

# Is Information Power? Using Cell Phones during an Election in Mozambique\*

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## Abstract:

After many problematic elections in Africa during the democratization process of the 1990s and 2000s, there is growing consensus of improvements in some recent suffrages. Yet, incumbents in multiple countries have been cementing their position. That was the case of the Mozambican election of 2009, where the ruling party secured 75 percent of the vote, amid clear challenges of political accountability. We conducted a field experiment based on three innovative media interventions implemented nationwide: an SMS electoral education campaign centered on participation, an SMS hotline to which citizens were able to report electoral misbehavior, and the distribution of a free newspaper door-to-door centered on voter education. We measure the effects of these treatments by conducting representative surveys in 161 locations before and after the election. We also use a behavioral measure of political participation and measures of actual electoral problems. We find clear positive effects of all treatments on our measures of voters' political participation and voters' information about politics. However the different treatments caused diverse effects on perceptions about electoral problems and views about authority.

JEL Codes: D72, O55, P16.

Keywords: Civic Education, Electoral Politics, Political Economy, Cell Phones, Randomized Experiment, Field Experiment, Mozambique, Africa.

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## 1 Introduction

The idea of political accountability has been at the center of the development debate in recent years. The hope is that once democratic institutions reflect the will of the majority, effective development policies focusing on the poor will be implemented. Economic theory supports these beliefs. Becker (1983) shows that when political competition is fully secured, efficient policies will arise. Yet developing democratic institutions that depend on the will of the general population has been particularly difficult to achieve in many countries. These problems have often been linked to information deficiencies, i.e. voters’ unresponsiveness to policies (e.g. Grossman and Helpman, 1996) in theory; media shortcomings (Besley and Burgess, 2002) and lack of accountable local institutions (Bjorkman and Svensson, 2009) in practice.

In Sub-Saharan Africa, the record of post-soviet democratization has been particularly worrying (e.g. Kudamatsu, 2006). One concern is that elections do not discipline governments because of the many irregularities that have tainted their conduct (Chauvet and Collier, 2009). Violence and electoral intimidation, vote-buying, and ballot-fraud have been rampant. Collier and Vicente (2009a) argue that this illicit electoral behavior has been used strategically by politicians to bend electoral outcomes. However, some recent elections labeled as broadly unproblematic have resulted in landslide victories to incumbent political parties<sup>1</sup>. Elections like the Mozambican one we study in this paper suggest that incumbents may have developed (licit or illicit) mechanisms to secure those victories well before the actual suffrage. One observation is clear: there is no evidence that political accountability is any higher in Mozambique. Specifically, this country has seen dramatic drops in voter turnout over the years. Citizen apathy and acquiescence may have reached an all-time peak. In this paper we test whether citizens are politically responsive to pertinent neutral information delivered through innovative means, inserted during the election period and aimed at educating voters.

Recent papers have focused on voter education interventions aimed at counteracting specific illicit strategies during elections. Wantchekon (2003) targeted clientelism in Benin by studying clientelism-free political campaigning. Vicente (2007) looked at vote-buying (cash-for-votes) in

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<sup>1</sup> Rwanda and Sudan in 2010 are two recent examples.

Sao Tome and Principe by analyzing an educational campaign against that practice. Collier and Vicente (2009b) examined electoral violence in Nigeria by assessing the effects of grassroots mobilization against politically-motivated violence. In this paper, we study the effects of general voter-education interventions in Mozambique, aimed at mobilizing citizens to participate in elections, while providing them with better electoral information. The idea is to go beyond specific electoral problems to try to increase voter participation and electoral accountability in a setting with low voice and overwhelming influence by the incumbent party. At the same time, the voter education interventions we scrutinize in this paper are innovative in the use of information and communication technologies. To the best of our knowledge this is the first study of voter education using text messaging. Cell phones are becoming important in Africa, where the take-up rate increased by 550 percent in the last five years<sup>2</sup>.

This paper reports on a field experiment we conducted prior to and during the October 2009 elections in Mozambique. Three randomized interventions took place nationwide in four provinces of the country, based upon collaboration with a newspaper (Jornal @Verdade, ‘The Truth’) and local civil society organizations. Treatments were clustered around different polling locations. A civic education treatment provided citizens with information about the election and mobilized them to vote. This intervention shared voter information via an official voter-education leaflet and followed up with a range of cell phone messages on voter education and the election. A second treatment established a cell phone hotline, inviting citizens to report electoral problems by sending text messaging to numbers pre-arranged with the national operators. The media and all experimental subjects in locations where the hotline was disseminated received information about electoral problems by SMS, after verification of the reports with local correspondents. A third treatment provided voter education information via free newspaper @Verdade. @Verdade is the highest-circulation newspaper in Mozambique; it is an independent newspaper. By prior agreement with the editors of the newspaper, it included weekly information on civic education and access to a national hotline in both respects similar to our other treatments. To a certain extent we may interpret the newspaper treatment as an interaction of the civic education and hotline treatments.

To measure the effects of these voter education interventions, we conducted pre- and post-election surveys in 161 locations, including the control group. Subject recruitment followed a two-stage clustering process (on provinces and polling locations), within polling locations with

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<sup>2</sup> UNCTAD, ‘Information Economy Report 2009: Trends and Outlook in Turbulent Times’, 2009.

mobile phone coverage. We present innovative measures of individual voter turnout. Conformity bias may induce respondents to assert that they voted even if they did not, and so to counter it the post-election survey asked a comprehensive batch of question on the election-day experience, thereby testing subject's knowledge about the official voting process, as well as verifying the subject's finger for ink (inking a specific finger is required by law, i.e. the official voting procedure in Mozambique). During the post-election survey we also implemented a behavioral measure of demand for accountability. Experimental subjects in all locations were invited to send cell phone SMS proposing their priorities in terms of policy measures to the president-elect. They were informed that the contents of these messages would reach the president personally. We are able to record the individuals that sent messages through cell-number matching. Since this is a costly action (namely, the sender had to pay for the text call), we interpret it as an incentive-compatible measure of demand for accountability. We also ask standard survey questions on perceptions about electoral problems, views about authority, and information about politics. Finally, we use the information processed in the national hotline to compose measures of actual electoral problems arising during the campaign and voting day.

We find robust effects of all three treatments on our measures of voter turnout, ranging from 5 to 10 percent. The distribution of the newspaper was particularly effective with women when mobilizing citizens to vote. In addition, it led to higher demand for accountability, as it induced a higher number of text messages from experimental subjects about their priorities. Interestingly, the different treatments induced quite different perceptions about the prevalence of electoral problems, even if our data on actual occurrences does not provide evidence for clear differences across treatments. The civic education treatment increased the perception that votes were counted fairly and led to lower perceived violent conflict between parties. The hotline, on the contrary, increased perceptions of electoral problems: higher ballot fraud and higher intimidation. The newspaper offers mixed results: it increased the perception of vote-buying but reduced the perception of intimidation. On authority, civic education led to higher awareness about dependence of local chiefs and healers; the hotline increased support for an authoritarian presidency. All treatments have some effects in increasing information about politics.

Apart from contributing to our knowledge of the political economy of elections in developing countries, this paper broadly relates to two other branches of the literature. First, it links to the vast array of experimental research on voter mobilization and electoral campaigning in American elections. This work ranges from the assessment of different voter mobilization activities (Gerber

and Green, 2000) and of partisan campaigning (Gerber, 2004), to the identification of the effects of newspapers in driving voting behavior (Gerber et al, 2009). Second, it links into the emerging literature on the effects of information and communication technology on various development outcomes. Jensen (2007) looks at the use of cell phones to improve market efficiency in a local fish market in India. Aker (2008) studies the effects of cell phone introduction on grain market outcomes in Niger.

The paper is organized as follows. In section 2 we present the context of our field experiment, while providing a description of the recent political history of Mozambique. In section 3 we fully develop the experimental design, with treatments, measurement, and estimation strategy. The following section provides the econometric results, including balancedness tests, main treatment effects (on voting behavior, perceptions, and information), and robustness tests. We conclude in section 5.

## 2 Context

Mozambique, a country with 22.4 million inhabitants, is one of the poorest countries in the world with GDP per capita of 838 USD in 2008 - it ranks 161 in 189 countries (latest available years) in terms of GDP per capita<sup>3</sup>. Without important natural resources, and with 81% of the population directly dependent on agriculture<sup>4</sup>, it is an aid-dependent country with official aid assistance accounting for 22 percent of GNI in 2008<sup>5</sup>.

Politically, Mozambique became independent from Portugal in 1975, after which FRELIMO (Frente de Libertação de Moçambique), the independence movement, led a single-party, socialist regime. During that time, beginning in 1977, Mozambique suffered a devastating civil war, fought between FRELIMO and RENAMO (Resistência Nacional Moçambicana). RENAMO was supported by Apartheid South Africa and, in the context of the cold war, by the USA. The civil war finished in 1992 with an agreement to hold multi-party elections.

Presidential and parliamentary elections were held in Mozambique in 1994, 1999, 2004, and 2009. FRELIMO and its sponsored presidential candidates won all national elections, with

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<sup>3</sup> World Development Indicators, 2009.

<sup>4</sup> CIA World Factbook, 2010.

<sup>5</sup> World Development Indicators, 2009.

RENAMO as the main contender. More importantly, FRELIMO has been consistently increasing its vote share, while voter turnout has decreased massively to just 36 percent in 2004. Figure 1 depicts the main parliamentary election outcomes over the four elections<sup>6</sup>.

<Figure 1 near here>

Armando Guebuza became FRELIMO's leader and president in 2004, succeeding Joaquim Chissano. Guebuza had an important record within FRELIMO, from his times fighting against the Portuguese to the early years as minister of the interior under Samora Machel. He became a wealthy and powerful businessman after the privatization of public companies in the 90s. He ran for re-election in 2009. Afonso Dhlakama has been the leader of RENAMO since 1984, serving as a guerilla leader during the civil war and RENAMO's presidential candidate at all national elections.

The common factor across all national elections has been allegations of electoral irregularities (primarily ballot fraud) by FRELIMO, with clear consequences over the final results. While these claims have been made primarily by RENAMO, they have been corroborated by international observers on several occasions. For instance, in the aftermath of the 2004 elections, the Carter Center released a statement outlining the numerous shortcomings encountered<sup>7</sup>. Convincing statistical evidence for ballot fraud during the 2004 elections is provided in Hanlon and Fox (2006).

In this paper we focus on the presidential, parliamentary and provincial assembly elections of October 28, 2009. The 2009 elections were relatively calm, with FRELIMO and Guebuza expected to win. Prior to the elections, Dhlakama had been increasingly discredited and was widely seen as an outdated leader, often referring to the possibility of taking up arms (which was widely considered as anachronistic). Interestingly, former RENAMO member and mayor of Beira (Mozambique's second largest city), Daviz Simango, split from RENAMO to launch MDM (Movimento Democrático Moçambicano) in early 2009. Simango was the third presidential candidate. Being from a younger generation not linked with the heavy references of the past

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<sup>6</sup> Since 2000 the quality of governance has been rated annually for each of the 53 countries of Africa by the Ibrahim Index. Over the period 2000-2009 whereas most African countries improved their governance according to this Index, Mozambique experienced substantial deterioration, exceeded only by Madagascar and Eritrea.

<sup>7</sup>Carter Center, 'Observing the 2004 Mozambican Elections' – Final Report.

(independence and civil war), Simango was becoming increasingly popular among the urban youth. The main issues arising in the run up to the election were allegations of bias in the voter registration process, the exclusion of some parties (including MDM) by the National Electoral Commission of Mozambique (CNE) from contesting elections in several provinces, scattered occurrences of campaign violence and intimidation, and many instances of use of state resources for campaigning.

The elections were conducted in a relatively unproblematic manner, as witnessed by national and international observers. These observers generally considered it to be following appropriate international standards, despite the existence of many small irregularities. The main international contingent of observers, deployed by the European Union, considered that:

‘Voting was generally conducted in a calm manner and the process was well organised. [The counting] was conducted in a calm and orderly environment and was assessed as good or very good in 70 percent of the polling stations visited. [...] However, EU observers directly reported several cases of political party delegates being ordered to leave the polling station before the beginning of counting and of polling station presidents refusing to register complaints from political party representatives. [...] The later requalification process of invalid ballot papers at CNE level, was satisfactory but revealed clear cases of deliberate invalidation by polling staff during counting in several provinces. [...] As in 2004, the EU observed multiple cases of polling stations displaying turnouts of 100 percent and above. [...] Among these with a very high turnout, results often showed 100 percent of votes cast for FRELIMO.’<sup>9</sup>

Observatorio Eleitoral, which deployed 1,662 national observers, wrote:

‘[We] give a vote of confidence to the electoral results, recognize the existence of irregularities, but consider that its correction does not challenge the probable winner.’<sup>10</sup>

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<sup>8</sup> See De Brito (2008) for a review of voter registration problems in Mozambique.

<sup>9</sup> European Union, ‘Electoral Observation Mission – Final Report, Mozambique 2009’.

<sup>10</sup> Observatorio Eleitoral, ‘Declaration about the Presidential, Parliamentary, and Provincial Assembly Elections’, 2009.

Indeed, above all other considerations, it is clear that the identity of the winners of the election was indisputable. Results were unambiguous, giving 75 percent of the vote to both Guebuza and FRELIMO (at the presidential and parliamentary elections). The opposition was split between RENAMO and MDM: Dhlakama/RENAMO had 16/19 percent and Simango/MDM had 9/4 percent (respectively for the presidential and parliamentary elections). This electoral outcome is indicative of the overwhelming degree of control FRELIMO has over the whole of Mozambican society, building on the socialist-type local political institutions that remain to date and on the manifest dependence of the majority of the population on state-allocated resources<sup>11</sup>.

Mozambique is currently considered a 'partly-free' country by Freedom House. Afrobarometer data (see Pereira et al, 2002, 2003) find relatively low levels of support for democracy, and characterize Mozambique as a 'democracy with problems'. Citizens display difficulty in grasping the role of democracy in improving economic outcomes, and a clear resistance to proffer opinions about politics. Mattes and Shenga (2008) hypothesize that the very low levels of political accountability observed in Mozambique may be the result of deficient channels of information dissemination, exacerbated by poverty and low education. De Brito (2007) underscores the marked decreasing trend of voter turnout, distinctive by regional standards. He highlights the role of international donors in providing incentives to Mozambican politicians, perhaps at the expense of truly strengthening Mozambique's civil society.

It is in this context that we propose to study ways of improving electoral accountability in Mozambique. We focus on voter mobilization and voter education, accompanied by the provision of information. We believe this focus and the specific interventions are relevant to the fundamental challenges Mozambique currently faces regarding meaningful political participation.

### 3 Experimental Design

The main objective of this paper is to document the effects of electoral education interventions on individual voting and political behavior, as well as on perceptions of electoral problems and

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<sup>11</sup> For instance, when survey respondents to our survey were asked about who was responsible for having provided local public goods (schools, health centers, roads, wells, electricity, sanitation, jobs), on average, 39 percent stated 'FRELIMO' rather than the state or the government. Respondents also reported that local chiefs were responsible for allocating wells (70 percent), land (55), public funds (43), for undertaking dispute resolution (88), for distributing food/seeds (29), construction materials (19), and for attributing residence documents (85) essential for school attendance among other benefits.

authority, and on interest and information about politics. In this section, we begin by a thorough description of the interventions, i.e. the pure civic education message, the hotline for electoral problems, and the newspaper embedding both the civic education and a hotline. We then continue with our measurement design, which makes use of survey and behavioral outcomes. Finally, we present our main econometric specifications in the context of our estimation approach.

