whether the President of Mozambique should rule alone, whether elections should be held in Mozambique, the level of voice in the national government, whether citizens in Mozambique should follow the law, and whether violence is justifiable to defend a cause in Mozambique.

2.4. Estimation strategy

Our main analysis relates to estimating treatment effects on the different outcome variables that we have available concerning policy choices, behavior and views about local politics, and views about democracy in Mozambique. These effects of interest, of the secret voting and hand voting treatments (β^S, β^H) can be estimated through the specification:

$$Y_{v,i} = \alpha + \beta^S T_i^S + \beta^H T_i^H + \theta X_v + \partial Z_i + \varepsilon_{v,i}, \quad (1)$$

where Y is an outcome of interest, l, i are identifiers for villages and deliberation groups/individuals, T_i^S and T_i^H are binary variables representing the treatments with value 1 for the corresponding treatment group and with value 0 for the default deliberation group. X_v is a vector

of community controls,⁷ and Z_i is a vector of individual demographic characteristics (only for regressions at the level of the individual).⁸ The specific list of control variables is external to this paper as it is analogous to the one employed in the main results of Armand et al. (2020).

We also employ an ANCOVA specification when baseline values of the dependent variable are available for most sample, as follows:

$$Y_{v,i,t} = \alpha + \beta^S T_i^S + \beta^H T_i^H + \mu Y_{v,i,t-1} + \theta X_v + \partial Z_i + \varepsilon_{v,i,t}. \quad (2)$$

For ease of interpretation and transparency, we employ OLS estimations throughout the paper. We cluster standard errors at the level of the village v in all regressions. We also standardize all outcome variables for comparability, except for the policy choices, which are dummy variables.

At the end of our analysis, we run heterogeneous treatment effects on gender in which we add the share of female respondents in the deliberation group (regressions at that level) or a female dummy (regressions at the level of the individual), as well as interactions of this variable with the treatment indicators.

2.5. Hypotheses

We now turn to a description of the main hypotheses we test in our study. We follow a pre-analysis plan, which we published at the AEA Registry (AEARCTR-0002493) as Armand et al. (2017).

We first expect that the voting, secret or public by hand raising, changes the policy choices decided in the deliberation groups. This is over and above any individual changes in preferences. It is possible that expressed choices in the groups change away from elite preferences.

⁷ The community controls: district indicators, stratum indicators, infrastructure index, presence of natural resources, number of voters, distance to Palma, share of Macua people, share of Maconde people, share of secondary or higher educated people.

⁸ The individual controls are: gender, age, age squared, primary education indicator, secondary or higher education indicator, Muslim indicator, Macua ethnic group indicator, Maconde ethnic group indicator, household size, born in the village indicator, married indicator, subsistence farmer indicator, dummies for imputed variables (in case specific observations were missing in these individual controls).

Hypothesis 1: Both secret voting and voting by hand change policy choices in the deliberation groups. This means we expect $\beta^S, \beta^H \neq 0$ at least for some policy choice dimensions.

Second, we expect that the effects of secret voting on the policy choices are more pronounced than those of voting by hand. This is because secret voting is a more intensive departure from default than voting by hand, given the anonymous nature of the decision-making process.

Hypothesis 2: Secret voting produces larger effects in absolute terms than voting by hand. This means we expect $|\beta^S - \beta^H| > 0$.

Third, we expect that both secret voting and voting by hand have positive impacts on local politics, including lower corruption, higher social capital, better expectations about the future, and higher levels of political accountability.

Hypothesis 3: Both secret voting and voting by hand improve behaviors and views about local politics. This means we expect $\beta^S, \beta^H > 0$ when outcomes are measured positively.

Fourth, we do not have clear expectations about impacts on views about democracy at the national level in Mozambique. The positive impacts at the local level could be compensated by more exigent views about democracy at the national level where elections are most visible and often problematic.

Hypothesis 4: Both secret voting and voting by hand can improve or deteriorate views about democracy at the national level in Mozambique. This means we expect $\beta^S, \beta^H \geq < 0$.

We also note that Hypothesis 2 could apply to the impacts mentioned in Hypotheses 3 and 4, i.e., more pronounced effects of secret voting when compared to voting by hand. However, effects of this sort on policy choices are more likely than on second order political outcomes at the individual level.

