Social Influence and Political Behavior in Mozambique[*]

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Abstract:

Political accountability requires electoral participation and informed voters. Both have been lagging in Mozambique. We designed and implemented a field experiment during the municipal elections of 2013 in that country. We study the impact on political behavior of social influence through individual text messages aimed at mobilizing voters, and of location-level distribution of a free newspaper. Importantly, we randomly assign peers, i.e., a quasi-network, to experimental subjects in order to test for exogenous peer influence via text messages. Measurement of political outcomes comes from behavioral measures related to the sending of SMSs by subjects, and from voter behavior based on survey information or the replication of the voting procedure. We find positive effects of the text messages, namely of those coming from male and older peers, on political participation and voting for the ruling party. However, we do not find clear evidence that the strength of the messages or homophily played a role. We find positive effects of the distribution of the newspaper on political participation, and positive interaction effects between the influence from peers and newspaper distribution.

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1 Introduction

Participation in electoral politics is a cornerstone of democratic accountability (see Bentham, [1816] 1999). The ideal of electoral accountability can however be impeded by low levels of citizen mobilization and by limited information about political options in the hands of voters. Citizen mobilization and information may be particularly difficult in Sub-Saharan African countries. In this region, democratic elections are often tainted with phenomena that embody lack of policy accountability, like clientelism (Wantchekon, 2003) or vote-buying (Vicente, 2014), and are frequently taken as the focal point for intimidation or violence (Collier and Vicente, 2014), which are likely to de-mobilize voters for political participation.

Social influence is a natural mechanism building the fabric of informed participation in politics.[1] Top-down voter education can play an important role, as the recent literature on voter education interventions in Sub-Saharan countries has shown (Wantchekon, 2003; Vicente, 2014; Collier and Vicente, 2014; Humphreys and Weinstein, 2012; Fujiwara and Wantchekon, 2013; Aker et al., 2017, Marx et al., 2017; Grossman and Michelitch, 2018). Still, our understanding of how social networks influence individuals towards political participation has the potential to be at least as important. Voter education without proper magnification mechanisms through existing social networks cannot go very far. The study of social network effects has, however, a main obstacle: it is difficult to distinguish network effects from those of other characteristics of individuals, i.e., network effects are endogenous.

In this paper, we aim to contribute to our understanding of how social influence shapes political behavior. We do this by studying exogenous voter education interventions aiming at mobilizing voters, implemented through innovative means. We are particularly interested in the role of social networks in triggering political participation. For that reason, we build exogenous links between individuals and peer influence. Although our experimental setting builds new links between individuals and limits contact to text messages, with implications for external validity, it compensates this limitation with an ability to identify the causal effects of messages originating from peers, i.e., of peer influence. We are also able to test the impact of peers in a context where location-wide voter education is going on and is common knowledge.

[1] The role of social influence in influencing behavior has been studied in many different settings. See Conley and Udry (2010) for an example investigating the role of social influence in the diffusion of a new agricultural technology in Ghana.

We report on the results of a field experiment conducted during the municipal elections of 2013 in Mozambique. We analyze the impact of social influence through text messaging and the distribution of a free newspaper on political participation. Both types of interventions happened in the run up to the elections. We collaborated with a high-circulation, independent, local newspaper for this purpose. Our SMS treatments included three types of messages: simple reminders about the election, reminders about the election coming from peers, and encouragements to vote coming from peers. We also had a control group that received no messages. Our experimental subjects were randomly assigned peers from the same pool of experimental subjects. This way we were able to vary exogenously the characteristics of peers, as we assigned each experimental subject a group of similar and a group of dissimilar peers, in terms of gender and age - these characteristics were primed in the messages that were sent. This structure allows us to test for homophily. Since these peer groups were not really known to subjects before the study started, we refer to them as quasi-networks. The randomization of the messages followed a cross design interacting type of message and quasi-network. The distribution of the newspaper was set at the level of the polling location. We also had a control group of locations, with no distribution of newspapers.

This project happened nationwide in Mozambique. Subject recruitment followed a random process. First, we randomly selected 20 municipalities from within those where the newspaper could be distributed – Mozambique has 53 municipalities. We drew 194 polling locations from these municipalities. We selected our experimental subjects from these polling locations using standard techniques at the time of our baseline survey. We employed a range of measurements of political participation. First, we used behavioral measures relating to the sending of SMSs. Experimental subjects were invited to send messages reporting electoral problems for a hotline before the elections. They were also invited to send their policy priorities (an open letter) to the newly elected mayors after the elections. The newspaper also invited its readers to send information and convey opinions during the electoral period. We employ individual data on these behavioral activities. Second, we devoted particular attention to voter turnout. We composed several measures of voter turnout based on information gathered during our post-election survey: self-reports, the interviewer assessment about whether the respondent voted (after he/she asked a module of survey questions on the election day and ballot station facts), and whether the respondent voted in a replication of the voting procedure using survey ballot boxes. Third, we measured voting for the candidates/parties using the replication of the voting procedure during the post-election survey.

The results of this experiment follow a pre-analysis plan that we published just before submitting the SMS treatments. Our main finding relating to the SMS treatments is that SMSs increased, on average, the sending of SMS relating to the elections by experimental subjects and the turnout of voters as given by our measures. Specifically, the turnout effect is between 7 and 9 percentage points. There is also some suggestive evidence that messages coming from peers (compared to simple reminders) were effective at increasing SMS political participation. However, there is no evidence that encouragements from peers had an additional effect. We did not find much evidence in favor of positive influence by similar peers (homophily): the exception is that similar quasi-networks influence voters to vote for FRELIMO. We identified the same pattern of vote changes when analyzing the influence of old subjects on their peers. In addition, males positively influence the level of political participation of others. Turning to the effects of newspaper distribution, we find a clear positive effect on voter turnout while employing official electoral data at the level of the polling location: participation at the polls increased by 3-6 percentage points. Finally, we find evidence in favor of stronger effects of the SMS quasi-network treatments for experimental subjects that had the newspaper distributed in their locations.

An important body of research relating to elections in the U.S. has suggested that engaging in politics is sensitive to social influence. Gerber and Green (2000) show the importance of face-to-face political mobilization for voter turnout in the context of get-out-the-vote campaigns. Gerber et al. (2008) test different types of incentives to vote and find that social pressure produces large effects. In line with these results, Nickerson (2008) find substantial contagion of get-out-the-vote campaigning between household members. Dale and Strauss (2009) are the first to report turnout effects from text messaging. Gerber et al. (2009) show that access to newspapers, in the run up to an election in the U.S., can alter voting behavior.

The literature on social influence in the context of elections in developing countries has devoted particular attention to voter education campaigns. We understand this literature as divided in two streams. First, the literature related to the communication of politicians' proposals and performance, using experiments (Wantchekon, 2003; Banerjee et al., 2011; Humphreys and Weinstein, 2012; Fujiwara and Wantchekon, 2013; Chong et al., 2015; Cruz et al., 2017; Grossman and Michelitch, 2018) or other natural settings (Ferraz and Finan, 2008; Fujiwara, 2015). Second, the literature on experiments conveying civic information related to specific electoral practices and procedures, not directly related to policy-accountability (Vicente, 2014; Collier and Vicente, 2014; Aker et al., 2017; León, 2017; Marx et al., 2017). Note that we are particularly interested in the use

of text messages as means of communication like in Aker et al. (2017) and Marx et al. (2017). In terms of relevant outcomes of analysis, we relate most closely to contributions employing behavioral measures of political participation like the costly sending of postcards (Batista and Vicente, 2011; Collier and Vicente, 2014) and the costly sending of SMS (Aker et al., 2017; Grossman et al., 2014).

Other studies explore network effects of randomized voter education in developing countries.[2] Fafchamps and Vicente (2013) observe social network effects on voter perceptions in the context of campaigning against political violence in Nigeria. Gine and Mansuri (2018) find large turnout externalities of a voter awareness campaign directed at women in Pakistan, by exploring different intensities of treatment per geographical unit.[3] Our study builds specifically on the analysis of network effects in a previous experiment run during the 2009 elections in Mozambique (Fafchamps et al., 2018). While different voter education interventions channeling simple information about the election increased voter turnout, these authors find that effects are weaker for groups with strong social networks. The preferred interpretation of this result is that more central individuals free-ride on their knowledge that more people are targeted by the interventions and likely to vote. We note, however, that causality of the (endogenous) network variables employed in Fafchamps et al. (2018) is difficult to establish. Our paper is an attempt to tackle this challenge, namely through employing random (quasi-)network assignments when it comes to studying the impact of peer influence. Centola (2011) follows a similar procedure while studying homophily, i.e., the idea that individuals are particularly responsive to pressures from similar peers,[4] in the context of the adoption of healthy behaviors.[5]

[2] Finkel and Smith (2011) employ panel regressions to assess the impact of nationwide voter education in Kenya. They find peer effects on democratic knowledge and values.

[3] Although the causal effect of different intensities of get-out-the-vote campaigning can be interpreted as related to the causal effect of explicit peer-to-peer communication and mobilization to vote (which is what we have in this paper), it is difficult to be sure that there are no other possible interpretations for the former. For instance, different intensities of campaigning are difficult to distinguish from different perceptions (by subjects) about the presence of campaigners in a geographical unit and potential response by peers at the level of the geographical unit.