### 3.1 Treatments

We collaborated with newspaper @Verdade (<http://www.verdade.co.mz/>) and a consortium of eight Mozambican NGOs, named Observatorio Eleitoral. @Verdade is a free newspaper created in 2008, mainly distributed in the area of the capital city (Maputo). It is a generalist, privately owned newspaper, without a clear political leaning, but with a patent civic education and social responsibility mandate. Observatorio Eleitoral is an organization blending the specific efforts of its member organizations in the area of good electoral conduct and electoral observation. Its members are the main religious civil society representative organizations in the country (Catholic, Christian, and Muslim), and prominent local governance NGOs<sup>12</sup>. The three interventions we study in this paper were designed and conducted with the institutional support and active collaboration of both these organizations, as they see voter education as a crucial part of their mission. Like us, both organizations saw this project as an opportunity to learn about innovative means of delivering electoral education in the Mozambican context. We now turn to the description of each specific intervention.

The civic education treatment was based on a set of messages providing citizens with specific information about the 2009 elections. The process was initiated with a door-to-door campaign approximately a month before the elections in 40 experimental locations. This campaign was implemented during the baseline survey and was centered on the distribution of a leaflet designed and made available by the electoral commission (CNE/STAE). The leaflet explained in detail the voting steps on the election-day. 10,000 leaflets were distributed (i.e. 250 per location). It is displayed in Figure 2.

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<sup>12</sup> Observatorio Eleitoral's members are: AMODE (Associação Moçambicana para o Desenvolvimento), CEDE (Centro de Estudos de Democracia e Desenvolvimento), CCM (Conselho Cristão de Moçambique), CISLAMMO (Conselho Islâmico de Moçambique), Comissão Episcopal de Justiça e Paz da Igreja Católica, FECIV (Instituto de Educação Cívica), LDH (Liga Moçambicana dos Direitos Humanos), and OREC (Organização para Resolução de Conflitos).

<Figure 2 near here>

Two weeks prior to the election (i.e. for 14 days), all respondents in the civic education areas received a set of daily text messages on the cell phone number they provided during the baseline survey. Specifically, they received five messages a day. On each day, messages were chosen from a set of 10 different messages. Messages focused on the importance of voter participation, and in this sense we can interpret the overall message to include a ‘get out the vote’ statement. Within their 160-character limit, these messages also provided specific information about the elections, namely the scheduled date, the types of elections taking place (presidential, parliamentary, and provincial assemblies), the presidential candidates and the parties running for the parliament, voter confidentiality, and how to vote (i.e. mark only one X on each ballot paper).

The hotline treatment was based on the dissemination of two short-code phone numbers that were contracted with the two cell phone operators in Mozambique (Mcel and Vodacom). These short-codes constituted an electoral hotline in the sense that citizens were invited to send text messages to those numbers reporting electoral problems they observed in their location<sup>13</sup>. The dissemination of this hotline happened in 40 experimental locations. During the baseline survey, we conducted a door-to-door campaign providing information on the hotline, how it could be used, types of electoral problems, and how to write messages reporting the problems. As part of this sensitization campaign, we distributed 10,000 leaflets (250 per location), providing the basic information about the hotline system: short-codes, examples, format of messages to be sent - specifically, ballot location name first, description of the problem second -, and sponsors. The leaflet is depicted in Figure 3. Each leaflet was printed on both sides of one page, with each side providing different SMS examples, one for the electoral campaign, the other for the election-day. The leaflets were location-specific, so that they featured the name of the ballot location corresponding to the location where the leaflets were distributed. This was done to minimize any potential mistakes by experimental subjects when writing messages for the hotline).

<Figure 3 near here>

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<sup>13</sup> The two numbers were meant to cover the users of both operators. Note that the same price was agreed with both: 2 MZN (about 7 USD cents). This is the minimum price for an SMS in Mozambique – there was never free text messaging in the country to date.

We promised that the contents of these messages would be passed to the media for dissemination, and also shared with all other respondents via SMS in the hotline areas. Before any dissemination took place, each message received on the hotline was verified with local correspondents we hired in each of the 40 hotline locations. This process was managed online through the Ushahidi system (an open-source software - [www.ushahidi.com](http://www.ushahidi.com)), which allowed our viewing of received messages in real time. This is software that enables the received messages to be plotted automatically on a Google map after verification and classification of their contents. The archive for the messages received on our hotline is now publicly available at [www.protegeemosovoto.org](http://www.protegeemosovoto.org). Note that, apart from receiving hotline reports, two weeks' prior to the elections, respondents in hotline areas were sent reminders about the existence of the hotline by SMS<sup>14</sup>.

The newspaper treatment was based on the distribution of newspaper @Verdade to experimental subjects in 40 locations. Despite being the highest circulation newspaper in Mozambique (with a minimum of 50,000 certified copies per week), the newspaper was only systematically distributed in the city of Maputo. We agreed that, specifically for this project, the newspaper would be distributed weekly in all newspaper locations, which had never received the newspaper since they all lie outside the city of Maputo, from our baseline visit (September 2009) until the post-election survey (November 2009). During the distribution of the newspapers, priority was given to our survey respondents. 5,000 copies of the newspaper were distributed each week, with a total of 125 at each location. Thus, this treatment was equivalent to an @Verdade subscription during the electoral period, offered to individuals who had previously not had systematic contact with that newspaper.

The editors of the newspaper took a strictly independent approach to the electoral period, focusing its message on electoral education. More specifically, the newspaper featured explicitly the contents of the civic education treatment above by including a version of the CNE/STAE leaflet on the steps for voting (see middle panel of Figure 4) and by providing information on specific candidates, political parties and the election-day (similar to our SMS messages). The newspaper also sponsored a national hotline for reporting electoral problems, serving as one of the most important decentralized sources of news during the electoral campaign and election-day in Mozambique: its website, featuring an Ushahidi interface, was very popular during that period

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<sup>14</sup> In effect, the standard Ushahidi software was tailored in our case to enable the management of the messages to be sent by us to respondents, not only for the hotline (dissemination of received reports and reminder messages), but also for the civic education messages.

(<http://www.verdade.co.mz/eleicoes2009>). The newspaper's hotline was also a joint effort in that it was a replica of our hotline treatment, albeit branded with a different slogan and different short-codes to enable the identification of a control group for our hotline treatment (see right panel of Figure 4). The newspaper's hotline was disseminated through the newspaper itself, through the internet, and through networks of civil society organizations (including Observatorio Eleitoral). It therefore had clear nationwide coverage, although there was probably an emphasis on province capitals.

<Figure 4 near here>

Evidently, a newspaper is a well-identified object that may be understood in a specific manner by experimental subjects. However, given that its contents focused on electoral education and it featured both the specific civic education message that was offered in our civic education treatment and a hotline in all respects similar to our hotline treatment, it is reasonable to interpret it as approximating an interaction of both our other treatments. Some results ahead are consistent with this interpretation.

### 3.2 Measurement

The locations covered in our field experiment, 161 in total, including 40 with civic education, 40 with the hotline, 40 with the newspaper, and 41 serving as control group (without any treatment administered), are nationally representative of the population of Mozambique that has access to mobile phone coverage, estimated at approximately 44 percent of the population as of 2008 (GSM Association, 2009). The selection of these locations is the product of two-stage clustered representative sampling, first on provinces, then on enumeration areas (meaning all registered voters in the considered universe had the same probability of being sampled). The sampling framework was the 2004 electoral map of the country (as the 2009 map was only available one month before the election), using as weights the number of registered voters per polling location as provided by the CNE/STAE in their 2004 elections (disaggregated) electoral data electronic publication. As the use of cell phones was central to all our treatments, we eliminated all polling locations without cell phone coverage from the sampling framework. For that purpose, we obtained detailed data from the two cell phone operators on the geographic location of each of their antennae. These were then plotted on a map using their geographical coordinates, with five-km coverage radius drawn on each. Any polling locations outside these balls were dropped from

our national sampling framework. Remarkably, 60 percent of all ballot locations in the country were found to be covered by at least one operator.

The project took place in four provinces, Cabo Delgado, Zambezia, Gaza, and Maputo-Province. The allocation of the treatment and control groups to the full set of enumeration areas (our experimental locations) followed a standard randomization procedure by which (i) clusters of four closest enumeration areas were formed in each province, based upon geographic data on the polling locations; and (ii) each treatment was randomly allocated to one enumeration area in each cluster (using the same probability for all). During the baseline survey, in the event that we found no cell phone coverage in any specific enumeration area, we replaced it by the closest polling location with cell phone coverage. That happened in seven locations<sup>15</sup>. The final full sample of experimental locations, with each treatment represented, is depicted in the map of Figure 5.

<Figure 5 near here>

Measurement in this project comes mainly from activities undertaken in the context of a panel survey, before and after the election<sup>16</sup>. Sampling in each enumeration area followed standard household representativeness ( $n^{\text{th}}$  house calls). However, the interviews targeted household heads or their spouses. Interviews and subsequent treatments were conditional on ‘having access to a cell phone’ for receiving or sending calls/messages. This criterion included households that did not own a cell phone, but did have access to one via a neighbor or family member within the area. The baseline survey included 1,766 households/respondents, 11 per enumeration area. It took place from mid-September to mid-October. Of the 11 respondents per enumeration area, on average two random subjects were purposely not given the treatment in treatment locations. The others were the main targets of the treatment activities (in treatment locations) as described in the last sub-section. The post-election survey started after the election results were announced in

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<sup>15</sup> We have 41 locations in the control group: this is due to the fact that we surveyed in one substitute location that was a posteriori discovered not to be needed. Results do not depend on including this enumeration area.

<sup>16</sup>The fieldwork was undertaken by four teams, contemporaneously in each province, including one supervisor per team and 31 enumerators in total. The surveys were administered mainly using electronic handhelds. At least one of authors was in the field at all stages of the project and directly managed operations.

early November, lasting for a similar period of time. It sought the same respondents, reaching 1,154 of them<sup>17</sup>.

Since the objective was to measure electoral behavior (turnout and voting patterns), perceptions about electoral problems and authority, and the degree of interest and information about politics, both survey instruments were designed to elicit evidence on each of these dimensions<sup>18</sup>. When questions on electoral problems were asked at the baseline, they referred to ‘the current year in the run-up to the October 2009 elections’. During the post-election survey, the same questions focused on what had happened prior to and during the elections (i.e. “during the electoral campaign for the October 2009 elections” and/or ‘during the October 2009 elections’). The questions on voting were based on self-reported actual decisions, when asked after the elections. Subjective questions were approached using verbal qualifiers, with most of them featuring stepwise scales in order to ensure that questions were asked in a balanced manner<sup>19</sup>.

We were particularly careful with our measurement of voter turnout during the post-election survey<sup>20</sup>. We dedicated a module of the questionnaire to asking questions about all details of the election-day experience of the respondent. Crucially, it included asking about which finger was inked (as part of the official, mandatory voting procedure), and verifying whether it still had ink marks (something very commonly found even one month after the elections). However, in addition to ink-related measurements, we asked about both the personal experience during the election-day and legal facts at the ballot station. The former included asking about: who the respondent met the day of the election, with whom he/she went to vote, a description of how to get to the polling location, what else he/she did during the day of the election, how long he/she took to the polling location and time of arrival there, how many ballot stations there were, how

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<sup>17</sup> Attrition in the post-survey period was primarily due to the agricultural season. The primary rainy season in Mozambique, requiring intensive work in the fields (‘machambas’), occurs from November-January of each year. Agricultural workers often temporarily migrate for this reason – that was the most frequent identified reason for panel drops. We provide evidence on demographic balancedness of our panel drops ahead.

<sup>18</sup>The survey instruments in Portuguese are available upon request.

<sup>19</sup>For example, the question on fairness of the vote count was asked in the following way: ‘To what extent may the vote count in the October 2009 elections be considered as fair?’ The scale featured seven points. The first possible answers were read as ‘fair’, ‘neither fair nor unfair’, and ‘unfair’. Depending on the respondent’s answer, the scale then developed to ‘extremely’, ‘very’, and ‘slightly’ fair/unfair. This balanced way of reading scales gives us some assurance that original question-scales may have been perceived linearly by respondents.

<sup>20</sup>This is in view of existing concerns with the standard direct question on voter turnout from Afrobarometer surveys in Mozambique, which consistently overestimates actual voter turnout. See for instance the report for Afrobarometer’s 2008 (round 4) Mozambican survey.

long he/she waited in line to vote, what happened while waiting in line, how many people there were at the polling table and whether anyone was known to the respondent, and what the procedure was when he/she got to the polling table. The latter included asking about: how many ballot papers there were (right answer was three, one for each election), whether there were photos of the candidates (yes), how many ballot boxes there were (three), whether the ballot boxes were transparent (yes), and whether they were coloured (yes). At the end of the module the enumerator, who was trained to watch body language, answered a question on the likelihood that the respondent had voted.

We also use a behavioral measure of demand for political accountability, which we refer to as the ‘open letter’. During the post-election survey the enumeration team explained and distributed a leaflet to all survey respondents in all 161 experimental locations, which invited them to send SMS messages proposing policy priorities to the president-elect for his new mandate. We were clear in conveying the limited extent of the initiative (a small number of experimental localities in the whole of Mozambique), and promised that the contents of these messages would reach the President in person (through the newspaper @Verdade). As with the hotline, each message sent by experimental subjects had a small monetary cost. Sending the message therefore represents a clear costly action. It was observable to us, as all cell phone numbers that sent messages were recorded and matched with those of the experimental subjects. We interpret the sending of an open letter message as an incentive compatible measure of demand for political accountability. Arguably this is a better measure of demand for political accountability than any survey question aimed at capturing the same concept. Such survey questions are usually prone to ‘cheap talk’ and therefore to conformity bias (i.e. conforming to perceived ideas of sponsors of the initiative). The leaflet is depicted in Figure 6. Like the hotline leaflet, it had two sides with two different examples of possible messages. It also included short-codes, format of the message, and sponsors.

<Figure 6 near here>

On top of these improvements over standard survey questions, we also changed our survey design in order to offer evidence of possible conformity biases. Experimental subjects could in principle adapt their responses about politics to whatever they perceived to be the views of the sponsors of the experiment. We asked all questions about politics after, in the middle of the interview, the treated subjects were offered the leaflets (for the civic education and hotline interventions) and the newspaper, with corresponding discussion. This way, we are able to measure whether there

were first reactions to the treatments, namely to the leaflets, by contrasting treatment and control groups for baseline values. Note that differences in perceptions about the past are evidence of conformity. In addition, any conformity bias exhibited by the respondents in the post-election survey would be present in the pre-election survey, so that the difference between the two survey measurements can be taken as closer to the true difference. We therefore use difference-in-differences in our estimation whenever possible.