In face of a relevant literature on the policy effects of expanding the political participation of women (e.g., Chattopadhyay and Duflo, 2004; Beath et al., 2013) we also test as a secondary exercise whether the treatments changed policy outcomes when more females were involved in

decision-making and whether female respondents reacted differently to the treatments. Our expectation would be to find those changes/differences.

3. Econometric results

3.1. Policy measures

We begin our description of econometric results by looking at the policy choices of the deliberation groups. Specifically, we analyze treatment effects on whether different policy sectors were selected by the deliberation groups as top three sectors to be proposed to district administrators for becoming the priority for public policy at the local level in face of the expected natural-resource boom in Cabo Delgado province. We aggregate policy choices into dummies of whether the deliberation group selected health, education, energy/utilities, roads, and the economy as priority sectors. This order follows the popularity of these policies in the default group. These results are shown in Table 2, Panel A. OLS regressions are at the level of the deliberation group and follow specification 1, employing community control variables.

<Table 2 about here>

Importantly, we find that secret voting changes deliberation priorities by decreasing the probability of selecting health and increasing the probability of selecting education. The magnitudes are less 13 percentage points in the first case and more 12 percentage points in the second. These effects are statistically significant at the 5 and 10 percent levels, respectively. The other point estimates for secret voting are positive, which suggests a substitution between health and other sectors in general. We do not find significant effects for hand voting. We only find one significant difference between the two treatments, for the health policy outcome, at the 10 percent level. These results point in the direction of secret voting effectively changing the decision-making in the deliberation groups we study, suggesting that the status quo (default) process biased decisions against the wishes of the majority. These results are in line with Hypotheses 1 and 2, as we find treatment effects of secret voting and some evidence of smaller changes for hand voting.

We added in Table 2 two complementary sets of the results to help on the interpretation of the policy impacts of the voting treatments. First, in Panel B, we look at the effects of the treatments on the policy preferences of individual citizens as expressed during the endline survey. We analyze

whether the different policy sectors were selected as top-three ones. Regressions follow specification 2 (ANCOVA) at the individual level provided the fact that we have available baseline preferences as well for the same survey respondents. We do not find any statistically significant treatment effect. We do find however a significant difference between the two treatments for health with hand voting driving higher support for health than secret voting. Overall, we conclude from this set of results that the voting treatments did not lead to clear changes in preferences for policies, which confirms that the results in Panel A are driven by the deliberation process and not by changes in citizen preferences.

Second, in Panel C, we verify whether we can interpret changes in policy decisions driven by the voting treatments as departures from decision-making strongly influenced by the local elite, i.e., voting as countering elite capture. In doing so, we are reminded by the fact that default deliberation groups met while observed by the local village leader. This presence likely influenced decision-making in those deliberation groups towards the preferences of the elite. Indeed, when taking those default deliberation groups and computing the simple relationship between choices in those groups and the preferences of the village leaders (both defined as dummy variables for the different policy sectors), we find strong positive correlations. We conclude that the secret voting likely changed policy decisions against the preferences of the local elite.

3.2. Local political outcomes

We now turn to behaviors and views about local politics, specifically on local corruption, social capital, local expectations, and local accountability. These results are shown in Table 3. We run OLS regressions at the level of the individual matched at the endline and follow specification 1 or 2, depending on whether we have available the lagged dependent variable, while employing community and individual control variables.

<Table 3 about here>

The first set of outcome variables relates to behaviors and views about corruption. We find that hand voting decreased the probability of sending gifts to village leaders in the context of the corruption game we designed and conducted. The magnitude of this effect is 0.27 standard deviation units, statistically significant at the 10 percent level. This effect is found to be marginally different from that of secret voting. We find a similar pattern of results when employing survey

variables related to being understandable of corruption (attitudes towards corruption), although statistically insignificant at standard levels. Finally, we find that secret voting decreased the inclination to think that the village leader deserves a part of the natural resources. The point estimate of this effect is 0.27 standard deviation units, significant at the 5 percent level. Overall, both voting treatments seem to have an impact on decreasing corruption or corrupt attitudes.

We look at social capital measures as the second set of outcome variables. Both voting treatments increase self-reported trust in local leaders: the magnitudes are 0.34 standard deviations for secret voting and 0.27 standard deviations for hand voting. These effects are significant at the 1 and 10 percent levels, respectively. Hand voting also increases membership of local associations, by 0.28 standard deviation units (significant at the 5 percent level). This is marginally different from secret voting.