[4] See McPherson et al. (2001) for a broad introduction to the concept of homophily in social networks.

[5] Recent contributions to the literature on social networks and electoral politics include the work of Labonne and Fafchamps (2018), who report that central households are more likely to receive public services in the Philippines, in line with the idea that these households are best for exerting social pressure and securing electoral support. Arias et al. (2017) analyze a field experiment disseminating information in Mexico and combine it with detailed family network data: they suggest that networks can help voters coordinate around information to help remove poorly performing politicians.

The paper is organized as follows. In section 2 we present the context of our field experiment. In section 3 we fully develop the experimental design, with treatments, sampling and assignment to treatment, hypotheses, measurement, and estimation strategy. The following section provides the econometric results, including balance tests, treatment effects of the SMS treatments, the newspaper treatment, and the interaction between individual-level network SMSs and the location-level newspaper. We conclude in section 5.

2 Context

Mozambique has been one of the poorest countries in the world: in the year of our experiment, 2013, Mozambique had a GDP per capita of 1071 USD (current, PPP) - it ranked 231 in 236 countries in terms of this indicator.[6] A country with 26.4 million inhabitants in 2013, Mozambique received substantial attention in recent years for natural resource discoveries and exploration. Still, it remains a rural country, with 76 percent of employment on agriculture (2013).[7] As political background, Mozambique became independent from Portugal in 1975, after which FRELIMO (Frente de Libertação de Moçambique), the independence movement, led a single-party, socialist regime. Beginning in 1977, Mozambique suffered a devastating civil war, fought between FRELIMO and RENAMO (Resistência Nacional Moçambicana). The civil war ended in 1992 with an agreement to hold multi-party elections.

Before the relevant elections in this paper, 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 RENAMO as the main contender. More importantly, FRELIMO consistently increased its vote share, while voter turnout has decreased considerably. The lowest turnout rate was recorded in 2004, with just 36 percent. In 2009, MDM (Movimento Democrático Moçambicano) was launched by the then mayor of Beira, Daviz Simango (a dissident from RENAMO) and became the clear third party, with sizable popularity among the urban electorate.

At the local level, municipal elections were held in 1998, 2003, 2008, and 2013. These elections comprise an election for the president of the municipality and one election for the municipal assembly. Mozambican municipalities correspond to the largest cities of the country, as well as to

[6] World Development Indicators, 2018.
[7] World Development Indicators, 2018.

selected smaller towns, in order to maintain municipal representation in the provinces with the lowest urban population. Despite the increase in the number of municipalities over time, from 33 in 1998 to 53 in 2013, municipal elections are still eminently urban, covering a minority of Mozambican voters. FRELIMO won all municipalities in 1998 (RENAMO boycotted these elections), lost five to RENAMO in 2003, lost just one to RENAMO in 2008, and lost four to MDM in 2013 (RENAMO boycotted these elections).[8]

The municipal elections of November 20, 2013, constitute the focal point of this study. Despite the a priori secondary importance of municipal elections in Mozambique, the 2013 elections happened in a particularly sensitive period for the politics of the country. The 2013 municipal happened just before the FRELIMO presidential candidate to the 2014 elections was selected (as Armando Guebuza, the then president, was unable to run for reelection due to a term limit). Given the overwhelming degree of control of the ruling party over the country, there was little doubt that FRELIMO's candidate would win the following presidential elections (as it did). There was a clear understanding that the results of the municipal election would define relative power for different movements within FRELIMO. Hence, electoral participation was seen as very important by various observers.

At the same time, RENAMO and its leader Afonso Dhlakama had become discredited with voters, reaching an all-time low score of 16 percent in the 2009 presidential election. Dhlakama was widely seen as an outdated leader, often referring to the possibility of taking up arms. In the run up to the 2013 municipal elections, Dhlakama increased the tone in favor of a reform of the electoral law and announced RENAMO's boycott to the municipal elections. Contemporaneously, armed supporters of RENAMO (specifically, a contingent that surrounded Dhlakama, that had never been disarmed after the civil war) initiated violent episodes in central Mozambique. This conflict reached a peak in October of 2013, just a few weeks before the municipal elections, when RENAMO announced the end of the 1992 peace accord and attacks to civilians were performed (mainly, along the national road in rural Sofala province), resulting in dozens of deaths. Negotiations between the government and RENAMO were held (with Dhlakama in an unknown location), but had no visible implications until after the elections, when the electoral law was reformed in favor of RENAMO

[8] Provincial assembly elections were initiated in 2009, at the time of the national elections, and cover the whole country.

and violence was reduced. Despite the conflict situation in central Mozambique, the municipal elections were held in all municipalities.[9] Overall turnout rate was 46 percent.

Finally, the fact that MDM had clear urban support, and that RENAMO did not run in the 2013 municipal elections, represented an opportunity for MDM to be established as a strong opposition force. Indeed, MDM won in four municipalities and had sizable vote shares in many others.[10]

3 Experimental design

3.1 Treatments

We collaborated with newspaper @Verdade (http://www.verdade.co.mz/).[11] This is a free newspaper created in 2008. It is a general-interest, privately owned newspaper run by social entrepreneurs, with a clear civic education mandate. Printed in South Africa, its distribution has mainly been in the Maputo city area. The interventions we study in this paper were designed and conducted with the active collaboration of newspaper @Verdade: it sees the dissemination of information and the encouragement of voter participation as central to its mission. We now turn to the description of each specific intervention, divided into SMS interventions and distribution of the newspaper.

The first set of interventions we study concerns the receiving of text messages on mobile phones. The pool of experimental subjects that received SMSs agreed to receiving SMSs relating to the

[9] Note that the 2013 municipal elections were generally evaluated as free and fair. This is despite several instances of irregularities and the fact that the elections in two municipalities (Gurué and Nampula) had to be repeated shortly after November 20. We should also mention the occurrence of some violence related to electoral campaigning in the two weeks before the election.

[10] In a general note, we should underline that Freedom House has been considering Mozambique a 'partly-free' country. 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 a clear resistance to proffer opinions about politics, and difficulty in grasping the role of democracy in improving economic outcomes. 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.

[11] Observatório Eleitoral, an organization blending the specific efforts of eight member Mozambican NGOs in the area of good electoral conduct and electoral observation, IREX, an international NGO devoted to media strengthening, and Parlamento Juvenil, a Mozambican movement focusing on youth rights, also supported this research project.

elections during our baseline survey.[12] These SMSs reminded voters about the municipal elections of November 2013. Some of them also encouraged voters to participate in the election. The receiving of text messages happened during the week before the elections, and varied across two dimensions.

Our first dimension of interest was the strength of the message. We varied the contents of the messages, going from simple and neutral reminders about the election to personal encouragements to vote. Specifically, we had a simple reminder message about the election ('REMEMBER: Municipal elections are on November 20.'), which we label placebo message, and we had messages labeled as coming from specific individuals. Each experimental subject was allocated other experimental subjects, a network. The subjects in these networks agreed to share their information and to have SMSs about electoral participation. We sent messages on their behalf as network reminders ('My name is XXX [first name, gender implied], I am a participant [gender] in the study on Mozambican politics, I am on my XXXs [age group], and I would like to remind you that the municipal elections are on November 20.') or network encouragements ('My name is XXX [first name, gender implied], I am a participant [gender] in the study on Mozambican politics, I am on my XXXs [age group], AND I WILL VOTE ON THE NEXT MUNICIPAL ELECTIONS ON NOVEMBER 20. I WOULD LIKE YOU TO VOTE AS WELL!'). We label the network reminders as neutral messages and the network encouragements as positive messages. Since the messages were not sent by the specific individuals they referred to, we prefer to denote these network messages as 'quasi-network' ones. Note that these messages included clear gender (stemming from the name of the subject and the Portuguese language gender reference in the word 'participant') and age anchors.[13] In addition to these three groups, we also had a control group of experimental subjects that had no messages sent to them.

Our second dimension of interest was quasi-network similarity. We varied the type of individuals assigned to each experimental subject. Specifically we had each experimental subject assigned both a similar quasi-network and a dissimilar quasi-network. The similar quasi-network was composed

[12] Only 6 percent opted out of receiving SMSs during the baseline survey.

[13] The original Portuguese versions of the three types of messages are the following. Reminder: '*LEMBRE-SE: As eleições municipais são no dia 20 de Novembro.'*. Quasi-network reminder: *'O meu nome e XXX, sou XXX [um(a)] participante no estudo sobre política Moçambicana, tenho idade nos XXXs, e gostaria de lembrar que as eleições municipais são no dia 20 de Novembro.'* Quasi-network encouragement: *'O meu nome e XXX, sou XXX [um(a)] participante no estudo sobre politica Moçambicana, tenho idade nos XXXs, E VOU VOTAR NAS PRÓXIMAS ELEIÇÕES MUNICIPAIS NO DIA 20 DE NOVEMBRO. GOSTAVA QUE VOTASSE TAMBEM!'*.

by two other experimental subjects, with the same gender and the same age group: subjects in the bottom half of the age distribution were paired with subjects in the bottom half and vice-versa. The dissimilar quasi-network was composed by two other experimental subjects, with the opposite gender and the opposite age group. Within each quasi-network, we divided messages across the four types of contents that we described above: control, placebo, neutral, and positive. The treatment assignment is summarized in Table 1, as a 3*3+1 design. Note that to maximize statistical power, we opted not to have the interaction of control messages corresponding to similar (dissimilar) quasi-networks and other types of contents corresponding to dissimilar (similar) quasi-networks.