Finally, we also use the data on electoral problems received at the national hotline of newspaper @Verdade (with 269 verified occurrences during the electoral campaign and election-day). This serves the purpose of offering a real counterpart for the prevalence of electoral problems during the 2009 electoral period in the country, and therefore of offering a reference point for the effects of the treatments on perceptions of electoral problems by experimental subjects.

In Figure 7 we show the sequence of the experiment including treatment and measurement.

<Figure 7 near here>

### 3.3 Estimation Strategy

Our empirical approach is based on estimating treatment effects on a variety of outcome variables. Namely, we are primarily interested in treatment effects on voting behavior and political participation, perceptions about electoral problems and authority, interest and information about politics. We now describe the main econometric specifications we employed, while using data at the individual level, for the estimation of these parameters.

Our design allowed us to estimate average treatment effects in different ways. Most simply, the effect of interest ( $\beta$ ) could be estimated through the specification:

$$\text{Outcome}_{itl} = \alpha + \beta T_l + \sum_{i,l} \epsilon_{itl}, \quad (1)$$

where **Outcome** is an outcome of interest,  $i, l, t = 1$  are identifiers for individuals, locations, and time (specifically, 1 represents the post-election measurement), and  $T_l$  is a vector of three

dummy variables representing the three treatments (civic education, hotline, and newspaper) with value 1 for treated locations.

In this setting, because of small sample size, we can also add location and individual-level control variables to compose one of our main specifications. This is in line with Duflo et al. (2007), who argue that, although controls do not generally change the estimate for the average treatment effect, they can help explaining the dependent variable, and therefore typically lower the standard error of the coefficient of interest. We then have the following core specification:

$$\text{Outcome}_{it} = a + bX_i + cY_l + fT_l + \sum_{it}, \quad (2)$$

where  $X_i$  is a vector of individual (demographic) controls, and  $Y_l$  is a location-level vector of controls.

Specification (2) does not use the time dimension. In any event this may not be possible in some cases as we do not have repeated measurement for all outcomes. However, when possible, it may be relevant to control for differing time trends across treatment and control groups. In this case, specification (3) below uses the pre-intervention data in a classic difference-in-differences regression:

$$\text{Outcome}_{it} = a + bX_{it} + cY_l + dt + eT_l + ft * T_l + \sum_{it}, \quad (3)$$

where  $t = 0$  before the intervention and  $t = 1$  after the treatment. However, once we use the time dimension, we may improve our controls by using individual fixed effects  $\alpha_i$ :

$$\text{Outcome}_{it} = \alpha_i + dt + ft * T_l + \sum_{it}. \quad (4)$$

Note that equivalent to specification (4) we may have instead a first-differenced equation, which composes our other main specification (when we have the time dimension available for our dependent variable). In its simplest version this specification takes the form:

$$\Delta \text{Outcome}_{it} = d + fT_l + \Delta \sum_{it}. \quad (5)$$

Whenever the dependent variable takes a binary value, we use Logit estimations on the same specifications, then taken as latent, displayed above. We cluster standard errors at the level of the enumeration area in all regressions at the individual level.

## 4 Econometric Results

In this section we present our empirical results. We begin with standard balancedness tests, checking whether the randomization of the treatments was effective in identifying comparable treatment and control groups. We then focus on our main results: the effects of the interventions on voter turnout, our behavioral measure of demand for accountability, and voting patterns. We then explore potential mediators by quantifying the effects of the treatments on perceptions of electoral problems and authority, and on interest and information about the elections. We finally present a set of robustness results: the effects on cell phone usage and views about the sponsors of the interventions, the differences between directly targeted subjects and control subjects within treatment areas (externality effects), heterogeneous effects (using the treatments interacted with demographic variables), and the effects on actual electoral problems as measured by the national hotline.

### 4.1 Balancedness

We begin by assessing whether the randomized selection of treated locations was successful in identifying comparable treatment and control groups. We document differences across these groups in terms of a wide range of observable initial characteristics. In Table 1 we contrast our four comparison groups in terms of their demographic profiles, namely basic demographics (gender, age, household size, marital status, schooling), ethnicity, religion, occupation, property and expenditure, and in terms of baseline outcomes, namely turnout and voting intentions, and electoral problems. We display these comparisons for both the baseline and post-election surveys in order to assess the impact of panel attrition. Because demographic variables are unaffected by the intervention, any differences between the various treatment and control groups should be understood as a product of chance.

<Table 1 near here>

We observe that there are no clear differences (at standard significance levels) between the three treatment groups and the control group for the baseline survey sample. The exception is that the newspaper group seems to have a lower proportion of professionals, such as lawyers, accountants, nurses, and engineers, and that the civic education group seems to have a higher proportion of public officials (both are significant at the 10% level). In addition P-values from joint Chi-Squared over the Probit of the treatment (regressed on each subset of demographic and baseline variables) are insignificant<sup>21</sup>. The post-election survey sample, including the panel attrition, yields a similar pattern of differences across treatment and control: only artisans and public officials seem to be slightly different, and only for the civic education intervention. This is therefore evidence that the randomization was generally effective in isolating similar groups of locations and respondents, and that panel attrition did not significantly change the comparability of treatment and control groups. The fact that observables are balanced across treatments and control makes it reasonable to expect that unobservable dimensions are balanced as well.

Note specifically that baseline outcome variables seem not to be different for treatment and control locations. This result implies that first reactions to the treatments were not significant, as the baseline outcomes were measured after the leaflets and newspapers were presented to experimental subjects. Importantly this is evidence against conformity biases, when considering perceptions of electoral problems (perceptions about the respondents' past experience). It also constitutes evidence that the leaflets may have not been central to changes in electoral behavior in civic education and hotline locations.

Table 1 provides complete descriptive demographics for our survey sample, in the process providing a comprehensive description of our experimental locations. The average respondent in the control group was 38 years old, the main ethnicities represented were Changana (the dominant group in the South) and Macua (the dominant group in Cabo Delgado), the average expenditure per household was 127 MZN per day (just over 4 USD), and 71 percent of the households owned a cell phone. In terms of voting intentions, we observe an extreme pattern: 98 percent of respondents expected to vote, and 93 percent reported a preference for FRELIMO.

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<sup>21</sup> These P-values are: (civic education/hotline/newspaper, respectively) 0.254/0.549/0.378 (basic demographics), 0.963/0.726/0.991 (ethnicity), 0.741/0.709/0.819 (religion), 0.231/0.530/0.525 (occupation), 1/0.725/0.975 (property and expenditure), and 0.989/0.883/0.667 (baseline outcomes).

## 4.2 Voter Turnout

Table 2 reports on our regressions estimating the effect of the treatments on voter turnout. We use four different proxies of individual turnout. The first is based on the interviewer's assessment of the likelihood that the respondent voted after asking the survey module covering the questions on the respondent's election-day experience. The second is based on whether the right (inked) finger was shown by the respondent without hesitation. The third is based on a composite of all questions on the election-day experience (including personal experience during that day). The answer to each question was classified according to whether the respondent was convincing in terms of showing that he/she voted in the October elections. The fourth was based on a sub-group of the questions asked, focusing on specific knowledge of the ballot station facts (the number of ballot papers, whether there were photos of the candidates, the number of ballot boxes, whether they were transparent, and whether they were coloured). Note that overall turnout in our sample using these four turnout versions is: 77.8 (interviewer), 84.8 (finger), 75.7 (average questions), and 82.2 (average questions - ballot station facts) percent. These figures compare to pure self-reported turnout of 91.3 percent, a clearly higher value.

We use Logit estimations with specifications (1) and (2) as latent equations. Note that we focus on post-election measurements, and therefore focus on single-difference estimations, provided the richness of information we have at that point in time. For each outcome we therefore show regressions without any controls and with province dummies and individual demographic controls<sup>22</sup>.

<Table 2 near here>

We observe clear effects of the civic education and the hotline treatments on all voter turnout measures. These effects are usually significant at the 1 or 5 percent level and robust across specifications (with and without controls). We also find positive effects for the newspaper treatment, although we do not achieve statistical significance when using the finger-measured turnout. Overall, the size of the effects is 5-10 percent for the civic education treatment, 6-10 percent for the hotline treatment, and 6-8 percent for the newspaper treatment. Thus, all

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<sup>22</sup> Individual controls were chosen from a wide range of variables: gender, age, household head and size, marital status, ethnic group and language, religion (faith, intensity), schooling, job status, occupation, property, household expenditure and welfare.

interventions had a considerable impact on voter turnout, which was indeed one of the main objectives of the voter education initiatives we study in this paper.

### 4.3 Behavioral Measure of Demand for Accountability

We now turn to the effects of the intervention on the sending of SMS messages by experimental subjects under our open letter system started with the post-election survey. This system was available to receive the policy priorities for the new president-elect, as desired by the citizens. Any message sent was costly and therefore can reasonably be interpreted as constituting demand for political accountability. We matched the cell numbers with those recorded for the survey respondents, and therefore are able to construct a dummy variable with value 1 for those subjects for whom we identified their cell number in the open letter list. We run Logit regressions using specifications (1) and (2), without and with controls, as the latent equations. The results are displayed in Table 3. Since sending a message required an understanding of what the system was meant to achieve, when receiving a message we may be facing differing interpretations about the open letter. Some of these interpretations (e.g. a respondent may have the hope that he/she will receive a gift as a result of sending an SMS) may not be strictly related to the notion of political accountability that was meant for this initiative. We therefore feel it may be particularly important to use control variables if one wants to explain the open letter outcome variable.

<Table 3 near here>

We first note that 18 percent of the experimental subjects sent at least one message to the open letter. This represents a clear degree of adherence to the initiative. We find positive effects of the civic education and newspaper treatments on the sending of messages for the open letter. However, in contrast to the previous result, we only find a statistically significant impact for the newspaper variable, which is at the 5 percent level with controls. This effect represents a 10 percent higher probability of sending a message for the newspaper areas as compared to control areas. Interestingly, despite no statistical significance is achieved for the hotline intervention, the signs of the corresponding coefficients are negative, which may suggest that political accountability was discouraged by that treatment. We may then summarize that only the newspaper clearly increased the demand for political accountability as measured by our open letter.

#### 4.4 Voting Patterns

We now analyze the effects of the interventions on the answers to the question ‘We would like to know what you think about each one of the parties running for the October 2009 elections. [Party]: Like/Dislike (1-5 subjective scale)’. In Table 4 we depict the effects of each treatment on the ratings of the main parties, i.e., FRELIMO, RENAMO, and MDM. We run OLS regressions using difference-in-difference specifications (3) and (5), with full controls (province dummies and individual demographics) and with individual fixed effects, respectively. The difference-in-difference approach makes use of the fact that the above question was asked both before and after the elections, and that it is strictly comparable across those two moments in time.

<Table 4 near here>

The results are unclear for FRELIMO and MDM, as no statistical significance is achieved. However, both the hotline and the newspaper @Verdade seem to induce a negative effect on ‘liking RENAMO’. The hotline effect is clear, as it is statistically significant both with controls and fixed effects (at the 5 percent level with controls). Both treatments induce an effect that ranges from 4 to 5 percent of the subjective scale<sup>23</sup>. We interpret this effect on RENAMO standings to be related to a number of violent events perpetrated by the main RENAMO campaigning convoy. Indeed one of these events occurred close to some of our experimental locations in Cabo Delgado province. It was reported to our hotline, and therefore made it to the cell numbers of experimental subjects in hotline locations after verification, as part of our hotline’s dissemination promise. A potentially important implication of these results is that experimental subjects are responsive to the political content of the information they were given through the interventions we study in this paper.

#### 4.5 Perceptions of Electoral Problems and Authority

We now turn to possible mediators for the changes in electoral behavior we have analyzed above. Indeed, before the treatments have induced changes in the political actions of experimental subjects, they likely provoked changes in their perceptions. We investigate the effects of the interventions on perceptions about electoral problems, namely fraud, vote-buying, and violence

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<sup>23</sup> These effects are computed by dividing the relevant coefficient by the length of the scale used.

occurrences. We also examine effects on views about the relationship to national and local political authorities.

In Table 5 we depict the regressions of fraud, vote-buying, and violence perceptions. For fraud, we use questions on whether ‘the October 2009 elections were free and fair’ (the scale was 1-4, ranging from ‘completely free and fair’ to ‘neither free nor fair’), in general and focusing on ballot fraud specifically, and a question about vote-miscounting, i.e. ‘to what extent was the vote-counting process in the October 2009 election fair?’ (the scale was 1-7 on fair-unfair qualifiers). Regarding vote-buying, we exploit a question on the use of public resources for campaigning, namely of schools for affixing campaign posters (1-7 scale on the frequency of use of public resources), and the same question above on free and fair elections, this time focusing on vote-buying (same 1-4 scale as above). Concerning violence, we employ questions on whether ‘competition between parties led to violent conflict during the October 2009 elections’ (the scale ranged 1-4, from ‘never’ to ‘always’), on the extent to which ‘the local population was afraid of violence related to politics’ (1-7 scale, using ‘not afraid’-‘afraid’ qualifiers), and on ‘how often local people were threatened with negative consequences in case they did not vote in a certain way’ (the scale was 1-4, ranging from ‘never’ to ‘many times’). We use OLS regressions on single-difference specifications (1) and (2), without and with controls, or on double-difference specifications (3) and (5), with controls or individual fixed effects, depending on baseline data availability.

<Table 5 near here>

We can report an interesting pattern of treatment effects by which civic education seems to have reduced perceptions of fraud (vote-miscounting by 3 percent) and violence (party-level violent conflict by 5 percent), and by which the hotline seems to have increased perceptions of fraud (free and fair elections, general and ballot-fraud, by 5 percent) and violence (afraid of violence related to politics by 7 percent). Note that the newspaper increased the perception of vote-buying (as given by the use of public resources for campaigning, which increased by 6 percent, and the free-and-fair qualification focusing on vote-buying, which decreased by 6 percent), but decreased fears of violence (electoral intimidation decreased by 2-3 percent).

Although all three treatments provided voters with information, we find evidence that their different contents may have led to diverse reactions by experimental subjects. Indeed, it is

intuitive to take civic education as conveying an overall positive tone, since it focused on how the electoral system is organized. To some extent it was designed to enhance voter confidence in politics. In contrast, the hotline is focused entirely upon violations of the system, and so may contribute, as we now verify, to an increase in the perceived electoral malfeasance. The newspaper results are consistent with the interpretation of the newspaper treatment as an interaction of the civic education and the hotline treatments. In effect, the newspaper combines generic information on how the system works, with reports of violations (through news and the availability of the national hotline). In principle, the newspaper could therefore either enhance or weaken confidence in the political process.

We now turn to whether the three treatments affected views about political authority. In Table 6 we analyze responses to questions on whether ‘elections and the parliament should be abolished so that the president decides everything’ (agree-disagree question on a 1-5 scale), on awareness of ‘dependence on local chiefs in the day-to-day life’ (the scale was 1-7 on frequency of dependence), and on awareness of ‘fear of local healers’ (the scale was 1-7 on the degree of fear). Note that the latter is an important channel of political power in Mozambique, as local healers normally have considerable influence over the general population. We run OLS regressions using specifications (1) and (2) for single-difference.