Next, we take a measure of local expectations, namely about whether the discovery of natural gas will benefit the community. We find that hand voting improves this expectation, by 0.2 standard deviation units. This effect is statistically significant at the 5 percent level. It is different at the 1 percent level of significance from the effect of secret voting. While hand voting produces clear positive expectations, that does not seem to be the case for secret voting.

Finally, we analyze treatment effects of voting on the perception of local accountability, i.e., of whether local leaders respond to demands by their corresponding communities. We find that secret voting increases this perception by 0.18 standard deviation units, which is a significant effect at the 10 percent level. We cannot distinguish this effect from that of hand voting, at standard levels of statistical significance.

We conclude that both voting treatments seemed to have positive effects on local political outcomes in line with Hypothesis 3. However, differently from the effects on policy outcomes, we cannot find a clear pattern distinguishing between the two interventions. It is still interesting to note that secret voting had clear impacts on decreasing the attitude related to leaders deserving private benefits and on increasing the perception of leader accountability. This is central to what we expect of democracy at the local level. Hand voting seemed to have created community mobilization (in terms of social capital) and optimism about the future.

3.3. Views about democracy

We now dedicate attention to more general views about democracy at the national level in Mozambique. Table 4 shows treatment effects on views about the power of the President, elections, political voice, rule of law, and use of political violence. OLS regressions are at the level of the individual respondent at the endline survey. We follow specification 1 which includes community and individual controls.

<Table 4 about here>

We find that secret voting increases the view that the President of Mozambique should rule alone. This magnitude is 0.26 standard deviation units. Hand voting decreases the view that violence is never justifiable to defend a cause, namely by 0.37 standard deviations. Both these effects achieve statistical significance at the 5 percent level. They both represent deteriorations of the views about democracy in Mozambique. We also note that all treatment effects in Table 4, including on the other outcome variables, i.e., on whether elections should be held, on voice in the national government and on whether people should follow the law, are in the same negative direction. Still, we achieve no statistical significance at standard levels in any treatment effect of the voting interventions beyond those mentioned above. We generally find no differences between the two voting treatments except in sympathy for violence where the effect of hand voting is statistically different from that of secret voting at the 10 percent level.

In face of what we anticipated in Hypothesis 4, in which we stated no specific sign in the effects of the voting treatments, we seem to find a systematic deterioration in the views about democracy at the national level in Mozambique. It is possible that despite the positive effects on local politics, or because of these effects, there was a decline in the hopes about democracy at the national level, namely those meaning power sharing and peaceful means to defend causes. Voting at the local level may have reminded people about the visible shortcoming of democracy in the country's national politics. This pattern of results in a non-experimental setting was already found in Bauer and Fatke (2014).

3.4. Heterogeneity by gender

We also test for gender heterogeneity in our treatment effects. The literature leads us to think that empowering women through voting could have produced changes in policy outcomes at the level of the deliberation group, or changes in behavior and attitudes related to politics at the individual level. These results are displayed in Tables A2.1-A2.3 in the Appendix. We run regressions employing specification 1 including the share of women in the deliberation group or a dummy for female respondent (depending on the level of analysis) and the interactions of each of these variables with the two treatment indicators.

We find no clear heterogeneity in our results in terms of gender. On policy outcomes, the regressions of Table A2.1, analogous to those of Table 3 (Panel A), find no clear gender differences behind the main average voting treatment effects on health and education. In other words, we cannot explain our main effects with an extension of the franchise to women. Instead, we find that deliberation groups with no women express a higher preference for energy/utilities, because of secret voting, and a lower preference for roads and the economy, because of hand voting. Groups with a larger share of female participants prefer roads, because of hand voting. When looking at gender heterogeneous effects in the individual regressions on outcomes related to local politics (Table A2.2) and general views about democracy (Table A2.3), we seldom find any statistically significant effect: men are the ones moving along with the average treatment effects for leader deservedness of benefits (secret voting), local expectations (hand voting), President's power (secret voting), and sympathy for violence (hand voting).

4. Concluding remarks

In this paper we report the results of a randomized controlled trial that evaluates the impact of voting interventions, through secret voting or hand voting, in the context of deliberation meetings happening in communities of Cabo Delgado facing a major natural resource discovery. We find that secret voting changed the policy choices of the deliberation meetings, from health to education and other sectors. This result does not stem from changes in individual preferences and is likely to represent a departure from decisions captured by the local elite. We also observe that both voting treatments produced positive changes in behavior and views about local politics, including lower corruption and higher accountability. Finally, both voting interventions produced negative effects on views about democracy in Mozambique.