<Table 1 near here>

During each of the six days before the elections and the election day (starting on November 14 and ending on November 20), we had each SMS treatment group sent four messages, two corresponding to the similar quasi-network and two corresponding to the dissimilar quasi-network. In the case of network reminders or encouragements, the two messages corresponding to a given type of quasi-network were labeled as originating from the two different network members. On November 13, each SMS treatment group also received a set of three introductory messages.[14] These SMS treatments were sent through an online platform, allowing the sending of bulk messages, designed on purpose for this experiment. It was linked to a shortcode that the newspaper @Verdade uses for receiving SMSs from readers. In that sense, experimental subjects could have associated the messages to an initiative by @Verdade.

The second set of interventions we study regards the distribution of weekly newspaper @Verdade in municipalities that had never had systematic distribution of that newspaper, which we label @Verdade municipalities. This distribution happened during the two/three weeks just before the electoral campaign of the municipal elections of November 2013. The distribution was set at the

[14] Reminder subjects received a contextual message three times ('You were interviewed for a study on Mozambican politics in the last 3 weeks. As mentioned then, we would like to send you messages relating to the elections of November 20.'). Subjects receiving neutral (network reminder) or positive (network encouragement) messages also received the message just described. However, they received it just once, and received two other messages containing background information to the quasi-network treatments, divided into procedure ('You were grouped with XXX [2 or 4] other people that we interviewed for our study. XXX ['These people are similar to you.' Or nothing] These individuals will share with you XXX ['information about' or 'whether they intend to vote in'] the municipal elections of November 20.') and purpose ('The objective of the messages sent by your group is to give you information about whether those people will vote, which may influence whether you vote on November 20.').

level of polling locations, i.e., door-to-door around polling locations (it approximated a random procedure as fieldworkers followed a pre-set interval between houses). The first round of distribution was performed either by enumerators in the context of our baseline survey, or by a group of fieldworkers associated with @Verdade. In each of these locations, around 100 newspapers were distributed in each week until the elections. We also had a control set of polling locations.[15]

3.2 Sampling and assignment to treatment

The sampling frame of our experiment was constructed from the voter registration map of the 2013 municipal elections, made available by the electoral administration arm of the National Electoral Commission (STAE). Mobile phone coverage is available in all municipalities of the country, so that was not a restriction when selecting our experimental locations.

We first asked the newspaper to select out the municipalities where distribution was not possible (some of the municipalities were too remote for the distribution channels of the newspaper). That procedure led us to 44 municipalities, from the total 53. 22 municipalities were selected from within the 44 municipalities through a block randomization procedure by which pairs of municipalities were formed (based on geographical proximity and the results of the 2009 national elections) and randomization was performed within pairs.[16] The following step was selecting polling locations and assigning the newspaper treatment. In each of the 22 municipalities, we randomly drew a group of polling locations with equal probability given to all polling locations. We then selected randomly treatment and control groups of polling locations, through block randomization by which blocks were formed primarily within municipality.[17] This procedure led us to 198 polling locations. Due to the conflict situation with RENAMO, fieldworkers faced clear difficulties in Sofala province, where they were impeded to operate at this point. This is the reason we had to drop the municipalities of Beira and Dondo from our study. The corresponding polling locations (21) had to

[15] Note that, given the conflict situation in central Mozambique in the weeks leading to the November elections, the newspaper shared the covering of the municipal elections with other important topics, namely those related to the conflict with RENAMO. See the following video, for some images of newspaper distribution in this project: http://vimeo.com/85717778.

[16] This selection procedure was implemented in view of securing municipal-level variation for a study at that level, which is outside the scope of this paper.

[17] Note that these blocks were triplets of locations, as we randomized between (i) initial distribution of the newspaper by enumerators in the context of our baseline survey, (ii) initial distribution by a group of fieldworkers associated with @Verdade, (iii) no distribution of the newspaper or control.

be substituted by (randomly drawn) additional polling locations in other municipalities covered in our experiment. The final number of polling locations in our experiment is 194, of a total of 331 possible polling locations in the municipalities covered by the experiment. The 194 polling locations were divided between 125 for newspaper distribution and 69 control. Figure 1 shows the 20 municipalities that were covered in our experiment.

<Figure 1 near here>

In the enumeration areas defined as catchment areas of the polling locations, we conducted two face-to-face surveys, one before the elections, and one after. Sampling within each enumeration area followed random walks during the baseline survey: namely, enumerators starting from the center of the enumeration area, typically the polling location, sought the nth houses along main routes. However, selection of the household was conditional on the corresponding household having a mobile phone available for receiving or sending SMSs. In each of these households, enumerators selected a random adult member of the household, stratifying by gender. The baseline survey included 1,530 respondents, on average eight per enumeration area. It took place from mid-October to the first week of the electoral campaign in November. The post-election survey started in early December, after the results were announced. It sought the same respondents, reaching 1,186 of them.

SMS treatments were randomized individually across baseline survey respondents. This randomization procedure was performed between the end of the baseline survey and the beginning of the SMS interventions in the last week of the electoral campaign to the November municipal elections. This was the timing of the publication of our pre-analysis plan. All SMS treatment groups of Table 1 had the same weight in our randomization procedure. Note that the quasi-network assignment was also randomized within the pool of experimental subjects that had the required characteristics for each individual (similar or dissimilar, in terms of gender and age).

3.3. Hypotheses

We published a pre-analysis plan just before we submitted the SMS treatments in the week before the 2013 municipal elections. This is available at the research registration website of Evidence in

Governance and Politics (EGAP).[18] All hypotheses analyzed in this paper were included in the pre-analysis plan. Note, however, that, while we stated clear predictions for outcomes representing political participation like voter turnout, we were agnostic about predictions on specific voting patterns for the different candidates. Still, we mentioned we would be testing treatment effects on voting for candidates. We now turn to the description of our stated hypotheses on political participation.

We start by the hypotheses relating to the SMS treatments. Specifically, we state that SMS treatments are expected to increase political participation, but that network reminders and encouragements are expected to be more powerful than simple reminders, and that network encouragements are expected to be more powerful than network reminders. Consistently with the literature on get-out-the-vote campaigns (e.g., Gerber and Green, 2000), the rationale for these hypotheses is that reminders matter for political participation, and that the more personal and passionate they are the more influential they become. Our first three hypotheses are:

H1: SMSs increase the likelihood of voter electoral participation.
H2: Reminders and encouragements from quasi-networks (neutral and positive SMSs) have a stronger impact on participation than simple reminders (placebo SMSs).
H3: Encouragements from quasi-networks (positive SMSs) have a stronger impact on participation than quasi-network reminders (neutral SMSs).

We also propose hypotheses relating to the composition of the quasi-networks. We state that similar networks are likely to influence experimental subjects more than dissimilar networks. This is a homophily hypothesis, as humans are more likely to identify with similar people (e.g., Centola, 2011). We also expect that men and older subjects are generally more influential. The following two statements make these hypotheses precise.

H4: Reminders and encouragements from similar quasi-networks (neutral and positive SMSs) have stronger effects on political participation than reminders and encouragements from dissimilar quasi-networks.

[18] http://egap.org/file/647/download?token=PNcAz72T.

H5: Reminders and encouragements (neutral and positive SMSs) from men and older subjects have stronger effects on participation than reminders and encouragements from women and younger subjects.

We now turn to hypotheses relating to the distribution of the newspaper. We hypothesize that the distribution of the newspaper increases political participation, as de facto mobilizer of voters (Aker et al., 2017).

H6: Newspaper distribution at the level of the polling location increases political participation.[19]

Finally, we hypothesize that SMS treatments are less powerful in increasing political participation in the presence of location-level political mobilization, as given by the distribution of newspapers. This is consistent with Fafchamps et al. (2018), who provide evidence suggesting free-riding of network-central individuals in face of location-level mobilization. In their paper, these central individuals are subject to more network influence towards participation. This is made precise in the following statement. Note, however, that in our paper we are able to distinguish centrality from social influence.

H7: Quasi-network reminders and encouragements (neutral and positive SMSs), relative to simple reminders (placebo SMSs), have a weaker effect on political participation in high mobilization locations, as given by newspaper distribution.

In the analysis of this paper, we also include voting for the different candidates as outcomes of interest. Even though we do not include specific hypotheses relating to these outcomes in the pre-analysis plan, we generally hypothesize that positive movements in participation like in voter turnout may go with positive movements in voting for the national incumbent and dominant party (FRELIMO). This is consistent with the view that voter education is generally associated with government institutions like the electoral commission. Aker et al. (2017) found the same pattern in a similar context with similar treatments.

[19] Note that we also hypothesized that the distribution of the newspaper by enumerators and by @Verdade lead to similar effects on electoral participation. This is verified in our results – the distinction between these two types of distribution is available upon request.