<Table 6 near here>

Civic education increased awareness of dependence on local chiefs and of fear of local healers (6 percent, significant at the 10 percent level). These effects are consistent with the strictly didactic character of the civic education intervention. The hotline increased the preference that the system should be changed so that the president would rule alone (also a 6 percent effect), which may be a natural reaction in face of the electoral problems experimental subjects were faced with through the hotline. We do not observe effects of the newspaper treatment on these variables. We then conclude that while the civic education intervention tended to decrease the perception of electoral problems, it increased awareness of the realities of localized power. In contrast, the hotline increased awareness of electoral problems, thereby increasing the demand for system change by means of enhanced presidential power. There are, thus, quite different channels of perception change across the different interventions. They help us understand in a more precise manner how the interventions impacted the population.

## 4.6 Interest and Information about Elections

We now turn to outcomes related to the interest respondents had about the 2009 elections and to specific testable information they had about those elections. These may be important mediators for changes in behavior, as all the interventions directly aimed at increasing interest about the elections, and at providing experimental subjects with specific information about the elections. In Table 7 we display the regressions estimating the corresponding treatment effects. We first look at the general interest experimental subjects had about the 2009 elections (a 1-4 scale was used on strength of interest). We then display results concerning three specific electoral knowledge questions: on whether the respondent could name all three presidential candidates (a binary outcome taking value 1 in the affirmative case), on whether he/she could name the parties running in the parliamentary elections (this outcome variable takes value 2 if the respondent could name more than two parties, value 1 if the respondent could name two parties, usually FRELIMO and RENAMO, and value 0 otherwise), and on whether he/she could explain what the word ‘abstention’ stands for (a 0-2 scale was used on the quality of the explanation). We run OLS and Logit regressions using single-difference specifications (1) and (2), without and with individual controls.

<Table 7 near here>

Our results show quite clearly that the hotline was most effective in raising interest and information about the elections. It induced a 5 percent increase in reported interest about the elections, and very clear positive effects on knowing the presidential candidates and the parties running for the parliament (statistical significance ranging from 1 to 5 percent when using controls). In particular, the effect of the hotline on the ability to correctly state the presidential candidates and parties running in the October 2009 elections was 13 and 6 percent (respectively). The newspaper @Verdade also increased the knowledge about presidential candidacies by 13 percent (significant at the 1 percent level). It also induced an increase in the ability to explain the concept of abstention correctly (6 percent effect). Finally, the civic education intervention was also able to raise knowledge about the presidential candidates by 9 percent (significant at the 1 percent level), but had no other clear effects. We are therefore able to report on unambiguous effects of all interventions on the information citizens had about the 2009 elections.

## 4.7 Robustness

We now turn to a series of auxiliary exercises and robustness checks. We begin by reporting treatment effects on cell phone usage and views/information about newspaper @Verdade and the electoral commission (CNE). We then explore the comparison of treated and untreated experimental subjects within treatment locations, in order to provide evidence of externality effects. Heterogeneous effects of the different treatments then constitute the target of our analysis, through the estimation of the effects of the interaction of the interventions with demographic characteristics. We finally look at the effects of the treatments on the incidence and intensity of actual electoral problems as reported in the national hotline of newspaper @Verdade.

In Table 8, we report the effects of the interventions on cell phone usage (1-5 scale from ‘never’ to ‘everyday’), knowledge about the price of newspaper @Verdade (a binary variable with value 1 if the respondent stated that the newspaper is free), its reading frequency (1-5 scale from ‘never’ to ‘everyday’), trust over the newspaper, and trust over the electoral commission (both trust questions are on a 1-7 subjective scale). We find clearly significant effects of the hotline and the newspaper on cell phone usage: 9 percent, significant at the 1 percent level. This pattern of effects is consistent with the presence of the hotlines (our treatment and the newspaper’s national hotline), which invited subjects to have an active role regarding the use of cell phones (i.e. sending text messages). We also find clear effects on knowledge of the price of @Verdade, its reading frequency, and trust over that newspaper (all significant at the 1 percent level) for treatment areas where the newspaper was distributed. We do not find any statistically significant effects on these outcomes when considering the other treatments. Finally, we observe most robust effects of civic education and the newspaper (significant at the 5 percent level) on trusting CNE. This pattern of effects is consistent with the fact that the CNE/STAE leaflet was provided in both these treatments but not in the hotline treatment.

<Table 8 near here>

In Table 9, we describe the regressions of a selection of our main political outcomes (voter turnout proxied by the interviewer assessment and the finger measurement, open letter, and preference for RENAMO) using as treated respondents those targeted with the interventions within treated locations. This exercise is related to the literature on the network effects of voter mobilization/education interventions (Nickerson, 2008; Fafchamps and Vicente, 2009). In each

regression we only use the observations corresponding to experimental subjects in the locations where a specific treatment was implemented. We use the same specifications as in the main regressions: single difference with controls for all outcomes except preference for RENAMO, for which we use difference-in-differences with controls. Interestingly, we find that effects are very similar when comparing the different kinds of experimental subjects for all different treatments. This evidence is consistent with externality effects of the interventions towards respondents that were not directly treated. We do however note an exception to this statement, which emerges for voter turnout in newspaper areas only: in those locations, directly treated respondents turned out to vote less frequently than their un-targeted counterparts. We suggest that this may be a particular type of externality effect, by which un-targeted individuals may have acted more frequently on the voter education message received (at the location level), as they attributed a higher value to accessing the newspaper, a good with a clearly defined consumption value (contrary to the leaflets or SMS received under the other interventions).

<Table 9 near here>

If any doubt remained with respect to the measurement of our main political outcomes, this exercise also helps us interpret our effects away from pure conformity-like effects by which experimental subjects could have reported specific outcomes as a response to knowing about the contents of our interventions. Indeed, experimental subjects faced with a clear treatment message by the fieldworkers are reported to behave in very similar ways to subjects not faced with that message.

In Table 10 we depict heterogeneous effects of the different interventions, by using demographic dimensions interacted with the treatment variables. We again focus on the main political outcomes in this paper (turnout, as measured by the interviewer's assessment, open letter, and preference for RENAMO). For consistency with the main regressions shown on these outcomes, we only use a time-differenced dependent variable for preference for RENAMO. We do not include further controls than the ones included on the table. We find some interesting patterns. Male subjects' turnout seems to be harmed by the newspaper relative to female subjects'. This is an important finding as males are significantly more likely to vote than females in Mozambique. However, males were induced to participate in the open letter relatively more often by the civic education intervention. More educated respondents reported a lower preference for RENAMO when confronted with newspaper @Verdade. Respondents working at home and not owning

cattle turned out to vote more frequently when faced with the newspaper treatment. Finally, experimental subjects owning a cell phone respond with respect to both the newspaper and the hotline: they are more likely to vote in newspaper areas and less likely to like RENAMO in hotline areas (both effects are in line with the average treatment effects).

<Table 10 near here>

In Table 11 we explore the possibility that there was treatment contamination to nearby enumeration areas. We regress our main outcomes (turnout proxied by the interviewer assessment and by inked fingers, open letter, and preference for RENAMO) on distance to closest treatment enumeration area (distinguishing by treatment). We focus on data from control locations. We find that the hotline treatment seems to have spread to nearby locations in terms of impact on turnout and political participation in the open letter. We do not observe evidence of any other spillover effects between enumeration areas. We therefore should interpret the average treatment effects of the hotline on political participation, with caution, as these are likely underestimated.

<Table 11 near here>

We finally use the national hotline data from newspaper @Verdade to check whether there were real effects of the intervention in terms of the incidence and intensity of electoral problems. It is not likely that we pick up any effects using the referred data, as the dissemination of the national hotline did not match closely our experimental locations and the geographical identification of the occurrences in this hotline was often reported at the level of the district. We have coded each event on the national hotline according to its intensity<sup>24</sup>. The measure of incidence we use is simply the count of occurrences per enumeration area. The measure of intensity we employ is the average intensity of the occurrences at each enumeration area. We present the treatment effects on both these outcome variables in Table 11. Despite the fact that we find a consistently negative effect for all treatments across different specifications and the two outcomes, we cannot find statistical significance at standard levels. We conclude, with caution, that the interventions are not likely to have had clear effects on the emergence of actual electoral problems. This is the most accurate comparison term we can present for our earlier perception results.

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<sup>24</sup> The scale used was 1-5 according to the following objective thresholds: 5, occurrences resulting in dead people; 4, occurrences resulting in physically wounded people; 3, occurrences leading to physical intimidation, including vandalism; 2, non-violent campaign occurrences including vote-buying, and election-day problems; 1, minor campaign occurrences.

<Table 12 near here>

## 5 Concluding Remarks

We have shown in this paper that different forms of voter education are effective in driving higher voter turnout and electoral participation, while providing information about politics. Clearly, citizens respond to modest insertions of political information. These results were achieved in the context of the 2009 Mozambican elections. Mozambique has been marked by increasingly low voter turnout and weak political accountability, compounding a high level of citizen apathy. We note that a free newspaper embedding both a hotline for electoral problems and a specific civic education message (in the context of the election) was particularly effective in increasing voter turnout (particularly of women) and the demand for political accountability. Our mobile phone hotline treatment was very effective in providing information and in driving higher turnout (namely of subjects with higher education), but led to higher perceptions of electoral problems. By raising awareness of electoral problems it also changed the preferences for the political system. Our civic education treatment was successful in increasing voter turnout, led to lower perceptions of electoral problems, and to higher awareness of dependence from local authorities.

In a moment where many African elections have become less violent, less dependent on obvious vote-buying, and less fraudulent (if we understand fraud strictly as a voting-day possibility), it is important to understand why incumbents have been by and large reinforcing their position. While there is value in making elections more transparent and in tackling specific electoral problems, those efforts may not suffice to realize genuine electoral competition. Incumbents may have learnt ways to bend the electoral system in their favor, well prior to election-day by taking advantage of weak political accountability. While education levels may take generations to change, voter education, specifically oriented to increase political participation and the demand for policy-accountability, may be an effective way to improve democracy and the political incentives for development. In designing voter education, this paper has shown that the use of information and communication technologies, recently available and increasingly expanding in the African context, may open new and effective avenues for long term building of a more informed citizenry.

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Appendix

Figure 1: Turnout and Score Trends In Mozambican Elections

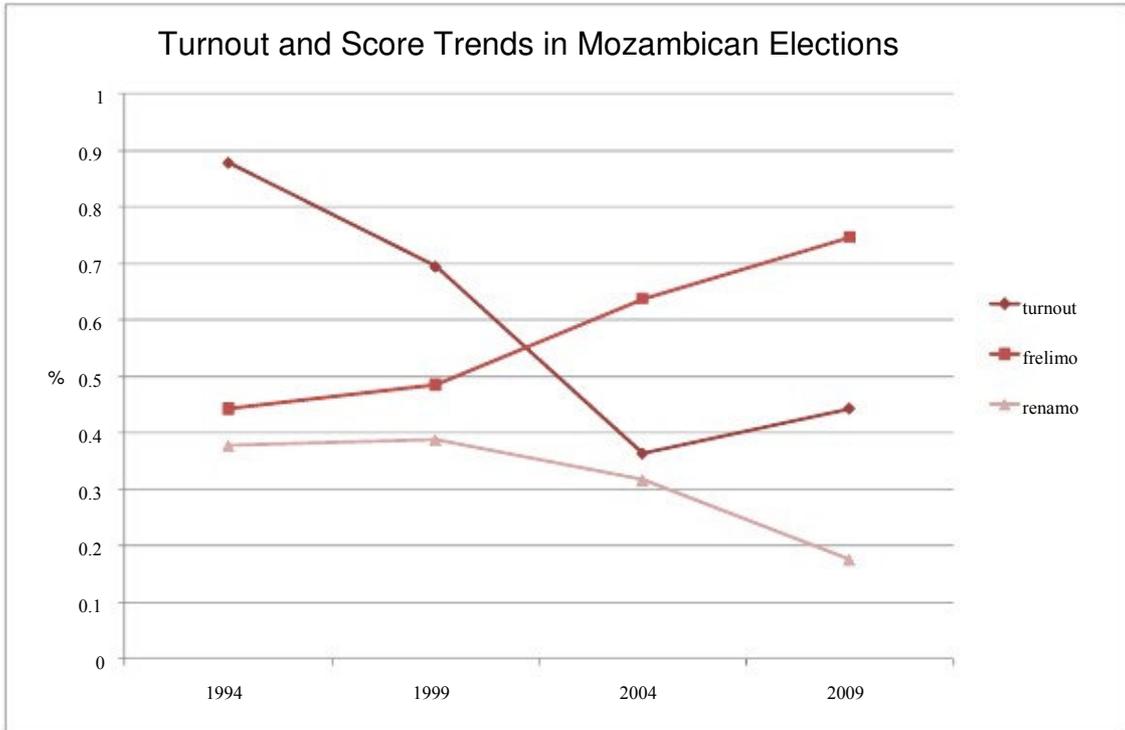


Figure 2: Civic Education Leaflet by CNE/STAE

1 só dia

# 28

Outubro 2009





Por Eleições Livres, Justas e transparentes



## PASSOS DE *Votação*

4<sup>as</sup> ELEIÇÕES GERAIS (Presidenciais e Legislativas) e  
1<sup>as</sup> ELEIÇÕES para as Assembleias Provinciais

A votação é feita da seguinte forma:

- a) O eleitor ao apresentar-se perante a Mesa da Assembleia de Voto mostra as suas mãos aos MAV e entrega o seu cartão de eleitor.
- b) Reconhecido o eleitor e verificada a sua inscrição, o presidente da mesa entrega-lhe três boletins de voto (um para eleição do Presidente da República, outro dos deputados da Assembleia da República e outro para eleição dos Membros da Assembleia Provincial).
- c) De seguida o eleitor dirige-se à cabina de voto e sozinha, assinala com uma cruz ou com a impressora digital, caso não saiba escrever, no quadrado correspondente à candidatura em que vota e, por fim, dobra o boletim em quatro partes.
- d) Ponho à mesa, o eleitor deposita cada boletim no urno correspondente. Cada urno contém uma tampa com uma cor diferente da outra, com indicação PR (Presidente da República), AR (Assembleia da República) e AP (Assembleia Provincial), respectivamente. O 1<sup>o</sup> escrutinador confirma a votação, rubricando o caderno de recenseamento eleitoral na coluna própria e no espaço correspondente ao nome do eleitor.
- e) Depois de exercer o seu direito de voto, o eleitor mergulha o dedo indicador direito em tinta especial (esta tinta não desaparece durante vários dias).
- f) Finalmente, o eleitor recebe o seu Cartão de Eleitor e retira-se da Assembleia de Voto.

NB: Se o eleitor inadvertidamente inutilizar um boletim de voto, deverá pedir outro ao presidente da mesa, devolvendo-lhe o inutilizado.