These results imply that hopes of building democracy from the bottom, namely through CDD, are not unfounded but complicated. The simple introduction of voting in local decision-making at the community level seems to be effective in changing policy outcomes away from the preferences of the local elite. Moreover, corruption decreases, and accountability increases at the local level. Democracy seems to be at work there. However, the negative results on views about democracy at the national level are not necessarily a good sign for scaling up democracy from CDD. They could be a symptom of higher citizen exigence and dissatisfaction, which is positive. They could also be a sign of the difficult path ahead in building a functioning democracy, with movements back-and-forth in the belief of citizens that it is worth fighting for it.

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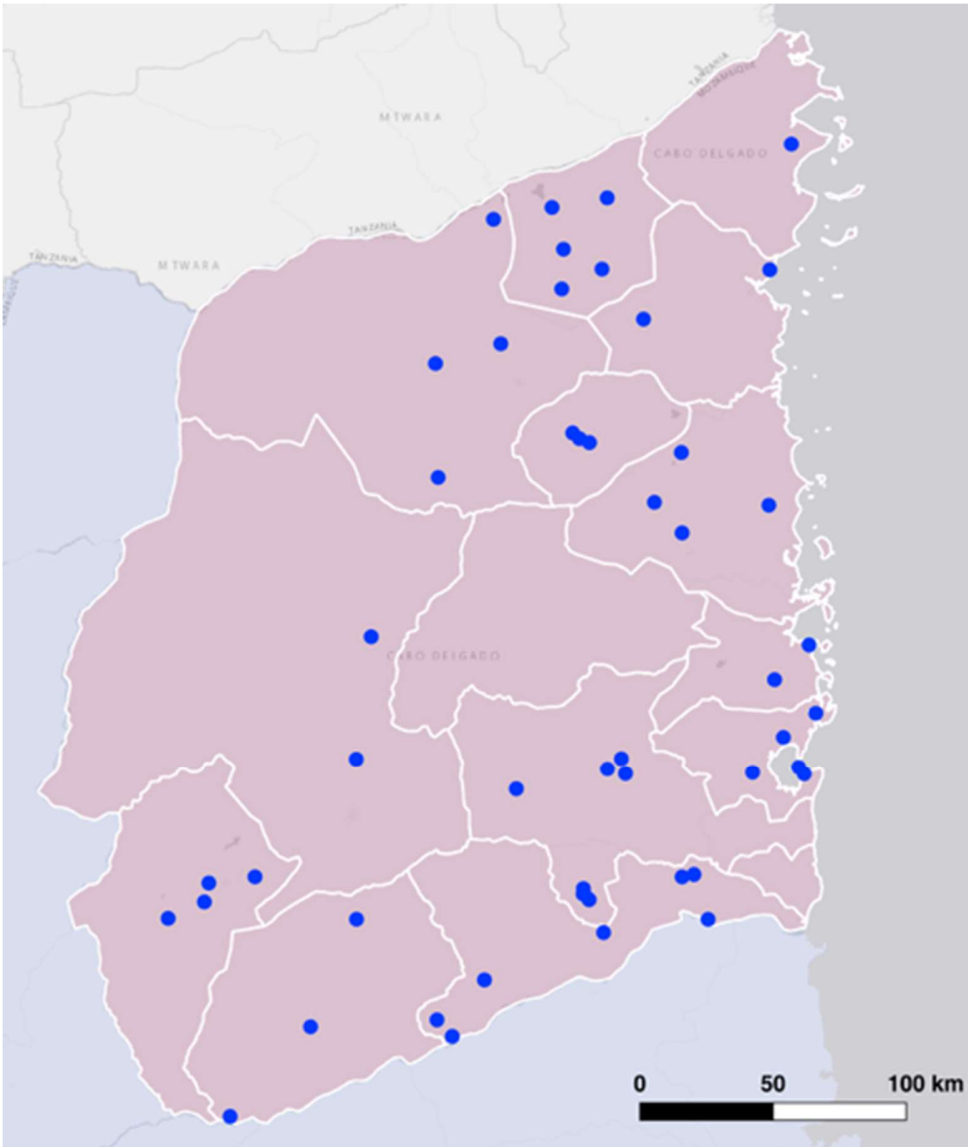