3.4. Measurement

The individual measurement in our experiment comes from behavioral measures of political participation, specifically through the observed sending of SMSs by experimental subjects, from measures of voter turnout based on survey data and ballot box replication, and from measures of voting preferences from ballot box replication. At the level of the polling location, we employ official electoral results published by STAE.

We begin by describing our (individual) behavioral measures of political participation. We asked experimental subjects to send SMSs concerning the municipal elections to the newspaper shortcode. We are able to identify the messages that were sent by each individual in our experiment by having access to the messages received in the shortcode and by matching mobile phone numbers. The sending of SMSs was costly in monetary terms: each SMS to the shortcode was priced at 3MT, i.e., close to 0.1USD. It was also costly in non-monetary terms, as senders had to spend some time/effort thinking about what to write and writing the message on their mobile phones. Sending a text message therefore represents a clear costly action. It is arguably a better measure of political participation than corresponding survey questions, which are typically susceptible to social desirability bias.

Our first behavioral measure of political participation was created through establishing a hotline system. Our hotline was based on the dissemination of the newspaper shortcode and the invitation to send text messages reporting local electoral problems, which would be channeled to @Verdade. Information about the hotline system was given individually to all experimental subjects during the baseline survey. As part of these dissemination efforts, we distributed leaflets providing the basic information about the hotline system: shortcode, examples of problems, format of reports to be sent - specifically, label, polling location name first, description of the problem second -, and the sponsors of the initiative. The hotline leaflet is depicted in Figure 2. Each leaflet was printed on both sides of one page, with each side providing different SMS examples, one for the electoral campaign, and the other for the election day. Experimental subjects were also sent SMS reminders about the existence of the hotline system. We will employ in our analysis below a measure of whether our experimental subjects sent a hotline SMS.

<Figure 2 near here>

Our second behavioral measure of political participation was gathered through an open letter system. During the post-election survey, all respondents were invited to send SMSs proposing policy priorities to the newly elected mayors. Experimental subjects were promised that the contents of these messages would reach the corresponding mayors in person, namely through @Verdade. As with the hotline, dissemination of the open letter was based on the distribution of a leaflet, which included two sides with two different examples of possible messages, shortcode, format of the message (including label), and sponsors. The leaflet is depicted in Figure 3. Experimental subjects were also sent SMS reminders about the existence of the open letter system. We will employ in our analysis below a measure of whether our experimental subjects sent an open letter SMS.

<Figure 3 near here>

We also measure individual political participation from the sending of text messages related to the elections, as invited by the newspaper. The newspaper disseminated the shortcode on its own for general comments of their readers about the elections. For several years, every week, the newspaper has been publishing in its printed edition some of the comments received on its shortcode. Note that information about the sending of messages of this type will be included in our aggregate behavioral analysis: both in our measure of whether our experimental subjects sent an SMS of any type (hotline, open letter, or by newspaper invitation), and in our measure of how many SMSs of any type they sent.

We now devote our attention to the individual measures of voter turnout we employ in this paper. These are based on information gathered during the post-election survey.[20] We dedicated a module of the questionnaire to asking questions about all details of the election-day experience of the respondent. We construct three alternative measures of individual turnout.

The first measure is direct self-reported turnout. The second is an interviewer assessment, after all questions about the election day were asked, on whether the respondent voted or not – enumerators were trained to watch body language as well. This measure takes into consideration survey questions that tested the respondents' knowledge about ballot station facts: these included how

[20] We tried to be particularly careful with our measurement of voter turnout 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.

many ballot papers there were, whether there were photos on the ballot papers, how many ballot boxes there were, whether a finger was to be inked at the end of the voting, and which finger was to be inked at the end of the voting.[21] It also takes into account other reported details on the election-day experience of the respondent.[22] Finally, we asked our experimental subjects, during the submission of the post-election questionnaire, to replicate their voting at the municipal elections, by asking them to fill a copy of the ballot paper and by making available a transparent ballot box for vote insertion. Note that these transparent ballot boxes always had other ballot papers inside, despite the fact that experimental subjects were not told their replicated vote would be anonymous. Indeed, these ballot papers were marked, so that enumerators could identify each individual vote by experimental subjects. Those individuals that did not vote in the replica ballot box were counted as not voting in our box measure of turnout.

We now detail our individual measurement of voting for the different candidates/parties. As described above, we asked all respondents to our post-election survey to replicate their voting in the municipal elections, by using a copy of the ballot paper and a transparent ballot box. The enhanced sense of anonymity that this measurement is likely to entail may help producing accurate measures of voting. We will employ below measures of voting for FRELIMO using the votes recorded in these ballot boxes.

Our measurement of voting behavior at the polling location level comes from official data from STAE, including voter turnout (share of registered voters), null and blank votes (shares of votes), and voting for the different candidates (shares of votes). Note that we distinguish voting for the president of the municipality and for the municipal assembly, which had different ballot papers.

3.5 Estimation strategy

[21] Note that we prepared a measure of voter turnout on the basis of observing whether the fingers post-election survey respondents were inked. However, there were numerous complaints concerning the fact that the ink that was provided by the National Electoral Commission/STAE disappeared easily on the same day, allowing the possibility of voting more than once. We therefore decided not to use this measure.

[22] These included questions on: with whom the respondent went to vote; what the name of the polling location was, and how to get there; what the respondent did before and after voting; how long the respondent took to go from home to the polling location; what time the respondent voted; whether there was more than one ballot table in the polling locations; whether it was difficult to find the right ballot table; how long the respondent waited in line to vote; what happened when the respondent was waiting in line; how many people and who sat at the polling table; what happened when the respondent got to the polling table; whether the respondent could see anyone from the polling booth; whether ballot boxes were transparent and had different colors.

Our empirical approach estimates treatment effects on the variety of outcome variables that we have available relating to behavioral political participation, voter turnout, voting for the different candidates/parties. We now describe the main econometric specifications we employed for the estimation of these parameters. We focus on individual level regressions as the location-level ones we employ follow the same structure.

Our design allows us to estimate average treatment effects. The effect of interest (β) can be estimated through the specification:

$$Y_{l,i,post} = \alpha + \theta X_{l,i} + \beta T_{l,i} + \varepsilon_{l,i,post}, \quad (1)$$

where Y is an outcome of interest, $l, i, post$ are identifiers for locations, individuals, and time - specifically, $post$ represents the post-election measurement -,[23] $X_{l,i}$ is a vector of location and individual (demographic) controls. $T_{l,i}$ is a vector of dummy variables representing the treatments with value 1 for treated units.

In some regressions, we are interested in interaction effects between different treatments, or between treatments and fundamental demographic characteristics like gender and age. In those occasions, we estimate a specification of the type that follows. Here, we exemplify by aiming for the estimation of the interaction between two treatments. The coefficient of interest would be δ.

$$Y_{l,i,post} = \alpha + \theta X_{l,i} + \beta T_{l,i}^{SMS} + \gamma T_{l}^{NEWS} + \delta T_{l,i}^{SMS}.T_{l}^{NEWS} + \varepsilon_{l,i,post}, \quad (2)$$

where $T_{l,i}^{SMS}$ and T_{l}^{NEWS} are SMS and newspaper distribution treatments, respectively.

For ease of interpretation and transparency, we employ OLS estimations throughout the paper. We cluster standard errors at the level of the enumeration area in all regressions.

[23] Note that, in the regressions shown in the paper, we focus on simple-difference regressions (instead of difference-in-differences or ANCOVA). We do not have available baseline data for the behavioral political participation measures and for some of the measures on electoral behavior. Using data on the previous municipal elections would be problematic, as comparability cannot be guaranteed given different pools of candidates/parties in the two elections.

While employing the algorithm described in Romano and Wolf (2016), we also compute, for each null hypothesis under study, a corresponding p-value adjusted for the stepwise multiple hypothesis testing method proposed in Romano and Wolf (2005a,b). This method is stepdown like other improvements over Bonferroni (e.g., Holm, 1979), and resampling-based, which allows accounting for dependence between hypotheses. Hence, the underlying procedure allows increasing the power of the testing over other previous methods.

4 Econometric results

4.1 Balance

Tables 2 display mean demographic and political characteristics in the SMS and newspaper control groups, as well as differences between control and treatment groups. Specifically, we consider treatment groups defined by the type of SMS received (placebo, neutral, or positive) for each type of quasi-network (similar and dissimilar), and the treatment group defined by the location-level distribution of newspaper @Verdade. The statistical significance of the differences to the corresponding control group is tested to assess comparability across the different groups. A joint F-Test is also displayed for each trait, resulting from a regression on dummy variables for each of the treatment groups included in the table. We employ a wide range of observable individual characteristics, based on data gathered during our baseline survey. These include basic demographics (gender, age, household size, marital status, and education), religion, ethnicity, occupation, assets owned by the household, and reported voting behavior in the 2009 general elections.