Figure 3: Hotline Leaflet

# MELHORAMOS AS ELEIÇÕES!

REPORTE PROBLEMAS DURANTE **A CAMPANHA ELEITORAL**

---



ENVIE MENSAGENS SMS FORMATO

LOCAL *espaço* PROBLEMA

POR EXEMPLO

**“EPC Quelimane distúrbios no comício”**

PARA

**82 1112** OU **84 13333**

---




APOIO: **OBSERVATÓRIO ELEITORAL**

AMODE, CCM, CEDE, CEM, CISLAMO, FECIV, LDH, OREC

**csae**  
CONSELHO SUPLENTE  
ARBITRAL PORTUGUÊS



**mcel**

AMODE (Associação Moçambicana para o Desenvolvimento)    CEDE (Centro de Estudos de Democracia e Desenvolvimento)

CCM (Conselho Cívico de Moçambique)    CISLAMO (Conselho Islâmico de Moçambique)

Comissão Episcopal de Justiça e Paz da Igreja Católica    FECIV (Instituto de Educação Cívica)

LDH (Liga Moçambicana dos Direitos Humanos)    OREC (Organização para Resolução de Conflitos)

# MELHORAMOS AS ELEIÇÕES!

REPORTE PROBLEMAS DURANTE **O DIA DAS ELEIÇÕES**

---



ENVIE MENSAGENS SMS FORMATO

LOCAL *espaço* PROBLEMA

POR EXEMPLO

**“EPC Quelimane estação de voto mudou”**

PARA

**82 1112** OU **84 13333**

---




APOIO: **OBSERVATÓRIO ELEITORAL**

AMODE, CCM, CEDE, CEM, CISLAMO, FECIV, LDH, OREC

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Figure 4: Newspaper @Verdade (front page – edition before election; civic education page; hotline page)

**@Verdade** Sua edição: 23 de Outubro de 2009  
Junta Diretiva: Vitor Paredão  
Edição Nº 361  
Ano 1  
Divisor: Erik Chara

15.969.508.888 Inscrição Certificada pela STAE

Facebook.com/jornal.verdade • Twitter.com/verdade • www.verdade.co.mz

**Quarta-feira, dia 28, o povo tem a palavra**  
Eleições | 28 Outubro | 1 30' 45s

**Vamos votar**

**4<sup>as</sup> ELEIÇÕES GERAIS**  
Presidenciais e Legislativas e

**1<sup>as</sup> ELEIÇÕES**  
para as Assembleias Provinciais

**Vamos Votar**  
28 Outubro 2009

**As escolhas para as Legislativas**

**As escolhas para as Provinciais**

**As escolhas para a Presidência**

**Conte-nos a sua experiência de votar no próximo dia 28**  
Envie uma mensagem SMS de 160 caracteres ao número 821111 • 8412222

**PASSOS DE Votação**

**4<sup>as</sup> ELEIÇÕES GERAIS**  
Presidenciais e Legislativas e

**1<sup>as</sup> ELEIÇÕES**  
para as Assembleias Provinciais

**Vamos Votar**  
28 Outubro 2009

**CNE**  
COMISSÃO NACIONAL DE ELEIÇÕES

**STAE**  
SISTEMA NACIONAL DE AUTOMAÇÃO ELETRÓNICA

**CIDADÃO REPORTEUR**

**821111 8412222**

**Viu um Problema? Tem uma ocorrência? Ajude-nos a proteger o voto dos moçambicanos!**

Envie uma mensagem útil:

Envie a sua SMS com o formato LOCAL (bairro, localidade, província) espaço ocorrência. Por exemplo:

**VOCÊ pode ajudar! Seja um CIDADÃO REPÓRTER!**

Envie a sua ocorrência sobre a campanha eleitoral, partilha o que viu e o que está a acontecer onde está!

Através do envio de mensagens de texto SMS, ou preenchendo um formulário disponível nesta página (<http://www.verdade.co.mz/eleicoes2009/>), o cidadão moçambicano poderá ser, já durante a campanha eleitoral e no dia do voto, repórter do que for vendo, informando sobre qualquer ocorrência que fuja à normalidade e às regras estabelecidas.

Com a nossa participação nesta iniciativa estamos, sem dúvida, a ser mais cidadãos. Estamos a lutar pela integridade, pela pureza e pela clareza do processo que queremos que seja tão transparente quanto o foram as urnas de voto no último pleito autárquico.

A veracidade do conteúdo será comprovada por todos os outros cidadãos repórteres pois se não for verdade, a mentira tem pernas curtas, o teor da mensagem será prontamente desmentido por qualquer indivíduo atento.

"Zumbo, Tete há conflitos na rua participar"

Figure 5: Experimental Locations in Cabo Delgado, Zambezia, Gaza and Maputo-Province

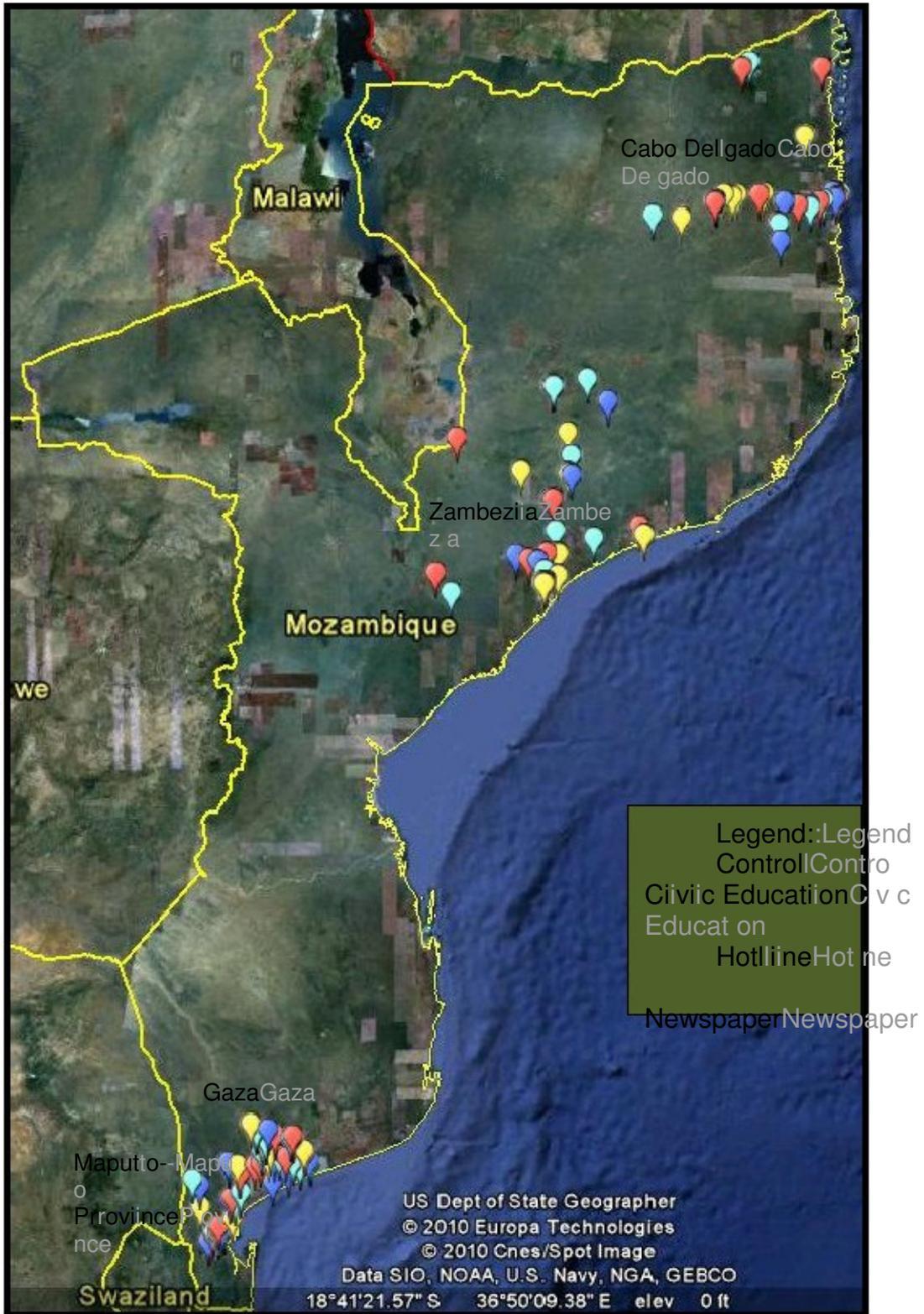




Figure 7: The Time Frame of the Experiment

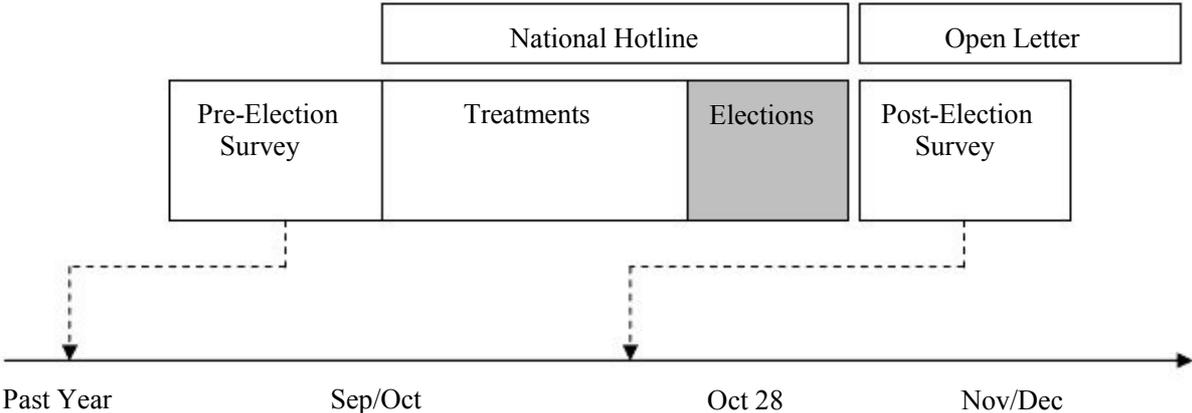


Table 1a: Differences across Treatment and Control Areas - Demographics

|                    |                | Baseline (Full) Sample |                 |                 |                 | Post-Election Sample |                 |                 |                 |
|--------------------|----------------|------------------------|-----------------|-----------------|-----------------|----------------------|-----------------|-----------------|-----------------|
|                    |                | Control                | Civic Education | Hotline         | Newspaper       | Control              | Civic Education | Hotline         | Newspaper       |
| Basic Demographics | male           | 0.454                  | -0.028<br>0.031 | 0.007<br>0.030  | 0.013<br>0.031  | 0.437                | -0.061<br>0.040 | 0.022<br>0.042  | 0.039<br>0.041  |
|                    | age            | 38.321                 | -1.182<br>1.216 | -0.083<br>1.288 | -1.664<br>1.201 | 36.957               | 0.025<br>1.262  | 1.863<br>1.408  | -0.315<br>1.398 |
|                    | household size | 5.657                  | 0.331<br>0.261  | 0.352<br>0.220  | 0.177<br>0.233  | 5.789                | 0.176<br>0.268  | 0.399<br>0.253  | 0.168<br>0.270  |
|                    | single         | 0.164                  | 0.017<br>0.027  | 0.020<br>0.027  | 0.018<br>0.030  | 0.186                | -0.025<br>0.035 | 0.005<br>0.038  | -0.029<br>0.038 |
|                    | school (0-9)   | 2.458                  | -0.168<br>0.218 | 0.155<br>0.237  | -0.021<br>0.202 | 2.509                | -0.207<br>0.237 | 0.043<br>0.247  | -0.106<br>0.219 |
|                    | changan        | 0.342                  | 0.028<br>0.088  | 0.009<br>0.088  | 0.029<br>0.091  | 0.355                | 0.009<br>0.091  | 0.011<br>0.093  | 0.016<br>0.094  |
| Ethnicity          | macua          | 0.231                  | -0.030<br>0.081 | -0.006<br>0.081 | -0.030<br>0.079 | 0.244                | -0.038<br>0.085 | -0.009<br>0.087 | -0.039<br>0.083 |
|                    | lomue          | 0.104                  | -0.008<br>0.056 | -0.031<br>0.051 | 0.003<br>0.060  | 0.118                | -0.007<br>0.067 | -0.048<br>0.058 | 0.000<br>0.071  |
|                    | chuabo         | 0.093                  | 0.012<br>0.050  | -0.002<br>0.051 | 0.000<br>0.055  | 0.100                | 0.004<br>0.056  | -0.020<br>0.052 | -0.010<br>0.058 |
|                    | chironga       | 0.064                  | -0.022<br>0.027 | -0.021<br>0.027 | -0.015<br>0.029 | 0.061                | -0.021<br>0.025 | -0.021<br>0.024 | -0.018<br>0.027 |
|                    | maconde        | 0.040                  | 0.009<br>0.034  | -0.003<br>0.033 | -0.003<br>0.028 | 0.018                | 0.029<br>0.029  | 0.019<br>0.032  | 0.018<br>0.019  |
|                    | catholic       | 0.398                  | -0.051<br>0.050 | -0.054<br>0.055 | -0.046<br>0.050 | 0.401                | -0.012<br>0.058 | -0.076<br>0.062 | -0.072<br>0.057 |
| Religion           | protestant     | 0.341                  | 0.033<br>0.062  | 0.006<br>0.065  | 0.007<br>0.062  | 0.319                | 0.027<br>0.063  | 0.043<br>0.069  | 0.036<br>0.064  |
|                    | muslim         | 0.206                  | -0.001<br>0.061 | 0.035<br>0.068  | 0.032<br>0.068  | 0.215                | -0.017<br>0.065 | 0.030<br>0.073  | 0.036<br>0.071  |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

For the baseline survey (full sample), P-values from joint Chi2 test over Probit of treatment variable are:

(for each subsection of the table; civic education/hotline/newspaper, respectively)

0.254/0.549/0.378 (basic demographics), 0.963/0.726/0.991 (ethnicity), and 0.741/0.709/0.819 (religion).

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. These results come from OLS regressions.