Figure 1: Deliberation communities in Cabo Delgado

Table 1 - Balance and descriptive statistics

	Default mean (1)	Difference to default		Joint F test p-value (5)
		T1 - Secret voting (3)	T2 - Hand voting (4)	
Female	0.231	-0.045 (0.05)	0.009 (0.055)	0.474
Age	44.275	0.353 (1.681)	0.366 (1.828)	0.971
Household size	5.938	0.062 (0.362)	-0.453 (0.28)	0.127
Married	0.456	0.03 (0.053)	0.063 (0.061)	0.56
No education	0.244	0.031 (0.052)	0.043 (0.046)	0.631
Primary education	0.6	-0.034 (0.056)	-0.127** (0.058)	0.098
Muslim	0.55	0.052 (0.071)	-0.038 (0.062)	0.419
Macua ethnic group	0.669	0.066 (0.048)	-0.064 (0.066)	0.188
Maconde ethnic group	0.25	-0.064 (0.042)	0.037 (0.063)	0.241
Mwani or other ethnic group	0.081	-0.002 (0.03)	0.027 (0.028)	0.618
Income (Meticais/month)	3634.374	-153.461 (570.068)	688.551 (669.361)	0.461

Notes: Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 2 - Treatment effects on policy choices

	Health (1)	Education (2)	Energy/Utilities (3)	Roads (4)	Economy (5)
Panel A - Policy choices in the deliberation meetings					
T1 - Secret voting	-0.134** (0.062)	0.119* (0.069)	0.071 (0.068)	0.084 (0.061)	0.052 (0.066)
T2 - Hand voting	0.035 (0.073)	0.094 (0.066)	0.030 (0.082)	0.005 (0.075)	-0.054 (0.052)
Observations	192	192	192	192	192
Adjusted R2	0.065	0.015	0.105	0.107	0.218
Mean (control group)	0.766	0.558	0.532	0.468	0.182
T1 = T2 (p-value)	0.061	0.744	0.619	0.289	0.131
Panel B - Policy preferences in the endline survey					
T1 - Secret voting	-0.065 (0.069)	0.053 (0.061)	0.019 (0.054)	-0.021 (0.041)	-0.008 (0.044)
T2 - Hand voting	0.039 (0.072)	-0.033 (0.065)	-0.055 (0.054)	0.017 (0.037)	0.048 (0.048)
Observations	349	349	349	349	349
Adjusted R2	0.047	0.039	0.057	0.067	0.056
Mean (control group)	0.449	0.169	0.228	0.140	0.154
T1 = T2 (p-value)	0.061	0.116	0.231	0.347	0.341
Panel C - Correlation between policy choices at the group and by the leader for default					
Policy choice by the leader	0.415*** (0.092)	0.578*** (0.086)	0.547*** (0.076)	0.611*** (0.076)	0.820*** (0.058)
Observations	63	63	63	63	63
Adjusted R2	0.185	0.269	0.147	0.170	0.112

Notes: Estimates based on OLS regressions using equation (1) (Panel A) and (2) (Panel B). The dependent variables are indicator variables for the corresponding policy category taking value 1 if chosen as one of the three top priorities in the deliberation group (Panel A) and in the endline individual survey (Panel B). Some of the policy categories are aggregated as explained in the text of the paper. Community and controls are as presented in the text of the paper. Panel B controls for the baseline dependent variable (ANCOVA). Panel C does not include controls due to the low number of observations. We test the null that the coefficient of T1 is equal to that of T2. Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 3 - Treatment effects on local political outcomes

	Local corruption			Social capital		Local expectations	Local accountability
	Any gift sent to leader (corruption game)	Attitudes towards corruption	The leader deserves part of the natural resources	Trust in local leaders	Belongs to a local association	The discovery of natural gas will benefit the community	Local leaders respond to community
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
T1 - Secret voting	0.006 (0.121)	0.046 (0.093)	-0.273** (0.104)	0.344*** (0.111)	0.063 (0.110)	-0.201 (0.125)	0.181* (0.108)
T2 - Hand voting	-0.266* (0.148)	-0.054 (0.095)	-0.085 (0.130)	0.273* (0.145)	0.278** (0.132)	0.195** (0.088)	0.040 (0.128)
Observations	402	381	402	381	405	368	402
Adjusted R2	0.054	0.496	0.136	0.115	0.075	0.179	0.057
Mean (control group)	0.000	0.000	-0.000	-0.000	0.000	0.000	-0.000
T1 = T2 (p-value)	0.096	0.245	0.180	0.594	0.097	0.009	0.297
ANCOVA	No	Yes	No	Yes	No	No	No