<Tables 2 near here>

Overall, we observe few differences (at standard significance levels) between treatment and control groups. In terms of basic demographics, religion, and ethnicity, we see no statistically significant differences across the different SMS comparison groups, and just one significant difference, for frequency of primary school, when contrasting distribution of the newspaper to its control group. For this demographic trait, we also have a significant joint F-test. In terms of occupation and asset ownership, when considering SMS treatments, we observe two significant differences for being a farmer and for owning a bike, and one significant difference for owning a mobile phone; when considering the newspaper, we report one significant difference for being an artisan. We do not

find any statistically significant differences when taking reported behavior in the 2009 elections. No joint F-tests are significant for occupation, asset ownership, and political behavior. We note that, for each treatment group considered, we have at most two statistically significant differences to the control in 32 characteristics. Overall, just seven differences to control are significant in 224 differences tested, and just one joint F-test is significant in 32 tests performed. All significant tests are well below the 10 percent threshold in any dimension considered. This is evidence that the randomization procedures were effective at isolating similar groups of respondents.

Tables 2 also provide a comprehensive description of our experimental sample. It is worth noting that the average respondent in the SMS control group was 32 years old. 95 percent of these individuals reported having some education. The main ethnicities represented were Macua (the dominant group in the North) and Changana (the dominant group in the South). 96 percent of the experimental households owned a mobile phone. 90 percent of registered voters reported to have voted in the 2009 general elections.

4.2 SMS treatments

We now turn to our treatment effects. We begin by analyzing the impact of the SMS treatments on our behavioral measures of political participation, on our measures of voter turnout, and on voting decisions as given by the pattern of voting in our replicated ballot box. Specifically, we test hypotheses H1 to H5 in our experiment, as described above.

Table 3 is devoted to testing H1, i.e., that SMS treatments increased political participation. By political participation, we mean whether individuals sent a hotline SMS, an open letter SMS, or any text message to the newspaper shortcode. We also consider the total number of text messages sent by individuals. Voter turnout is the central measure of political participation we adopt: in Table 3, we include as specific outcome measures of voter turnout the self-reported survey measure, the interviewer final assessment of whether the respondent voted (informed by all the survey questions on the election day), and whether individuals voted in our replicated ballot box. We also check whether SMS treatments changed voting for FRELIMO candidates in the replicated ballot box. All outcome variables we consider are binary except the number of SMS that was sent by our experimental subjects. Our treatment effect contrasts the group that includes all individuals assigned an SMS treatment in our experiment to the SMS control group. For each outcome variable

we first show regressions with no controls (top panel), and then add individual controls (bottom panel), following specification (1).[24]

<Table 3 near here>

First of all, we should note that 3 percent of the SMS control group sent a hotline message, 3 percent sent an open letter message, and 15 percent sent any message. We also see that the average number of messages sent by experimental subjects in the control group was 0.22. Self-reported turnout in the SMS control group was 84 percent, which compares to 67 percent in the interviewer assessment, and 83 percent in the box measure. Actual turnout in the polling locations without newspaper distribution in our experiment was 46 percent. It is then very likely that our survey self-reported measure embeds a considerable over-estimation of turnout. We can also observe that 92 percent of the SMS control voters in our replicated procedure voted for FRELIMO. It is also very likely that voting for FRELIMO is over reported as actual figures from the polling locations without newspaper distribution in our experiment were 65 percent for FRELIMO.

We find clear effects of the SMS treatments on increasing the probability of sending a text message of any type and the number of text messages of any type. The treatment effects are an increase in 7.6-8.4 percentage points in the probability of sending an SMS, statistically significant at the 5 percent level, and an increase in 0.31-0.33 in the number of messages sent, significant at the 1 percent level. Note that these treatment effects pass the Romano-Wolf procedure for multiple hypothesis testing, which we apply to the two groups of outcome variables in the table. We also see effects on all our voter turnout measures. These effects are positive and range between 6.9-7.1 (self-reported), 8.3-9.3 (interviewer assessment), and 7-7.6 percentage points (box). These effects also pass multiple hypothesis testing when including controls. We observe no statistically significant differences in voting for FRELIMO in the replicated voting procedure we adopted. We can safely conclude that, overall, SMSs lead to higher levels of political participation, in line with H1.

In Table 4, we distinguish the differences between control and each of the nine SMS treatments we have in our experiment. We see that significant differences are not clearly clustered on any type of treatment, except perhaps for non-placebo groups. In accordance to the effects observed for Table

[24] These include basic demographics as described in Tables 2, i.e., gender, age, household size, education, and employment status.

3, significant treatment effects are only for behavioral SMS and turnout outcomes. We now devote finer attention to different types of SMS treatments.

<Table 4 near here>

In Figure 4, we analyze H2 in panel A and H3 in panel C, i.e., that neutral and positive SMSs (reminders and encouragements) from quasi-networks have a stronger impact on participation than placebo SMSs (simple reminders), and that positive SMSs (encouragements) from quasi-networks have a stronger impact on participation than neutral SMSs (reminders) from quasi-networks. We also check in panel B if neutral SMSs (reminders) from quasi-networks have an effect over placebo SMSs (simple reminders). We analyze the same outcome variables as before, and just show, for simplicity, treatment effects with corresponding confidence intervals at the 95 percent level. Note that the regressions we employ here do not include the SMS control group. They also do not include groups with positive messages in panel B and groups with placebo messages in panel C. All regressions considered include controls as in specification (1).

<Figure 4 near here>

When looking at panel A to check the effect of all types of messages coming from quasi-networks, we observe a statistically significant positive effect on the number of behavioral SMSs sent: the magnitude is 0.21 more messages sent, significant at the 10 percent level. However, the Romano-Wolf p-value is above 10 percent. We also find positive impacts on other behavioral SMS outcomes and in most turnout measures: however, these are not statistically significant. Close to statistical significance is a positive effect on voting for FRELIMO, in line with the previous literature, but, again, this is only suggestive. This evidence goes in line with H2, but statistical significance is at best marginal. In panel C, we find no significant or sizable positive effects on political participation or voting for FRELIMO. In fact, we observe a negative and significant effect on whether a hotline message was sent. We can then securely say that we do not have evidence in favor of H3. We can also state that the suggestive effects in favor of H2 seem to be coming primarily from the difference between neutral messages over placebo. This is confirmed in panel B, as we observe a statistically significant effect for the sending of behavioral SMSs – specifically, the probability of sending a hotline message increases by 2.8 percentage points, significant at the 5 percent level. Note, however, that we do not find significance when employing the Romano-Wolf procedure for multiple hypothesis testing. We also find a positive effect on voting for FRELIMO, close to

significance at standard levels when considering regular hypothesis testing. Our conclusion is then that SMS labelled as coming from quasi-networks seem to have a positive effect on political participation, even though statistical significance is generally not achieved.

We now turn to exploring the effects of network characteristics, in the context of the SMSs labeled as originating from quasi-networks, on the same set of outcomes that we have been analyzing. Table 5 tests H4 (homophily) in panel A, i.e., that neutral and positive SMSs (reminders and encouragements) from similar quasi-networks have stronger effects than neutral and positive SMSs from dissimilar quasi-networks; and H5 in panel B, i.e., that neutral and positive SMSs from men and older subjects have stronger effects than neutral and positive SMSs from women and younger subjects. In panel A, we regress our outcomes on two dummy variables for neutral or positive messages coming from similar quasi-networks, and neutral or positive messages coming from dissimilar quasi-networks. The value 0 on both dummies is assigned to receiving placebo messages, as the SMS control group is excluded from analysis. In panel B, we interact these two dummy variables with gender and age dummies, while controlling for all mentioned variables in isolation. Following H5, we expect that both the interaction of similar and male/old and the interaction of dissimilar and female/young are positive for political participation and voting for FRELIMO. All regressions include demographic controls following specification (1) or (2) above.

<Table 5 near here>

Relating to H4, we find significant effects on the voting pattern: namely, similar quasi-networks influence voters to vote more for FRELIMO. The size of the effects is 4.5 percentage points, with significance at the 10 percent level. Note that these effects pass multiple hypothesis testing. However, the two coefficients for the two types of networks are not statistically different. Surprisingly, we find a positive effect of dissimilar networks on the sending of an open letter message. The size of this effect is 2.5 percentage points, it is statistically significant at the 1 percent level, and it is statistically different from the effect of similar networks, which is close to zero. We do not find significant effects on voter turnout of SMSs originating from similar or dissimilar quasi-networks. We conclude that H4 does not seem to be true, even though we have some evidence that similar networks influence voters to vote for FRELIMO.

On H5, we observe that male subjects seem to be influencing peers to send more messages: both interaction coefficients are positive (magnitude is 0.33-0.35 more messages) and statistically

significant at the 5 or 10 percent levels. Note however that the Romano-Wolf p-values are above standard levels. Moreover, the test of the null that the sum of the two coefficients is zero shows that male subjects also influence their peers in terms of increasing the probability of sending an SMS of any type – the null of no effect can be rejected with 96 percent probability. We also find a positive and significant effect on voter turnout of neutral or positive messages originating from males on males. However, we find a negative and significant effect of males on female turnout. Both effects are for the measure of turnout based on interviewer assessments, and are close to significance when considering the p-values of multiple hypothesis testing. We also have suggestive evidence that males influence females, through neutral and positive messages, to vote more for FRELIMO, even though statistical significance is not achieved. On the patterns relating to age, we can document that old subjects seem to influence old peers, through neutral and positive messages, to vote more for FRELIMO. The magnitude is 10 percentage points, significant at the 5 percent level, while passing multiple hypothesis testing. The overall effect of old peers (counting with both effects on young and old recipients of messages) is also positive and statistically significant. We conclude that we have some evidence in favor of H5, as older subjects seem to be driving their peers (primarily older peers) to vote for FRELIMO. Moreover, we have some evidence that males positively influence the political participation of both other males and females.