Table 1b: Differences across Treatment and Control Areas - Demographics

|                          | Baseline (Full) Sample |                 |         |           | Post-Election Sample |                 |          |           |        |
|--------------------------|------------------------|-----------------|---------|-----------|----------------------|-----------------|----------|-----------|--------|
|                          | Control                | Civic Education | Hotline | Newspaper | Control              | Civic Education | Hotline  | Newspaper |        |
| Occupation               | agriculture            | 0.343           | 0.022   | -0.024    | -0.035               | 0.351           | 0.011    | -0.016    | -0.039 |
|                          |                        |                 | 0.056   | 0.060     | 0.058                |                 | 0.063    | 0.069     | 0.065  |
|                          | trade                  | 0.033           | 0.011   | 0.015     | 0.002                | 0.043           | 0.000    | 0.007     | -0.004 |
|                          |                        |                 | 0.014   | 0.014     | 0.014                |                 | 0.018    | 0.019     | 0.020  |
|                          | artisan                | 0.044           | -0.018  | 0.004     | 0.005                | 0.050           | -0.034** | -0.003    | 0.011  |
|                          |                        |                 | 0.012   | 0.013     | 0.014                |                 | 0.015    | 0.017     | 0.020  |
|                          | manual unskilled       | 0.056           | -0.011  | 0.016     | 0.013                | 0.054           | -0.014   | 0.003     | 0.011  |
|                          |                        |                 | 0.017   | 0.018     | 0.017                |                 | 0.018    | 0.020     | 0.020  |
|                          | wage-employee          | 0.029           | -0.011  | 0.003     | -0.001               | 0.032           | -0.009   | -0.006    | -0.018 |
|                          |                        |                 | 0.011   | 0.012     | 0.013                |                 | 0.014    | 0.015     | 0.014  |
|                          | professional           | 0.033           | -0.018  | -0.013    | -0.019*              | 0.022           | -0.015   | 0.002     | -0.011 |
|                          |                        |                 | 0.012   | 0.012     | 0.011                |                 | 0.011    | 0.013     | 0.011  |
|                          | teacher                | 0.044           | 0.000   | 0.022     | 0.010                | 0.047           | -0.006   | 0.010     | 0.004  |
|                          |                        | 0.014           | 0.025   | 0.016     |                      | 0.015           | 0.026    | 0.019     |        |
| public official          | 0.020                  | 0.027*          | 0.012   | 0.006     | 0.025                | 0.032*          | 0.008    | -0.000    |        |
|                          |                        | 0.015           | 0.012   | 0.012     |                      | 0.019           | 0.014    | 0.016     |        |
| student                  | 0.031                  | 0.011           | 0.001   | 0.011     | 0.040                | 0.007           | -0.009   | -0.004    |        |
|                          |                        | 0.015           | 0.013   | 0.013     |                      | 0.019           | 0.018    | 0.017     |        |
| household labor          | 0.137                  | -0.006          | -0.022  | -0.016    | 0.147                | -0.003          | -0.033   | -0.018    |        |
|                          |                        | 0.024           | 0.025   | 0.025     |                      | 0.030           | 0.030    | 0.031     |        |
| Property and Expenditure | house                  | 0.847           | 0.002   | 0.004     | -0.022               | 0.853           | 0.013    | 0.016     | -0.018 |
|                          |                        |                 | 0.029   | 0.027     | 0.027                |                 | 0.030    | 0.030     | 0.032  |
|                          | land                   | 0.608           | -0.008  | 0.018     | -0.018               | 0.652           | -0.055   | -0.045    | -0.047 |
|                          |                        |                 | 0.051   | 0.047     | 0.051                |                 | 0.056    | 0.057     | 0.059  |
|                          | cattle                 | 0.255           | -0.001  | -0.009    | 0.013                | 0.254           | -0.006   | 0.007     | 0.004  |
|                          |                        |                 | 0.040   | 0.043     | 0.044                |                 | 0.045    | 0.052     | 0.049  |
|                          | cell phone             | 0.710           | -0.001  | 0.051     | 0.034                | 0.706           | 0.022    | 0.056     | 0.022  |
|                          |                        | 0.059           | 0.058   | 0.055     |                      | 0.065           | 0.065    | 0.064     |        |
| expenditure              | 127.203                | 3.526           | -0.860  | 3.431     | 122.452              | 1.162           | 8.942    | 4.192     |        |
|                          |                        | 16.270          | 15.926  | 16.008    |                      | 16.730          | 17.000   | 16.157    |        |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

For the baseline survey (full sample), P-values from joint Chi2 test over Probit of treatment variable are:

(for each subsection of the table; civic education/hotline/newspaper, respectively)

0.231/0.530/0.525 (occupation), and 1/0.725/0.975 (property and expenditure).

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. These results come from OLS regressions.

Table 1c: Differences across Treatment and Control Areas - Baseline Outcomes

|   | Baseline (Full) Sample |                 |                 |                 | Post-Election Sample |                 |                 |                 |
|---|------------------------|-----------------|-----------------|-----------------|----------------------|-----------------|-----------------|-----------------|
|   | Control                | Civic Education | Hotline         | Newspaper       | Control              | Civic Education | Hotline         | Newspaper       |
| turnout (0-1)   | 0.975                  | 0.013<br>0.009  | 0.008<br>0.009  | -0.004<br>0.011 | 0.974                | 0.008<br>0.013  | 0.012<br>0.011  | 0.007<br>0.012  |
| frelimo (0-1)   | 0.936                  | 0.015<br>0.019  | 0.019<br>0.019  | -0.010<br>0.020 | 0.947                | -0.016<br>0.026 | 0.004<br>0.026  | -0.008<br>0.022 |
| mdm (0-1)   | 0.035                  | -0.008<br>0.014 | -0.017<br>0.014 | -0.001<br>0.016 | 0.029                | 0.012<br>0.020  | -0.006<br>0.019 | 0.004<br>0.017  |
| Baseline Outcomes                                     |                        |                 |                 |                 |                      |                 |                 |                 |
| renamo (0-1)  | 0.017                  | -0.004<br>0.009 | 0.001<br>0.012  | -0.002<br>0.009 | 0.010                | 0.007<br>0.010  | 0.008<br>0.015  | 0.004<br>0.010  |
| ballot fraud (free and fair election 1-4)             | 3.487                  | 0.080<br>0.082  | 0.044<br>0.079  | 0.030<br>0.077  | 3.446                | 0.107<br>0.101  | 0.104<br>0.093  | 0.056<br>0.087  |
| vote-buying (free and fair election 1-4)              | 3.382                  | 0.045<br>0.069  | 0.031<br>0.067  | 0.090<br>0.074  | 3.385                | 0.040<br>0.095  | 0.029<br>0.087  | 0.100<br>0.100  |
| violence (afraid of violence related to politics 1-7) | 2.324                  | 0.014<br>0.216  | -0.112<br>0.213 | -0.255<br>0.232 | 2.351                | -0.014<br>0.252 | -0.232<br>0.242 | -0.269<br>0.283 |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

For the baseline survey (full sample), P-values from joint Chi2 test over Probit of treatment variable are: (civic education/hotline/newspaper, respectively) 0.989/0.883/0.667.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. These results come from OLS regressions.

Table 2: Regressions of Voter Turnout

| Dependent Variable -----> | Voter Turnout                |          |                 |          |                   |          |  |          |          |          |          |
|---------------------------|------------------------------|----------|-----------------|----------|-------------------|----------|--|----------|----------|----------|----------|
|                           | interviewer                  |          | finger          |          | average questions |          | average questions (ballot station facts) |          |          |          |          |
|                           | Logit                        |          |                 |          |                   |          |  |          |          |          |          |
|                           | ME                           | ME       | ME              | ME       | ME                | ME       | ME                                       | ME       | ME       | ME       |          |
| civic education           | 0.561***                     | 0.689*** | 0.438**         | 0.047    | 0.463**           | 0.080    | 0.616***                                 | 0.552**  | 0.073    | 0.640*** | 0.068    |
|                           | 0.0890.0980.049              |          | (0.218)         | (0.216)  | (0.216)           | (0.195)  | (0.238)                                  | (0.238)  | (0.230)  | (0.230)  | (0.230)  |
|                           | std err(0.200)(0.231)(0.199) |          | 0.542**         | 0.588*** | 0.748***          | 0.099    | 0.784***                                 | 0.100    | 0.943*** | 0.095    | 0.095    |
|                           | coef0.544**0.518**0.521**    |          | 0.0860.0750.061 | 0.057    | 0.099             | 0.099    | 0.099                                    | 0.100    | 0.100    | 0.095    | 0.095    |
| Main Explanatory          | std err(0.212)(0.232)(0.210) |          | (0.262)         | (0.221)  | (0.236)           | (0.236)  | (0.242)                                  | (0.242)  | (0.272)  | (0.272)  | (0.272)  |
| Variables                 | coef0.504**0.508**0.263      |          | 0.259           | 0.438*   | 0.616***          | 0.453*   | 0.453*                                   | 0.453*   | 0.576**  | 0.576**  | 0.576**  |
|                           | std err(0.253)(0.239)(0.284) |          | 0.029           | 0.029    | 0.075             | 0.083    | 0.083                                    | 0.060    | 0.062    | 0.062    | 0.062    |
|                           | coef0.860***###1.429***      |          | (0.279)         | (0.249)  | (0.238)           | (0.274)  | (0.274)                                  | (0.259)  | (0.259)  | (0.259)  | (0.259)  |
| constant                  | std err(0.137)(0.688)(0.130) |          | -0.321          | 0.772*** | -1.499**          | 1.104*** | -1.875**                                 | -1.875** | -1.875** | -1.875** | -1.875** |
|                           | coef0.860***###1.429***      |          | (0.844)         | (0.152)  | (0.711)           | (0.158)  | (0.764)                                  | (0.764)  | (0.764)  | (0.764)  | (0.764)  |
|                           | std err(0.137)(0.688)(0.130) |          | Yes             | No       | Yes               | No       | Yes                                      | No       | Yes      | No       | Yes      |
|                           | NoYesNoControls              |          | 983             | 1,121    | 1,017             | 1,121    | 1,001                                    | 1,001    | 1,001    | 1,001    | 1,001    |
|                           | 1,1219831,121                |          | 0.075           | 0.009    | 0.134             | 0.013    | 0.128                                    | 0.128    | 0.128    | 0.128    | 0.128    |
|                           | Number of Observations       |          | 0.075           | 0.009    | 0.134             | 0.013    | 0.128                                    | 0.128    | 0.128    | 0.128    | 0.128    |
|                           | Adjusted R-squared           |          | 0.075           | 0.009    | 0.134             | 0.013    | 0.128                                    | 0.128    | 0.128    | 0.128    | 0.128    |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 3: Regressions of Political Participation

| Dependent Variable ----->  |                 |         | Open Letter |                    |                        |        |
|----------------------------|-----------------|---------|-------------|--------------------|------------------------|--------|
|                            |                 |         | Logit       |                    |                        |        |
|                            |                 |         | ME          |                    | ME                     |        |
| Main Explanatory Variables | civic education | coef    | 0.155       | 0.023              | 0.336                  | 0.048  |
|                            |                 | std err | (0.298)     |                    | (0.315)                |        |
|                            | hotline         | coef    | -0.488      | -0.064             | -0.212                 | -0.028 |
|                            |                 | std err | (0.299)     |                    | (0.312)                |        |
|                            | newspaper       | coef    | 0.264       | 0.039              | 0.668**                | 0.102  |
|                            |                 | std err | (0.311)     |                    | (0.338)                |        |
|                            | newspaper       | coef    | -1.554***   | 0.039              | -3.485***              | 0.102  |
|                            |                 | std err | (0.203)     |                    | (0.842)                |        |
|                            | constant        |         |             |                    |                        |        |
|                            | Controls        |         | No          | 1,147              | Number of Observations | Yes    |
|                            |                 |         | 0.012       | Adjusted R-squared |                        | 0.069  |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 4: Regressions of Voting

| Dependent Variable ----->  |                      | Voting             |          |         |          |                        |          |           |
|----------------------------|----------------------|--------------------|----------|---------|----------|------------------------|----------|-----------|
|                            |                      | frelimo            |          | renamo  | mdm      |                        |          |           |
| OLS                        |                      |                    |          |         |          |                        |          |           |
| Main Explanatory Variables | time                 | coef               | -0.036   |         | -0.049   |                        | -0.215** |           |
|                            |                      | std err            | (0.046)  |         | (0.066)  |                        | (0.091)  |           |
|                            | civic education      | coef               | 0.025    |         | -0.022   |                        | -0.006   |           |
|                            |                      | std err            | (0.053)  |         | (0.070)  |                        | (0.098)  |           |
|                            | hotline              | coef               | -0.036   |         | 0.242*** |                        | 0.008    |           |
|                            |                      | std err            | (0.055)  |         | (0.087)  |                        | (0.093)  |           |
|                            | newspaper            | coef               | -0.029   |         | 0.210**  |                        | 0.153    |           |
|                            |                      | std err            | (0.053)  |         | (0.083)  |                        | (0.093)  |           |
|                            | time*civic education | coef               | 0.036    | 0.010   | 0.002    | 0.006                  | -0.163   | 0.034     |
|                            |                      | std err            | (0.057)  | (0.062) | (0.099)  | (0.104)                | (0.133)  | (0.122)   |
|                            | time*hotline         | coef               | 0.023    | 0.055   | -0.204** | -0.172*                | -0.034   | 0.105     |
|                            |                      | std err            | (0.068)  | (0.065) | (0.098)  | (0.102)                | (0.130)  | (0.127)   |
|                            | time*newspaper       | coef               | 0.014    | -0.033  | -0.188*  | -0.150                 | -0.168   | 0.009     |
|                            |                      | std err            | (0.067)  | (0.066) | (0.110)  | (0.113)                | (0.139)  | (0.145)   |
|                            | constant             | coef               | 4.379*** | -0.031  | 2.037*** | -0.074                 | 2.975*** | -0.310*** |
| std err                    |                      | (0.148)            | (0.043)  | (0.252) | (0.074)  | (0.266)                | (0.089)  |           |
|                            |                      | YesNoYesNoControls |          |         |          |                        | Yes      | No        |
| Fixed Effects              |                      | No                 | Yes      | No      | Yes      | No                     | Yes      |           |
|                            |                      | 2.5611             | 1.012    | 4.4761  | 0.023    | Number of Observations | 2,249    | 872       |
|                            |                      | 0.084              | -0.0010  | 0.0690  | 0.001    | Adjusted R-squared     | 0.106    | -0.003    |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