Notes: Estimates based on OLS regressions using equation (1) or (2), i.e., the ANCOVA specification. The dependent variables are z-scores constructed by subtracting the mean of the control group and dividing by the standard deviation of the control group. The details of the outcome variables are described in Appendix Table A1. Community and household controls are as presented in the text of the paper. We test the null that the coefficient of T1 is equal to that of T2. Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 4 - Treatment effects on general political views

	The President should rule alone	Elections should be held	Voice in national government	People should follow the law	Violence is never justifiable
	(1)	(2)	(3)	(4)	(5)
T1 - Secret voting	0.259** (0.127)	-0.173 (0.111)	-0.166 (0.161)	-0.035 (0.134)	-0.087 (0.119)
T2 - Hand voting	0.134 (0.127)	-0.071 (0.130)	-0.086 (0.137)	-0.040 (0.120)	-0.368** (0.164)
Observations	387	399	399	401	374
Adjusted R2	0.057	0.071	0.043	0.016	0.049
Mean (control group)	-0.000	0.000	0.000	-0.000	0.000
T1 = T2 (p-value)	0.245	0.376	0.648	0.976	0.074

Notes: Estimates based on OLS regressions using equation (1). The dependent variables are z-scores constructed by subtracting the mean of the control group and dividing by the standard deviation of the control group. The details of the outcome variables are described in Appendix Table A1. Community and household controls are as presented in the text of the paper. We test the null that the coefficient of T1 is equal to that of T2. Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.

APPENDIX

“Does Voting Improve Democracy? Evidence from Community Meetings in Mozambique”

Table A1: Variable definitions

Topic	Variable	Description
Local Corruption	Any gift sent to leader (corruption game)	Any gift sent to leader in the corruption game. Indicator variable equal to 1 if the citizen sent any tokens as gift to the leader in the corruption game, and zero otherwise. Information is recorded by enumerators implementing the game.
	Attitudes towards corruption	Average between an indicator variable equal to 1 if the citizen 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 citizen 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 leader deserves part of the natural resources	The leader deserves part of the natural resources. Indicator variable equal to 1 if the citizen agrees with the statement “The leader deserves a share of the community’s resources, as he is in charge,” and zero otherwise.
Social Capital	Trust in local leaders	Trust in local leaders (0 = no trust / 4 = a lot of trust).
	Belongs to a local association	Belongs to a local association (0 = not a member, 1 = inactive member, 2 = active member, 3 = leader).
Local Expectations	The discovery of natural gas will benefit the community	The discovery of natural gas will benefit the community. Agreement with the statement “the discovery of the natural gas will benefit the community” (1 = disagree, 2 = neither agree nor disagree, 3 = agree).
Local Accountability	Local leaders respond to community	Agreement with the statement “when communities ask accountability from their leaders, things change” (1 = disagree, 2 = neither agree nor disagree, 3 = agree).
Political Views	The President should rule alone	Indicator variable equal to 1 if the citizen agrees with the statement “Elections and the Assembly of the Republic are abolished so that the president can decide everything,” and zero otherwise.
	Elections should be held	Indicator variable equal to 1 if the citizen agrees with the statement “We should choose our leaders through regular, free and honest elections,” and zero otherwise.
	Voice in national government	Answer to the question “In general, during the last 12 months, do you think that the inhabitants of Cabo Delgado have had a voice with the national government?”, (1 = none / 4 = total).
	People should follow the law	Indicator variable equal to 1 if the citizen agrees with the statement “It’s better to find solutions within the law, even if it takes longer,” and zero otherwise.
	Violence is never justifiable	Indicator variable equal to 1 if the citizen agrees with the statement “In Mozambican politics, the use of violence is never justified,” and zero otherwise.