Overall, we conclude that some SMS interventions we study in this paper modified aspects of the voter participation in the municipal elections of November 2013. Specifically, on average, the SMS treatments led to an increase in the sending of SMS relating to the elections and the turnout of voters. There is some suggestive evidence (not robust to multiple hypothesis testing) that neutral and positive messages labeled as coming from peers (compared to placebo messages) were effective at increasing SMS political participation. However, there is no evidence that positive messages from peers (compared to neutral messages) changed political behavior. We also did not find much evidence in favor of positive influence by similar peers (homophily): the exception is that similar networks influence voters to vote for FRELIMO. We identified the same pattern of vote changes when analyzing the influence of old subjects on their peers. In addition, we have some evidence that males positively influence the level of political participation of others.

4.3 Newspaper treatment

We now analyze the impact of the newspaper treatment, as given by the location-level distribution of newspaper @Verdade. We assess impact on the official electoral results at the polling location

level in Table 6. These results include voter turnout, null and blank votes, and voting for FRELIMO and MDM, while distinguishing between elections for the President of the Municipality (PM) and for the Municipal Assembly (MA). This analysis serves the purpose of testing hypothesis H6, i.e., that newspaper distribution at the level of the polling location increases political participation. We also see if, consequently, voting for FRELIMO increases. We consider both the full sample of all polling stations in the municipalities where the study was conducted, and the sample where surveying was conducted. Since polling locations within these municipalities were randomly drawn, both samples are valid for experimental inference. We employ specifications without and with demographic controls aggregating the same traits as before at the level of the enumeration area in the case of the sample where surveys were conducted.

<Table 6 near here>

We find clear positive effects of the newspaper treatment on voter turnout. This is a 6 percentage-point effect, across both types of elections, when considering the full sample. This effect is significant at the 1 percent level (also when performing multiple hypothesis testing). When considering the surveyed sample, we observe a 3-4 percentage-point effect in the specification with controls, which is marginally significant. When considering effects on null and blank votes, we find that all point estimates are negative in line with the idea that treated voters had more information about how to vote meaningfully. Some of the effects for blank votes are actually statistically significant: point estimates are between 0.4-0.6 percentage points when employing the surveyed sample, with significance at the 5 or 10 percent levels (however it does not survive multiple hypothesis testing). In line with previous literature, we also find positive effects on voting for FRELIMO: the magnitude is 5 or 9 percentage points (depending on the election), significant at the 1 percent level, while passing multiple hypothesis testing, when employing the full sample. When significant, effects on voting for MDM are correspondingly negative. Generally, we can conclude in favor of H6, i.e., that the newspaper distribution led to higher voter turnout. We also find a positive impact on voting for FRELIMO. Both findings are in line with previous literature (Aker et al., 2017).

4.4 Interaction between SMS and newspaper

Finally, we turn to the interaction of the SMS and information treatments. We check impact on the variables relating to individual political behavior as we employed before. We test hypothesis H7 in

Table 7, i.e., that neutral and positive SMSs by quasi-networks (reminders and encouragements), relative to placebo SMSs (simple reminders), have a weaker effect for more subjects targeted by newspaper distribution at the location-level. We take the same definition of SMS treatment as in panel A of Figure 4, i.e., as having received neutral or positive messages from quasi-networks. This means we exclude the SMS control group from the analysis. The newspaper treatment variable is the same as in Table 6, i.e., corresponding to the location-level distribution of newspaper @Verdade. Our analysis includes regressions without and with control variables.

<Table 7 near here>

Overall, we can observe positive interaction effects. These effects are significant for two measures of turnout, self-reported and box, with magnitudes between 12 and 19 percentage points, at the 1 or 5 percent levels. Note that some of these effects pass multiple hypothesis testing. We also find significant interactions (although not surviving the Romano-Wolf procedure) for the likelihood of sending the open letter, with magnitude 5 percentage points. We also find positive point estimates on voting for FRELIMO, which approach but do not reach statistical significance at standard levels. We therefore cannot find evidence in favor of H7 or in line with previous findings (Fafchamps et al, 2018): in fact, we find evidence for a more positive impact of the quasi-network SMSs, representing peer influence, in face of location-level mobilization of voters as given by newspaper distribution.

These results may, however, be seen as unsurprising. Fafchamps et al. (2013) found that individuals with stronger networks voted less often when faced with newspaper distribution during the 2009 presidential and parliamentary elections. These authors interpreted this negative interaction effect as free-riding, as more central individuals anticipate that voter turnout is going to increase because of voter education. However, centrality may have different meanings. This is crucial. Centrality may mean our subjects receive more peer influence (as in our SMS treatments). However, it may also mean that they are more aware of location-level mobilization efforts. Indeed, if they are more aware of these efforts, they may well free ride on others' increased voter turnout. That does not mean peer influence cannot have a positive impact on top of location-level mobilization of voters, as we find cleanly in this paper.

5 Concluding remarks

In this paper, we tested the role of social influence on political behavior. This testing was achieved in the context of a field experiment conducted in Mozambique during the municipal elections of 2013. We assigned random networks to experimental subjects and tested the impact of several types of text messages focusing on voter turnout, some of them labeled as coming from peers. We also followed the distribution of free newspaper @Verdade. We find clear effects of text messaging on political participation, namely voter turnout. However, labeling messages as coming from networks, having networks encouraging the vote, or having messages sent by similar peers, does not seem to produce a clear added impact on voter turnout. We do find some evidence (sometimes suggestive) that messages coming from peers were effective at increasing SMS political participation, that similar peers and old subjects influence voters to vote for FRELIMO, and that males positively influence the level of participation of their peers. Turning to newspaper distribution, we find positive effects on voter turnout and voting for FRELIMO at the polling location level, while employing official results. Finally, we observe a positive interaction between network SMSs and newspaper distribution, i.e., that network SMSs produce stronger political participation, mainly voter turnout, when experimental subjects are treated with newspaper distribution.

Looking at the results of this paper, we infer that SMSs providing information about the elections and mobilizing voters to vote, as well as the distribution of free newspapers, are effective at producing political participation. We detect effects on voter turnout of our average SMS between 7 and 9 percentage points (individual data), and of newspaper distribution between 3 and 6 percentage points (location data). Both are comparable to the effects found during the 2009 elections (Aker et al., 2017). For policy makers interested in increasing the levels of political participation in Mozambique and similar contexts, we can then provide reassurance that these forms of voter education are effective. However, we add two specific implications armed with the strength of causal identification: (i) peer influence from older and male individuals is particularly effective, namely in driving political participation and votes for the ruling party; (ii) peer influence may be complementary to location-level political mobilization efforts. The second finding should provide encouragement that providing platforms for peer influence is likely to magnify political participation.

References

Aker, Jenny, Paul Collier, and Pedro C. Vicente (2017), *Is Information Power? Using Cell Phones and Free Newspapers in an Election in Mozambique*, Review of Economics and Statistics, 99(2), pp. 185-200;

Arias, Eric, Pablo Balan, Horacio Larreguy, John Marshall, and Pablo Querubin (2017), *How Social Networks Help Voters Coordinate around Information Provision to Improve Electoral Accountability: Evidence from Mexico*, Harvard University, mimeograph;

Banerjee, Abhijit. V., Selvan Kumar, Rohini Pande, and Felix Su (2011), *Do Informed Voters Make Better Choices? Experimental Evidence from Urban India*, Harvard University, Working Paper;

Batista, Cátia, and Pedro C. Vicente (2011), *Do Migrants Improve Governance at Home? Evidence from a Voting Experiment*, World Bank Economic Review, 25(1), pp. 77-104;

Bentham, Jeremy (1999), *Political Tactics*, in *The Collected Works of Jeremy Bentham*, Michael James, Cyprian Blamires, and Catherine Pease-Watkin (eds.), Oxford University Press;

Centola, Damon (2011), *An Experimental Study of Homophily in the Adoption of Health Behavior*, Science, 334, pp. 1269-1272;

Chong, Alberto, Ana De La O, Dean Karlan, and Leonard Wantchekon (2015), *Does Corruption Information Inspire the Fight or Quash the Hope? A Field Experiment in Mexico on Voter Turnout, Choice and Party Identification*, Journal of Politics, 77(1), pp. 55-71;

Collier, Paul, and Pedro C. Vicente (2014), *Votes and Violence: Evidence from a Field Experiment in Nigeria*, joint with Paul Collier, Economic Journal, 124(574), pp. F327-355;

Conley, Timothy G., and Christopher R. Udry (2010), *Learning About a New Technology: Pineapple in Ghana*, American Economic Review, 100(1), pp. 35-69;

Cruz, Cesi, Philip Keefer, Julien Labonne (2017), *Incumbent Advantage, Voter Information, and Vote Buying*, University of Oxford, mimeograph;

Dale, Allison., and Aaron Strauss (2009), *Don't Forget to Vote: Text Message Reminders as a Mobilization Tool*, American Journal of Political Science, 53(4), pp. 787-804;