Table 5a: Regressions of Electoral Problems - Fraud

| Dependent Variable ----->                 |                      | Fraud                  |          |  |                    |          |                          |          |
|---|----------------------|------------------------|----------|--|--------------------|----------|--------------------------|----------|
|   |                      | free and fair election |          | free and fair election<br>(ballot fraud) | fair vote-counting |          |                          |          |
| OLS                                       |                      |                        |          |  |                    |          |                          |          |
| Main Explanatory<br>Variables-0.051-0.103 | time                 | coef                   | 0.224*** |  |                    |          |                          |          |
|   |                      | std err                | (0.062)  |  |                    |          |                          |          |
|   | civic education      | coef                   | 0.054    | 0.038                                    | 0.053              |          |                          |          |
|   |                      | std err                | (0.057)  | (0.061)                                  | (0.067)            | 0.170*   | 0.166*                   |          |
|   | hotline              | coef                   | -0.103   | -0.138**                                 | 0.040              | 0.037    | 0.001                    |          |
|   |                      | std err                | (0.063)  | (0.060)                                  | (0.062)            | (0.100)  | (0.098)                  |          |
|   | newspaper            | coef                   | 0.004    | -0.025                                   | 0.013              | 0.094    | 0.038                    |          |
|   |                      | std err                | (0.069)  | (0.061)                                  | (0.069)            | (0.097)  | (0.108)                  |          |
|   | time*civic education | coef                   |          |  |                    | (0.086)  | (0.090)                  |          |
|   |                      | std err                |          |  |                    | (0.086)  | (0.090)                  |          |
|   | time*hotline         | coef                   | -0.134   |  |                    | -0.152*  |                          |          |
|   |                      | std err                |          |  |                    | (0.086)  | (0.090)                  |          |
|   | time*newspaper       | coef                   | -0.069   |  |                    | -0.050   | 6.346***                 | 5.771*** |
|   |                      | std err                |          |  |                    | (0.091)  | (0.092)                  | (0.384)  |
|   | constant             |                        | 3.673*** | 3.427***                                 | 3.331***           | 0.220*** | No                       | Yes      |
|   |                      | (0.038)                | (0.212)  | (0.131)                                  | (0.065)            | No       | No                       |          |
| Controls                                  | NoYesYesNo           |                        |          |  |                    | 1,102    | 1,004                    |          |
| Fixed Effects                             | NoNoNoYes            |                        |          |  |                    | 0.000    | 0.052                    |          |
|   |                      | 1,119,018,2,250,864    |          |  |                    |          | Number of Observations   |          |
|   |                      | 0.0050,0710,0880,001   |          |  |                    |          | Adjusted R-squared (OLS) |          |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 5b: Regressions of Electoral Problems - Vote-buying

| Dependent Variable ----->     |                      | Vote-buying                                |          |   |          |                          |         |
|-------------------------------|----------------------|--|----------|---|----------|--------------------------|---------|
|                               |                      | use of public resources<br>for campaigning |          | free and fair election<br>(vote-buying) |          |                          |         |
| OLS                           |                      |  |          |   |          |                          |         |
| Main Explanatory<br>Variables | time                 | coef                                       | 0.300*** |   |          |                          |         |
|                               |                      | std err                                    | (0.061)  |   |          |                          |         |
|                               | civic education      | coef                                       | 0.216    | 0.318                                   | 0.033    |                          |         |
|                               |                      | std err                                    | (0.313)  | (0.215)                                 | (0.074)  |                          |         |
|                               | hotline              | coef                                       | 0.180    | 0.286                                   | -0.008   |                          |         |
|                               |                      | std err                                    | (0.339)  | (0.227)                                 | (0.068)  |                          |         |
|                               | newspaper            | coef                                       | 0.410    | 0.384*                                  | 0.052    |                          |         |
|                               |                      | std err                                    | (0.331)  | (0.209)                                 | (0.075)  |                          |         |
|                               | time*civic education | coef                                       | -0.016   |   |          | -0.055                   |         |
|                               |                      | std err                                    |          |   |          | (0.084)                  | (0.095) |
|                               | time*hotline         | coef                                       |          |   |          | -0.057                   | -0.081  |
|                               |                      | std err                                    |          |   |          | (0.087)                  | (0.093) |
|                               | time*newspaper       | coef                                       | -0.145*  |   |          | -0.173*                  |         |
|                               |                      | std err                                    |          |   |          | (0.083)                  | (0.091) |
|                               | constant             |  | 4.126*** | 5.831***                                | 3.552*** | 0.324***                 |         |
|                               |                      | (0.225)                                    | (0.582)  | (0.157)                                 | (0.068)  |                          |         |
| Fixed Effects                 | NoNoNoYes            |  |          |   |          |                          |         |
|                               |                      | 1,120,108,2,162,785                        |          |   |          | Number of Observations   |         |
|                               |                      | 0.0010,2240,062-0.000                      |          |   |          | Adjusted R-squared (OLS) |         |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 5c: Regressions of Electoral Problems - Violence

| Dependent Variable ----->  |                      | Violence                     |           |  |                |                        |          |
|----------------------------|----------------------|------------------------------|-----------|--|----------------|------------------------|----------|
|                            |                      | party-level violent conflict |           | afraid of violence related to politics |                | electoral intimidation |          |
|                            |                      | OLS                          |           |  |                |                        |          |
| Main Explanatory Variables | time                 | coef                         |           |  | 0.198          |                        |          |
|                            |                      | std err                      |           |  | (0.152)        |                        |          |
|                            | civic education      | coef                         | -0.157*** | -0.135**                               | -0.093         |                        | -0.062   |
|                            |                      | std err                      | (0.060)   | (0.059)                                | (0.153)        |                        | (0.037)  |
|                            | hotline              | coef                         | -0.051    | -0.001                                 | -0.177         |                        | -0.044   |
|                            |                      | std err                      | (0.078)   | (0.073)                                | (0.142)        |                        | (0.037)  |
|                            | newspaper            | coef                         | -0.054    | -0.030                                 | -0.292*        |                        | -0.081*  |
|                            |                      | std err                      | (0.070)   | (0.064)                                | (0.158)        |                        | (0.038)  |
|                            | time*civic education | coef                         |           |  | 0.0790.213     |                        |          |
|                            |                      | std err                      |           |  | (0.231)(0.255) |                        |          |
| time*hotline               | coef                 |                              |           | 0.2930.398*                            |                |                        |          |
|                            | std err              |                              |           | (0.193)(0.205)                         |                |                        |          |
| time*newspaper             | coef                 |                              |           | 0.1320.232                             |                |                        |          |
|                            | std err              |                              |           | (0.234)(0.248)                         |                |                        |          |
| constant                   |                      | 1.638***                     | 1.445***  | 3.594***                               | 0.166          | 1.130***               | 1.329*** |
|                            |                      | (0.049)                      | (0.187)   | (0.317)                                | (0.160)        | (0.037)                | (0.159)  |
| Fixed Effects              | NoNoNoYes            | No                           | Yes       | No                                     | Yes            | No                     | No       |
|                            |                      | 1,128                        | 1,022     | 0.003                                  | 0.049          |                        |          |
|                            |                      | 1,0959972,4621,032           |           | Number of Observations                 |                |                        |          |
|                            |                      | 0.0040.0660.1810.000         |           | Adjusted R-squared                     |                |                        |          |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 6: Regressions of Relationship to Authority

| Dependent Variable ----->  |                 | Relationship to Authority   |                                 |                            |          |          |
|----------------------------|-----------------|-----------------------------|---------------------------------|----------------------------|----------|----------|
|                            |                 | president should rule alone |                                 | dependence on local chiefs |          |          |
|                            |                 | OLS                         |                                 |                            |          |          |
| Main Explanatory Variables | civic education | coef                        | -0.0570.0750.503*0.380*         |                            | 0.313    | 0.368*   |
|                            |                 | std err                     | (0.178)(0.140)(0.278)(0.199)    |                            | (0.247)  | (0.198)  |
|                            | hotline         | coef                        | 0.1750.241*0.3090.220           |                            | 0.119    | 0.256    |
|                            |                 | std err                     | (0.160)(0.141)(0.266)(0.200)    |                            | (0.224)  | (0.193)  |
|                            | newspaper       | coef                        |                                 |                            | -0.037   | -0.033   |
|                            |                 | std err                     |                                 |                            | (0.253)  | (0.208)  |
|                            |                 | coef                        |                                 |                            | 4.711*** | 4.801*** |
|                            |                 | std err                     | (0.164)(0.142)(0.259)(0.216)    |                            | (0.169)  | (0.674)  |
|                            | constant        |                             | 4.126***3.471***2.906***1.377** |                            | No       | Yes      |
|                            |                 |                             | (0.131)(0.412)(0.188)(0.651)    |                            | 1.132    | 1.023    |
| Controls                   | NoYesNoYes      |                             |                                 | 0.000                      | 0.092    |          |
|                            |                 | 1,1211,0181,1461,035        |                                 | Number of Observations     |          |          |
|                            |                 | 0.0010.1230.0030.162        |                                 | Adjusted R-squared         |          |          |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 7: Regressions of Interest/Information about Elections

| Dependent Variable ----->  | Interest/Information about Elections |         |                                   |                        |                         |          |          |           |
|--|--------------------------------------|---------|-----------------------------------|------------------------|-------------------------|----------|----------|-----------|
|  | interest in 2009 elections           |         | know presidential candidates      | know parties           | understand 'abstention' |          |          |           |
|  | OLS                                  |         | Logit                             | OLS                    |                         |          |          |           |
| Main Explanatory Variables<br>(0.120)(0.076)(0.292)(0.265)<br>0.015-0.0420.611**0.998*** | civic education                      | coef    | 0.1020.0720.2930.701***           |                        | 0.007                   | 0.048    | -0.008   | 0.057     |
|  |                                      | std err | (0.117)(0.078)(0.241)(0.258)      |                        | (0.069)                 | (0.063)  | (0.083)  | (0.062)   |
|  | hotline                              | coef    | 0.1370.144*0.644**0.912***        |                        | 0.113*                  | 0.127**  | 0.002    | -0.026    |
|  |                                      | std err |                                   |                        | (0.067)                 | (0.060)  | (0.080)  | (0.064)   |
|  | newspaper                            | coef    |                                   |                        | 0.051                   | 0.058    | 0.095    | 0.130*    |
|  |                                      | std err |                                   |                        | (0.074)                 | (0.064)  | (0.095)  | (0.072)   |
|  |                                      | coef    | (0.125)(0.088)(0.269)(0.280)      |                        | 1.477***                | 0.959*** | 0.386*** | -0.669*** |
|  |                                      | std err |                                   |                        | (0.050)                 | (0.171)  | (0.061)  | (0.176)   |
|  |                                      |         | 2.996***2.564***0.906***-2.304*** |                        | No                      | Yes      | No       | Yes       |
|  |                                      |         | (0.094)(0.264)(0.178)(0.721)      |                        | 1.148                   | 1.038    | 1.108    | 1.003     |
| constant   |                                      |         |                                   | No                     | Yes                     | No       | Yes      |           |
| ControlsNoYesNoYes   |                                      |         |                                   | 0.002                  | 0.119                   | 0.000    | 0.248    |           |
|  |                                      |         |                                   | Number of Observations |                         |          |          |           |
|  |                                      |         |                                   | 1,1181,0141,1511,027   |                         |          |          |           |
|  |                                      |         |                                   | Adjusted R-squared     |                         |          |          |           |
|  |                                      |         |                                   | 0.0000.1670.0110.222   |                         |          |          |           |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 8: Regressions of Views about Sponsors

| Dependent Variable ----->  | Sponsors                                  |  |                        |                            |                |                            |          |          |
|----------------------------|---|--|------------------------|----------------------------|----------------|----------------------------|----------|----------|
|                            |   | cell phone usage                               | know @verdade price    | @verdade reading frequency | trust @verdade | trust electoral commission |          |          |
|                            |   | OLS  | Logit                  |                            | OLS            |                            |          |          |
| civic education            | coef                                      | 0.1260.144-0.281-0.332-0.118                   |                        | -0.089                     | 0.071          | 0.099                      | 0.260**  | 0.217**  |
|                            | std err                                   | (0.153)(0.113)(0.339)(0.295)(0.103)            |                        | (0.075)                    | (0.098)        | (0.099)                    | (0.112)  | (0.094)  |
| hotline                    | coef                                      | 0.368*** 0.357*** 0.2640.1550.004              |                        | -0.013                     | -0.088         | -0.074                     | 0.136    | 0.186*   |
|                            | std err                                   |  |                        | (0.079)                    | (0.102)        | (0.109)                    | (0.117)  | (0.100)  |
| Main Explanatory Variables | (0.137)(0.108)(0.311)(0.264)(0.120)       |  |                        | 0.948***                   | 0.568***       | 0.554***                   | 0.230**  | 0.220**  |
|                            | 0.301*0.377*** 1.248*** 1.652*** 0.914*** |  |                        | (0.097)                    | (0.110)        | (0.116)                    | (0.115)  | (0.094)  |
| newspaper                  | coef                                      |  |                        | 0.617***                   | 3.604***       | 2.950***                   | 4.221*** | 4.188*** |
|                            | std err                                   | (0.159)(0.118)(0.304)(0.263)(0.134)            |                        | (0.227)                    | (0.071)        | (0.314)                    | (0.083)  | (0.290)  |
| constant                   | coef                                      | 3.315*** 3.010*** -1.732*** -5.825*** 1.411*** |                        | Yes                        | No             | Yes                        |          |          |
|                            | std err                                   |  |                        | 1.001                      | 881            | 814                        |          |          |
| ControlsNoYesNoYesNo       |   | (0.111)(0.338)(0.239)(0.780)(0.084)            |                        | 0.389                      | 0.058          | 0.124                      |          |          |
|                            |   |  |                        |                            |                |                            |          |          |
|                            |   | 1.1461,0351,0999771,108                        | Number of Observations |                            |                |                            | 1,068    | 970      |
|                            |   | 0.0090,1340,0570,2540,159                      | Adjusted R-squared     |                            |                |                            | 0.006    | 0.118    |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 9a: Externality Effects of the Different Treatments

| Dependent Variable ----->  |                      |         | Main Outcomes                     |         |           |                  |          |           |
|----------------------------|----------------------|---------|-----------------------------------|---------|-----------|------------------|----------|-----------|
|                            |                      |         | turnout (interviewer)             |         |           | turnout (finger) |          |           |
|                            |                      |         | Civic Education                   | Hotline | Newspaper | Civic Education  | Hotline  | Newspaper |
|                            |                      |         | Logit                             |         |           |                  |          |           |
| Main Explanatory Variables | targeted individuals | coef    | 0.541                             | 0.016   | -1.165*** | -0.022           | -0.268   | -1.385*** |
|                            |                      | std err | (0.385)                           | (0.394) | (0.432)   | (0.462)          | (0.456)  | (0.486)   |
|                            | constant             | coef    | 0.626                             | 1.106** | 1.588***  | 1.564***         | 2.330*** | 2.354***  |
|                            |                      | std err | (0.384)                           | (0.437) | (0.590)   | (0.469)          | (0.557)  | (0.814)   |
| Controls                   |                      |         | Yes                               | Yes     | Yes       | Yes              | Yes      | Yes       |
|                            |                      |         | 293                               | 289     | 270       | 293              | 289      | 270       |
|                            |                      |         | 293289270Number of Observations   |         |           | 0.017            | 0.042    | 0.071     |
|                            |                      |         | 0.0350.0400.104Adjusted R-squared |         |           |                  |          |           |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 9b: Externality Effects of the Different Treatments

| Dependent Variable ----->  |                           |         | Main Outcomes                     |           |           |                       |          |           |
|----------------------------|---------------------------|---------|-----------------------------------|-----------|-----------|-----------------------|----------|-----------|
|                            |                           |         | open letter                       |           |           | preference for renamo |          |           |
|                            |                           |         | Civic Education                   | Hotline   | Newspaper | Civic Education       | Hotline  | Newspaper |
|                            |                           |         | Logit                             |           |           | OLS                   |          |           |
| Main Explanatory Variables | time                      | coef    |                                   |           |           | -0.270                | -0.320** | -0.187    |
|                            |                           | std err |                                   |           |           | (0.243)               | (0.157)  | (0.170)   |
|                            | targeted individuals      | coef    | -0.169                            | -0.212    | 0.180     | -0.177                | -0.197   | 0.101     |
|                            |                           | std err | (0.435)                           | (0.348)   | (0.356)   | (0.210)               | (0.152)  | (0.165)   |
|                            | time*targeted individuals | coef    |                                   |           |           | 0.222                 | 0.098    | -0.089    |
|                            |                           | std err |                                   |           |           | (0.275)               | (0.183)  | (0.199)   |
|                            | constant                  | coef    | -1.014**                          | -2.139*** | -1.655*** | 2.001***              | 2.297*** | 1.944***  |
|                            |                           | std err | (0.461)                           | (0.638)   | (0.596)   | (0.230)               | (0.215)  | (0.195)   |
| Controls                   |                           |         | Yes                               | Yes       | Yes       | Yes                   | Yes      | Yes       |
|                            |                           |         | 700                               | 695       | 663       | 700                   | 695      | 663       |
|                            |                           |         | 298296278Number of Observations   |           |           | 0.036                 | 0.044    | 0.026     |
|                            |                           |         | 0.0130.0660.020Adjusted R-squared |           |           |                       |          |           |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 10a: Heterogeneous Effects