Table A2.1 - Treatment effects on policy choices in the deliberation meetings - interactions with gender

	Health	Education	Energy/Utilities	Roads	Economy
	(1)	(2)	(3)	(4)	(5)
T1 - Secret voting	-0.132 (0.113)	0.089 (0.114)	0.182** (0.088)	0.015 (0.107)	-0.055 (0.112)
T2 - Hand voting	0.106 (0.121)	0.092 (0.126)	0.126 (0.165)	-0.301** (0.127)	-0.189* (0.102)
T1 x Share Women	0.206 (0.501)	-0.070 (0.557)	-0.514 (0.467)	0.458 (0.524)	0.716 (0.533)
T2 x Share Women	-0.237 (0.642)	-0.362 (0.558)	-0.338 (0.632)	1.425*** (0.523)	0.588 (0.490)
Share Women	0.095 (0.376)	0.098 (0.458)	0.140 (0.354)	-0.850** (0.414)	-0.175 (0.317)
Observations	161	161	161	161	161
Adjusted R2	0.045	-0.042	0.118	0.135	0.226

Notes: Estimates based on OLS regressions using equation (1) including the share of women in the deliberation group and the interactions of this variable with the two treatment indicators. The dependent variables are indicator variables for the corresponding policy category taking value 1 if chosen as one of the three top priorities in the deliberation group. Some of the policy categories are aggregated as explained in the text of the paper. Community and household controls are as presented in the text of the paper. Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.

Table A2.2 - Treatment effects on local political outcomes - interactions with gender

	Local corruption			Social capital		Local expectations	Local accountability
	Any gift sent to leader (corruption game)	Attitudes towards corruption	The leader deserves part of the natural resources	Trust in local leaders	Belongs to a local association	The discovery of natural gas will benefit the community	Local leaders respond to community
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
T1 - Secret voting	0.005 (0.127)	0.078 (0.100)	-0.261** (0.124)	0.216 (0.135)	0.057 (0.130)	-0.125 (0.153)	0.180 (0.140)
T2 - Hand voting	-0.249 (0.173)	-0.087 (0.123)	-0.015 (0.130)	0.181 (0.166)	0.205 (0.165)	0.195* (0.100)	0.064 (0.142)
T1 x Female respondent	0.008 (0.293)	-0.042 (0.216)	-0.040 (0.268)	0.317 (0.203)	0.008 (0.306)	-0.365 (0.366)	0.009 (0.292)
T2 x Female respondent	-0.065 (0.296)	0.053 (0.160)	-0.269 (0.231)	0.186 (0.292)	0.275 (0.316)	-0.002 (0.267)	-0.091 (0.288)
Female respondent	-0.005 (0.122)	0.114 (0.161)	0.143 (0.168)	-0.189 (0.171)	-0.080 (0.173)	0.265* (0.157)	0.118 (0.190)
Observations	402	407	402	407	405	368	402
Adjusted R2	0.049	0.484	0.133	0.090	0.072	0.178	0.052

Notes: Estimates based on OLS regressions using equation (1) including a dummy for female respondent and the interactions of this variable with the two treatment indicators. The dependent variables are z-scores constructed by subtracting the mean of the control group and dividing by the standard deviation of the control group. The details of the outcome variables are described in Appendix Table A1. Community and household controls are as presented in the text of the paper. Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.

Table A2.3 - Treatment effects on general political views - interactions with gender

	The President should rule alone	Elections should be held	Voice in national government	People should follow the law	Violence is never justifiable
	(1)	(2)	(3)	(4)	(5)
T1 - Secret voting	0.269* (0.151)	-0.193 (0.119)	-0.252 (0.180)	-0.041 (0.154)	-0.104 (0.131)
T2 - Hand voting	0.123 (0.142)	-0.138 (0.144)	0.001 (0.171)	-0.008 (0.140)	-0.289* (0.162)
T1 x Female respondent	-0.045 (0.275)	0.077 (0.301)	0.398 (0.269)	0.033 (0.292)	0.093 (0.274)
T2 x Female respondent	0.040 (0.284)	0.246 (0.270)	-0.325 (0.269)	-0.121 (0.311)	-0.292 (0.238)
Female respondent	0.299* (0.165)	-0.394* (0.231)	0.019 (0.203)	-0.140 (0.187)	0.174 (0.244)
Observations	387	399	399	401	374
Adjusted R2	0.052	0.068	0.052	0.012	0.048

Notes: Estimates based on OLS regressions using equation (1) including a dummy for female respondent and the interactions of this variable with the two treatment indicators. The dependent variables are z-scores constructed by subtracting the mean of the control group and dividing by the standard deviation of the control group. The details of the outcome variables are described in Appendix Table A1. Community and household controls are as presented in the text of the paper. Standard errors in parentheses are clustered at the community level. * p<0.10, ** p<0.05, *** p<0.01.