De Brito, Luis (2007), *A Democracia à Prova da Urnas: Elementos para um Programa de Pesquisa Sobre a Abstenção Eleitoral em Moçambique*, IESE, Conference Paper 3;

Duflo, Esther, Rachel Glennerster, and Michael Kremer (2007), *Using Randomization in Development Economics Research: A Toolkit*, In *Handbook of Development Economics*, eds. T. Paul Schultz, and John Strauss, 4, pp. 3895–3962, Elsevier;

Fafchamps, Marcel, and Julien Labonne (2018), *Family Networks and Distributive Politics*, University of Oxford, mimeograph;

Fafchamps, Marcel, and Pedro C. Vicente (2013), *Political Violence and Social Networks: Experimental Evidence from a Nigerian Election*, Journal of Development Economics, 101, pp. 27-48;

Fafchamps, Marcel, Ana Vaz, and Pedro C. Vicente (2018), *Voting and Peer Effects: Experimental Evidence from Mozambique*, Economic Development and Cultural Change, forthcoming;

Ferraz, Claudio, and Frederico Finan, (2008), *Exposing Corrupt Politicians: the Effects of Brazil's Publicly Released Audits on Electoral Outcomes*, Quarterly Journal of Economics, 123(2), pp. 703-745;

Finkel, Steven E., and Amy Erica Smith (2011), *Civic Education, Political Discussion, and the Social Transmission of Democratic Knowledge and Values in a New Democracy: Kenya 2002*, American Journal of Political Science, 55(2), pp. 417-435;

Fujiwara, Thomas (2015), *Voting Technology, Political Responsiveness, and Infant Health: Evidence from Brazil*, Econometrica, 83(2), pp. 423-464;

Fujiwara, Thomas, and Leonard Wantchekon (2013), *Can Informed Public Deliberation Overcome Clientelism? Experimental Evidence from Benin*, American Economic Journal: Applied Economics, 5(4), pp. 241-255;

Gerber, Alan S. and Donald P. Green (2000), *The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment*, American Political Science Review, 94(3), pp. 653-663.

Gerber, Alan S., Donald P. Green, and Christopher W. Larimer (2008), *Social Pressure and Vote Turnout: Evidence from a Large-Scale Field Experiment*, American Political Science Review, 102(1), pp. 33-48;

Gerber, Alan S., Dean Karlan, and Daniel Bergan (2009), *Does the Media Matter? A Field Experiment Measuring the Effect of Newspapers on Voting Behavior and Political Opinions*, American Economic Journal: Applied Economics, 1(2), pp. 35-52;

Gine, Xavier, and Ghazala Mansuri (2018), *Together We Will: Experimental Evidence on Female Voting Behavior in Pakistan*, American Economic Journal: Applied Economics, 10(1), pp. 207-35;

Grossman, Guy, and Kristin Michelitch (2018), *Information Dissemination, Competitive Pressure, and Politician Performance between Elections: A Field Experiment in Uganda*, American Political Science Review, forthcoming.

Grossman, Guy, Macartan Humphreys, and Gabriella Sacramone-Lutz (2014), "I wld like u WMP to extend electricity 2 our village": On Information Technology and Interest Articulation, American Political Science Review, 108(3), 688-705;

Holm, Sture (1979), *A Simple Sequentially Rejective Multiple Test Procedure*, Scandinavian Journal of Statistics, 6, pp. 65-70;

Humphreys, Macartan, and Jeremy Weinstein (2012), *Policing Politicians: Citizen Empowerment and Political Accountability in Uganda*, Working Paper;

León, Gianmarco (2017), *Turnout, Political Preferences and Information: Experimental Evidence from Peru*, Journal of Development Economics, 127, pp. 56-71;

Marx, Benjamin, Vincent Pons, and Tavneet Suri (2017), *The Perils of Voter Mobilization*, NBER Working Paper No. 23946;

Mattes, Robert, and Carlos Shenga (2007), *'Uncritical Citizenship' in a 'Low-Information' Society: Mozambicans in Comparative Perspective*, Afrobarometer, Working Paper 91;

McPherson, Miller, Lynn Smith-Lovin, and James M. Cook (2001), *Birds of a Feather: Homophily in Social Networks*, Annual Review of Sociology, 27(1), pp. 415-444;

Nickerson, David W. (2008), *Is Voting Contagious? Evidence from Two Field Experiments*, American Political Science Review, 102(1), pp. 49–57;

Pereira, Joao, Yul D. Davids, and Robert Mattes (2002), Mozambicans' Views of Democracy and Political Reform: A Comparative Perspective, Afrobarometer, Working Paper 22;

Pereira, Joao, Ines Raimundo, Annie Chikwanha, Alda Saute, and Robert Mattes (2003), *Eight Years of Multiparty Democracy in Mozambique: The Public's View*, Afrobarometer, Working Paper 30;

Romano, Joseph P., and Michael Wolf (2005a), *Exact and Approximate Stepdown Methods for Multiple Hypothesis Testing*, Journal of the American Statistical Association, 100(469), pp. 94-108;

Romano, Joseph P., and Michael Wolf (2005b), *Stepwise Multiple Testing as Formalized Data Snooping*, Econometrica, 73(4), pp. 1237-1282;

Romano, Joseph P., and Michael Wolf (2016), *Efficient Computation of Adjusted p-values for Resampling-based Stepdown Multiple Testing*, Statistics & Probability Letters, 13, pp 38-40;

Vicente, Pedro C. (2014), *Is Vote-buying Effective? Evidence from a Field Experiment in West Africa*, Economic Journal, 124(574), pp. F356-387;

Wantchekon, Leonard (2003), *Clientelism and Voting Behavior: Evidence from a Field Experiment in Benin*, World Politics, 55, pp. 399-422.

Appendix

Table 1: SMS treatment groups

			dissimilar quasi-network		
		control	**placebo**	**neutral**	**positive**
similar quasi-network	**control**	X			
	placebo		X	X	X
	neutral		X	X	X
	positive		X	X	X

Figure 1: Experimental municipalities

Figure 2: Hotline leaflets

Figure 3: Open letter leaflets

Table 2a: Individual characteristcs - baseline difference across treatment dimensions

	sms networks						newspaper @verdade		
	control	similar quasi-network			dissimilar quasi-network				F-stat
		placebo	neutral	positive	placebo	neutral	positive	control	newspaper	p-value
male	0.477	0.009	0.019	0.054	0.01	0.019	0.053	0.513	-0.011	0.311
		(0.051)	(0.053)	(0.052)	(0.052)	(0.050)	(0.053)		(0.008)	
age	32	0.662	1.591	2.058	1.702	2.035	0.582	33.994	-1.161	0.358
		(1.293)	(1.333)	(1.476)	(1.365)	(1.454)	(1.302)		(0.850)	
household size	5.578	-0.194	-0.043	0.407	0.086	-0.012	0.094	5.847	-0.345	0.108
		(0.316)	(0.361)	(0.345)	(0.327)	(0.330)	(0.373)		(0.238)	
single	0.454	-0.023	-0.042	-0.024	-0.051	-0.028	-0.01	0.419	0.031	0.840
		(0.045)	(0.047)	(0.048)	(0.048)	(0.045)	(0.045)		(0.037)	
union or married	0.492	0.032	0.065	0.042	0.059	0.053	0.027	0.525	-0.005	0.835
		(0.048)	(0.049)	(0.050)	(0.050)	(0.047)	(0.047)		(0.035)	
no education	0.046	0.019	0.02	0.006	0.026	-0.002	0.021	0.072	-0.003	0.556
		(0.021)	(0.021)	(0.023)	(0.023)	(0.020)	(0.022)		(0.018)	
primary frequency	0.262	0.02	-0.029	0.001	-0.003	0.034	-0.038	0.308	-0.072**	0.025
		(0.045)	(0.043)	(0.044)	(0.043)	(0.046)	(0.045)		(0.031)	
primary schooling	0.485	-0.083	-0.017	-0.039	-0.067	-0.038	-0.033	0.412	0.035	0.402
		(0.054)	(0.052)	(0.050)	(0.053)	(0.051)	(0.053)		(0.030)	
no religion	0.063	0.003	0.012	-0.01	0.01	0.005	-0.01	0.064	-0.011	0.604
		(0.023)	(0.020)	(0.024)	(0.022)	(0.024)	(0.023)		(0.020)	
catholic	0.313	0.007	-0.011	0.053	0.006	0.01	0.033	0.324	-0.012	0.407
		(0.046)	(0.046)	(0.045)	(0.047)	(0.047)	(0.044)		(0.039)	
muslim	0.266	-0.006	0.01	-0.023	0.006	-0.011	-0.014	0.275	0.048	0.873
		(0.038)	(0.037)	(0.037)	(0.036)	(0.038)	(0.037)		(0.053)	
macua	0.325	-0.017	-0.016	-0.035	-0.025	-0.018	-0.025	0.318	0.066	0.912
		(0.029)	(0.030)	(0.035)	(0.030)	(0.033)	(0.030)		(0.068)	
changana	0.198	-0.004	-0.013	-0.014	-0.007	-0.003	-0.021	0.202	-0.032	0.963
		(0.036)	(0.033)	(0.033)	(0.032)	(0.035)	(0.034)		(0.047)	