| Dependent Variable ----->  | Main Outcomes          |         |                       |             |         |                          | Main Outcomes |           |          |                            |          |           |             |  |     |        |  |  |
|----------------------------|------------------------|---------|-----------------------|-------------|---------|--------------------------|---------------|-----------|----------|----------------------------|----------|-----------|-------------|--|-----|--------|--|--|
|                            | turnout                |         |                       | open letter |         |                          | renamo        |           |          | turnout                    |          |           | open letter |  |     | renamo |  |  |
|                            | Logit                  |         | OLS                   | Logit       |         | OLS                      | Logit         |           | OLS      | Logit                      |          | OLS       | Logit       |  | OLS |        |  |  |
| Main Explanatory Variables | male                   | coef    | 0.664***              | -0.099      | -0.155  | school                   | 0.677**       | 0.581     | -0.002   | household labor            | 0.689*** | 0.235     | 0.031       |  |     |        |  |  |
|                            |                        | std err | (0.250)               | (0.312)     | (0.132) |                          | (0.318)       | (0.542)   | (0.176)  |                            | (0.227)  | (0.326)   | (0.118)     |  |     |        |  |  |
|                            | civic education        | coef    | 0.614**               | -0.762**    | -0.265* | civic education          | 0.120         | -0.880*   | -0.085   | civic education            | 0.538**  | -0.423    | -0.134      |  |     |        |  |  |
|                            |                        | std err | (0.292)               | (0.330)     | (0.153) |                          | (0.332)       | (0.520)   | (0.193)  |                            | (0.234)  | (0.329)   | (0.110)     |  |     |        |  |  |
|                            | hotline                | coef    | 0.852***              | 0.173       | -0.230* | hotline                  | 0.653         | 0.739     | 0.177    | hotline                    | 0.332    | 0.248     | -0.117      |  |     |        |  |  |
|                            |                        | std err | (0.287)               | (0.321)     | (0.139) |                          | (0.426)       | (0.601)   | (0.195)  |                            | (0.265)  | (0.358)   | (0.122)     |  |     |        |  |  |
|                            | newspaper              | coef    | 0.558**               | -0.290      | -0.278  | newspaper                | 0.052         | 0.209**   | 0.016    | newspaper                  | -0.152   | -0.031    | 0.254       |  |     |        |  |  |
|                            |                        | std err | (0.228)               | (0.296)     | (0.173) |                          | (0.071)       | (0.093)   | (0.038)  |                            | (0.311)  | (0.447)   | (0.217)     |  |     |        |  |  |
|                            | male * civic education | coef    | -0.215                | 0.627*      | 0.391*  | school * civic education | -0.045        | -0.148    | 0.005    | houselab * civic education | -0.691   | -0.682    | -0.174      |  |     |        |  |  |
|                            |                        | std err | (0.366)               | (0.378)     | (0.232) |                          | (0.114)       | (0.144)   | (0.061)  |                            | (0.510)  | (0.680)   | (0.289)     |  |     |        |  |  |
|                            | male * hotline         | coef    | -0.197                | 0.607       | 0.226   | school * hotline         | 0.185         | 0.119     | -0.033   | houselab * hotline         | 0.004    | -0.769    | -0.268      |  |     |        |  |  |
|                            |                        | std err | (0.406)               | (0.444)     | (0.256) |                          | (0.117)       | (0.139)   | (0.062)  |                            | (0.574)  | (0.888)   | (0.388)     |  |     |        |  |  |
|                            | male * newspaper       | coef    | -0.807***             | 0.230       | 0.203   | school * newspaper       | -0.061        | -0.169    | -0.130** | houselab * newspaper       | 2.434**  | 0.116     | -0.219      |  |     |        |  |  |
|                            |                        | std err | (0.309)               | (0.464)     | (0.215) |                          | (0.124)       | (0.156)   | (0.066)  |                            | (1.108)  | (0.737)   | (0.275)     |  |     |        |  |  |
|                            | constant               | coef    | 0.635***              | -1.435***   | 0.043   | constant                 | 0.727***      | -2.124*** | -0.116   | constant                   | 0.883*** | -1.549*** | -0.111      |  |     |        |  |  |
|                            | std err                | (0.153) | (0.206)               | (0.102)     |         | (0.358)                  | (0.124)       |           |          | (0.156)                    | (0.231)  | (0.083)   |             |  |     |        |  |  |
|                            |                        |         | 1,121,147,1,023,1,119 |             |         | Number of Observations   |               |           | 1,145    |                            |          | 1,021     |             |  |     |        |  |  |
|                            |                        |         | 0.0160.0140.0010.016  |             |         | Adjusted R-squared       |               |           | 0.027    |                            |          | 0.002     |             |  |     |        |  |  |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 10b: Heterogeneous Effects

| Dependent Variable ----->  | Main Outcomes         |                |                           |             |         |                        | Main Outcomes |                  |            |                  |           |                 |             |         |                    |           |  |  |
|----------------------------|-----------------------|----------------|---------------------------|-------------|---------|------------------------|---------------|------------------|------------|------------------|-----------|-----------------|-------------|---------|--------------------|-----------|--|--|
|                            | turnout               |                |                           | open letter |         |                        | renamo        |                  |            | turnout          |           |                 | open letter |         |                    | renamo    |  |  |
|                            | Logit                 |                | OLS                       | Logit       |         | OLS                    | Logit         |                  | OLS        | Logit            |           | OLS             | Logit       |         | OLS                |           |  |  |
| Main Explanatory Variables | cattle                | coef           | 0.729***                  | 0.0660      | 0.0330  | 4651                   | 0.030         | coef             | 0.256      | cell             | 0.127     | 0.190           | -0.083      | -0.083  |                    |           |  |  |
|                            |                       | std err        | (0.201)                   | (0.344)     | (0.121) | (0.322)                | (0.726)       |                  | (0.216)    |                  | (0.178)   | (0.250)         | (0.250)     | (0.250) |                    |           |  |  |
|                            | civic education       | coef           | 0.632***                  | -0.823**    | -0.1560 | 209                    | -1.027        | civic education  | -0.350     | cell * civic     | 0.133     | -1.200          | -0.203      | -0.203  |                    |           |  |  |
|                            |                       | std err        | (0.220)                   | (0.358)     | (0.114) | (0.359)                | (0.911)       |                  | (0.250)    |                  | (0.262)   | (0.149)         | (0.149)     | (0.149) |                    |           |  |  |
|                            | hotline               | coef           | 0.847***                  | 0.112       | -0.125  | -0.0890                | 758           | hotline          | 0.180      | cell * hotline   | 0.001     | 0.001           | 0.001       | 0.001   |                    |           |  |  |
|                            |                       | std err        | (0.282)                   | (0.361)     | (0.126) | (0.435)                | (0.731)       |                  | (0.178)    |                  | (0.250)   | (0.250)         | (0.250)     | (0.250) |                    |           |  |  |
|                            | Main newspaper        | coef           | 0.895**                   | -0.334      | -0.038  | -0.0430                | 700           | newspaper        | -0.406*    | cell * newspaper | -1.398*** | 0.597           | -0.1020     | 857*    | -0.656             |           |  |  |
|                            |                       | std err        | (0.416)                   | (0.477)     | (0.166) | (0.264)                | (0.595)       |                  | (0.214)    |                  | (0.513)   | (0.630)         | (0.266)     | (0.482) | (0.720)            |           |  |  |
|                            | Explanatory Variables | cattle * civic | coef                      | -0.7740     | 0.373   | -0.116                 | cell * civic  | 0.133            | -1.200     | newspaper        | std err   | 0.663***        | -1.474***   | -0.0640 | 890***             | -2.079*** |  |  |
|                            |                       | std err        | (0.559)                   | (0.578)     | (0.231) | (0.432)                | (0.756)       |                  | (0.250)    |                  | (0.130)   | (0.231)         | (0.079)     | (0.188) | (0.566)            |           |  |  |
|                            |                       | coef           | -0.4291                   | 1.127*      | -0.0660 | 4540                   | 567           | education        | 1,023      | education        | 1,023     | 1,023           | 1,023       | 1,023   | 1,023              |           |  |  |
|                            |                       | std err        | (0.578)                   | (0.617)     | (0.226) | (0.419)                | (0.938)       |                  | (0.149)    |                  | (0.149)   | (0.149)         | (0.149)     | (0.149) | (0.149)            |           |  |  |
|                            |                       | coef           | -1.398***                 | 0.597       | -0.1020 | 857*                   | -0.656        | cell * newspaper | 0.001      | newspaper        | std err   | 0.663***        | -1.474***   | -0.0640 | 890***             | -2.079*** |  |  |
|                            |                       | std err        | (0.513)                   | (0.630)     | (0.266) | (0.482)                | (0.720)       |                  | (0.149)    |                  | (0.149)   | (0.149)         | (0.149)     | (0.149) | (0.149)            |           |  |  |
|                            |                       | constant       | constant                  | std err     | (0.130) | (0.231)                | (0.079)       | (0.188)          | (0.566)    |                  |           |                 |             |         |                    |           |  |  |
|                            |                       |                | 1,121,147,1,023,1,121,147 |             |         | Number of Observations |               |                  | 0.0190.017 |                  |           | 0.0010.0160.022 |             |         | Adjusted R-squared |           |  |  |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 11a: Contamination (Regressions on Distance to Treatments)

| Dependent Variable ----->  |                             |                 | Main Outcomes          |                     |                    |                     |                     |                     |
|----------------------------|-----------------------------|-----------------|------------------------|---------------------|--------------------|---------------------|---------------------|---------------------|
|                            |                             |                 | turnout (interviewer)  |                     |                    | turnout (finger)    |                     |                     |
|                            |                             |                 | Civic Education        | Hotline             | Newspaper          | Civic Education     | Hotline             | Newspaper           |
|                            |                             |                 | Logit                  |                     |                    |                     |                     |                     |
| Main Explanatory Variables | distance to civic education | coef<br>std err | 0.426<br>(0.675)       |                     |                    | 0.900<br>(0.581)    |                     |                     |
|                            | distance to hotline         | coef<br>std err |                        | -1.412**<br>(0.622) |                    |                     | -1.313<br>(0.868)   |                     |
|                            | distance to newspaper       | coef<br>std err |                        |                     | -0.444<br>(0.952)  |                     |                     | -0.974<br>(0.954)   |
|                            | constant                    | coef<br>std err | 0.491*<br>(0.288)      | 0.880**<br>(0.253)  | 0.652**<br>(0.273) | 1.192***<br>(0.362) | 1.667***<br>(0.278) | 1.532***<br>(0.353) |
|                            | Controls                    | Yes             | Yes                    | Yes                 | Yes                | Yes                 | Yes                 | Yes                 |
|                            |                             |                 |                        | 269                 | 269                | 269                 | 269                 | 269                 |
|                            |                             |                 | Number of Observations |                     |                    | Adjusted R-squared  |                     |                     |
|                            |                             |                 | 0.0100.0190.009        |                     |                    | 0.015 0.019 0.013   |                     |                     |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 11b: Contamination (Regressions on Distance to Treatments)

| Dependent Variable ----->  |                                  |                 | Main Outcomes          |                    |                     |                       |                     |                     |
|----------------------------|----------------------------------|-----------------|------------------------|--------------------|---------------------|-----------------------|---------------------|---------------------|
|                            |                                  |                 | open letter            |                    |                     | preference for renamo |                     |                     |
|                            |                                  |                 | Civic Education        | Hotline            | Newspaper           | Civic Education       | Hotline             | Newspaper           |
|                            |                                  |                 | Logit                  |                    |                     | OLS                   |                     |                     |
| Main Explanatory Variables | time                             | coef<br>std err |                        |                    |                     | -0.062<br>(0.089)     | -0.064<br>(0.095)   | -0.144<br>(0.090)   |
|                            | distance to civic education      | coef<br>std err | 0.960<br>(1.210)       |                    |                     | -0.048<br>(0.291)     |                     |                     |
|                            | time*distance to civic education | coef<br>std err |                        |                    |                     | -0.045<br>(0.258)     |                     |                     |
|                            | distance to hotline              | coef<br>std err |                        | -2.918*<br>(1.726) |                     |                       | -0.159<br>(0.297)   |                     |
|                            | time*distance to hotline         | coef<br>std err |                        |                    |                     |                       | -0.049<br>(0.251)   |                     |
|                            | distance to newspaper            | coef<br>std err |                        |                    | -2.057<br>(2.078)   |                       |                     | 0.305<br>(0.346)    |
|                            | time*distance to newspaper       | coef<br>std err |                        |                    |                     |                       |                     | 0.679<br>(0.524)    |
|                            | constant                         | coef<br>std err | -1.622***<br>(0.437)   | -0.885*<br>(0.487) | -1.123**<br>(0.499) | 1.876***<br>(0.132)   | 1.898***<br>(0.124) | 1.808***<br>(0.112) |
| Controls                   | Yes                              | Yes             | Yes                    | Yes                | Yes                 | Yes                   | Yes                 |                     |
|                            |                                  |                 | 275                    | 275                | 275                 | 676                   | 676                 | 676                 |
|                            |                                  |                 | Number of Observations |                    |                     | Adjusted R-squared    |                     |                     |
|                            |                                  |                 | 0.0350.0510.038        |                    |                     | 0.018 0.018 0.023     |                     |                     |

Note: Standard errors reported; these are corrected by clustering at the location (enumeration area) level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 12: Regressions of Electoral Problems as Reported at the @Verdade National Hotline

| Dependent Variable ----->  |                        | Electoral Problems (Reported at the @Verdade National Hotline) |          |          |           |          |          |          |
|----------------------------|------------------------|--|----------|----------|-----------|----------|----------|----------|
|                            |                        | Incidence  |          |          | Intensity |          |          |          |
|                            |                        | OLS  |          |          |           |          |          |          |
| Main Explanatory Variables | civic education        | coef   | -0.000   |          |           | 0.000    | -0.049   | -0.049   |
|                            |                        | std err  | (0.584)  |          |           | (0.589)  | (0.258)  | (0.255)  |
|                            | hotline                | coef   |          | -0.099   |           | -0.099   |          | -0.268   |
|                            |                        | std err  |          | (0.593)  |           | (0.592)  |          | (0.258)  |
|                            | newspaper              | coef   |          |          | -0.100    |          |          | -0.224   |
|                            |                        | std err  |          |          | (0.611)   |          |          | (0.259)  |
|                            | constant               | coef   | 3.049*** | 3.049*** | 3.049***  | 3.049*** | 1.887*** | 1.887*** |
|                            |                        | std err  | (0.413)  | (0.416)  | (0.427)   | (0.416)  | (0.183)  | (0.181)  |
|                            | Number of Observations |  |          | 81       | 80        | 82       | 81       | 80       |
|                            | Adjusted R-squared     |  |          | -0.012   | -0.012    | -0.012   | -0.012   | 0.001    |
|                            |                        |  |          |          |           |          | -0.004   |          |
|                            |                        |  |          |          |           |          | 161      |          |
|                            |                        |  |          |          |           |          | -0.009   |          |

Note: Standard errors reported.  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.