Note: Standard errors of the differences to corresponding control groups reported in parenthesis. The last column displays the p-value of an F-test of joint significance resulting from a regression on dummy variables for each of the treatment groups included in the table. *significant at 10%; **significant at 5%; ***significant at 1%

Table 2b: Individual characteristcs - baseline difference across treatment dimensions

	sms networks						newspaper @verdade		
	control	similar quasi-network			dissimilar quasi-network		control	newspaper	F-stat p-value
		placebo	neutral	positive	placebo	neutral	positive			
no occupation	0.197	-0.06	-0.05	-0.056	-0.059	-0.054	-0.054	0.131	0.024	0.749
		(0.040)	(0.040)	(0.037)	(0.038)	(0.040)	(0.039)		(0.029)	
farmer	0.165	0.054	0,057*	0.049	0.018	0,092**	0.05	0.236	-0.029	0.115
		(0.036)	(0.034)	(0.038)	(0.033)	(0.038)	(0.036)		(0.039)	
artisan	0.094	-0.028	-0.032	-0.038	-0.041	-0.033	-0.022	0.046	0.022*	0.184
		(0.029)	(0.030)	(0.028)	(0.029)	(0.029)	(0.029)		(0.012)	
household work	0.118	0.013	0.01	0.012	0.02	0.017	-0.002	0.137	-0.008	0.961
		(0.032)	(0.034)	(0.034)	(0.033)	(0.033)	(0.034)		(0.021)	
has book	0.669	-0.033	0.003	-0.017	-0.02	-0.002	-0.025	0.625	0.016	0.725
		(0.048)	(0.047)	(0.046)	(0.047)	(0.047)	(0.046)		(0.038)	
has radio	0.69	-0.058	-0.002	0.007	-0.013	-0.022	-0.018	0.675	-0.016	0.631
		(0.046)	(0.052)	(0.046)	(0.047)	(0.048)	(0.049)		(0.029)	
has bike	0.325	-0.063	-0,087**	-0.03	-0,086**	-0.066	0.027	0.258	0.021	0.132
		(0.045)	(0.043)	(0.046)	(0.043)	(0.047)	(0.045)		(0.039)	
has house	0.802	0.001	0.047	0.026	0.017	0.031	0.025	0.811	0.019	0.641
		(0.038)	(0.039)	(0.040)	(0.042)	(0.038)	(0.036)		(0.028)	
has land	0.706	0.005	0,000	0.027	0.021	-0.004	0.017	0.74	-0.034	0.784
		(0.043)	(0.045)	(0.045)	(0.045)	(0.045)	(0.043)		(0.035)	
has animal	0.278	0.021	-0.033	-0.011	-0.025	-0.019	0.021	0.269	-0.023	0.478
		(0.045)	(0.047)	(0.044)	(0.046)	(0.044)	(0.046)		(0.034)	
has fridge	0.341	-0.008	0.003	0.015	0.022	-0.017	0.004	0.334	-0.023	0.892
		(0.048)	(0.044)	(0.046)	(0.045)	(0.046)	(0.048)		(0.044)	
has mobile phone	0.961	-0.027	-0.008	-0.013	-0.008	-0,042*	0.003	0.933	-0.004	0.118
		(0.021)	(0.018)	(0.020)	(0.019)	(0.023)	(0.017)		(0.021)	

Note: Standard errors of the differences to corresponding control groups reported in parenthesis. The last column displays the p-value of an F-test of joint significance resulting from a regression on dummy variables for each of the treatment groups included in the table. *significant at 10%; **significant at 5%; ***significant at 1%

Table 2c: Individual characteristcs - baseline difference across treatment dimensions

	sms networks						newspaper @verdade		
	control	similar quasi-network			dissimilar quasi-network		control	newspaper	F-stat p-value
		placebo	neutral	positive	placebo	neutral	positive			
turnout 2009	0.896	0.019	0.020	0.010	0.024	0.013	0.013	0.902	0.016	0.980
		(0.039)	(0.040)	(0.039)	(0.039)	(0.041)	(0.040)		(0.021)	
frelimo NA 2009	0.925	0.024	-0.002	0.011	0.017	0.007	0.007	0.934	0.012	0.883
		(0.034)	(0.036)	(0.037)	(0.035)	(0.034)	(0.037)		(0.017)	
mdm NA 2009	0.041	-0.008	-0.015	-0.006	-0.018	-0.003	-0.009	0.045	-0.015	0.948
		(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.029)		(0.013)	
renamo NA 2009	0.030	-0.016	0.000	-0.008	-0.003	-0.013	-0.007	0.022	-0.003	0.891
		(0.023)	(0.024)	(0.023)	(0.024)	(0.023)	(0.023)		(0.010)	
frelimo PR 2009	0.939	-0.004	-0.018	0.005	-0.015	-0.003	0.001	0.930	0.018	0.964
		(0.034)	(0.033)	(0.034)	(0.033)	(0.032)	(0.034)		(0.018)	
mdm PR 2009	0.045	-0.009	-0.006	-0.007	-0.010	0.001	-0.013	0.048	-0.020	0.941
		(0.030)	(0.029)	(0.029)	(0.029)	(0.030)	(0.029)		(0.014)	
renamo PR 2009	0.015	-0.006	0.015	0.002	0.007	-0.002	0.008	0.019	-0.003	0.661
		(0.017)	(0.019)	(0.017)	(0.018)	(0.017)	(0.018)		(0.009)	

Note: Standard errors of the differences to corresponding control groups reported in parenthesis. Turnout is measured as the number of voters who reported to have voted divided by the number of registered voters. NA - National Assembly; PR- President of the Republic. A vote share is measured as the number of votes for a party/candidate divided by total number of votes. The last column displays the p-value of an F-test of joint significance resulting from a regression on dummy variables for each of the treatment groups included in the table. *significant at 10%; **significant at 5%; ***significant at 1%

Table 3: Any SMS treatment on political behavior

	behavior				electoral outcomes			
					turnout			voting
dependent variable ---->	**hotline**	**open letter**	**any sms**	**number of sms**	**self-reported**	**interviewer**	**box**	**box frelimo**
treatment effect	**-0,008**	**-0,003**	**0,084****	**0,333*****	**0,069***	**0,093***	**0,070***	**0,010**
	(0,016)	(0,016)	(0,035)	(0,078)	(0,040)	(0,049)	(0,041)	(0,027)
rw p-value	0,792	0,837	0,074	0,043	0,130	0,130	0,130	0,756
mean dep. variable (control)	0,031	0,031	0,146	0,215	0,837	0,674	0,830	0,918
r-squared adjusted	0,004	0,009	0,007	0,010	0,011	0,036	0,012	0,145
number of observations	1 290	1 290	1 290	1 290	941	941	879	786
controls	no	no	no	no	no	no	no	no
treatment effect	**-0,010**	**-0,005**	**0,076****	**0,307*****	**0,071***	**0,083***	**0,076***	**0,014**
	(0,016)	(0,017)	(0,036)	(0,081)	(0,041)	(0,050)	(0,043)	(0,028)
rw p-value	0,732	0,760	0,147	0,089	0,096	0,138	0,096	0,637
mean dep. variable (control)	0,032	0,032	0,151	0,222	0,831	0,674	0,821	0,913
r-squared adjusted	0,005	0,011	0,009	0,017	0,017	0,039	0,024	0,166
number of observations	1 251	1 251	1 251	1 251	925	925	863	770
controls	yes	yes	yes	yes	yes	yes	yes	yes

Note: OLS regressions. Treatment defined as receiving any SMS treatment. All dependent variables are binary, except number of SMS. All regressions inculde province dummies. Controls are: gender, age, household size, education, and employment status. Clustered standard errors by enumeration area reported in parenthesis. We show p-values from applying the Romano-Wolf resampling-based stepdown multiple testing procedure to the two groups of outcome variables in this table. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: Differences between each SMS treatment and the control group on political behavior

	behavior	electoral outcomes	
		turnout	voting
placebo/placebo	**0**	**0**	**0**
placebo/dissimilar-neutral	"+"	**0**	**0**
placebo/dissimilar-positive	"-" & "+"	"+"	**0**
similar-neutral/placebo	**0**	"+"	**0**
similar-neutral/dissimilar-neutral	"+"	**0**	**0**
similar-neutral/dissimilar-positive	"+"	**0**	**0**
similar-positive/placebo	"+"	**0**	**0**
similar-positive/dissimilar-neutral	"+"	"+"	**0**
similar-positive/dissimilar-positive	"+"	"+"	**0**

Note: OLS regressions. Outcome sets: i) behavior: hotline, open letter, any sms, number of sms; ii) turnout: self-reported, interviewer, box; and iii) voting: box frelimo. Each entry depicts the sign of the treatment effect when comparing a specific SMS treatment with the control groups, as follows. Individual statistical significance concerns clustered standard errors by enumeration area and is set at the 10 percent level. 0: no significant effect on any outcome within the set. "+" positive significant effect in at least one component of the ouctome set. "-" negative significant effect in at least one component of the outcome set. All specifications with province dummies and controls. Controls are: gender, age, household size, education, and employment status.

Figure 4: Strength of SMS treatments on political behavior

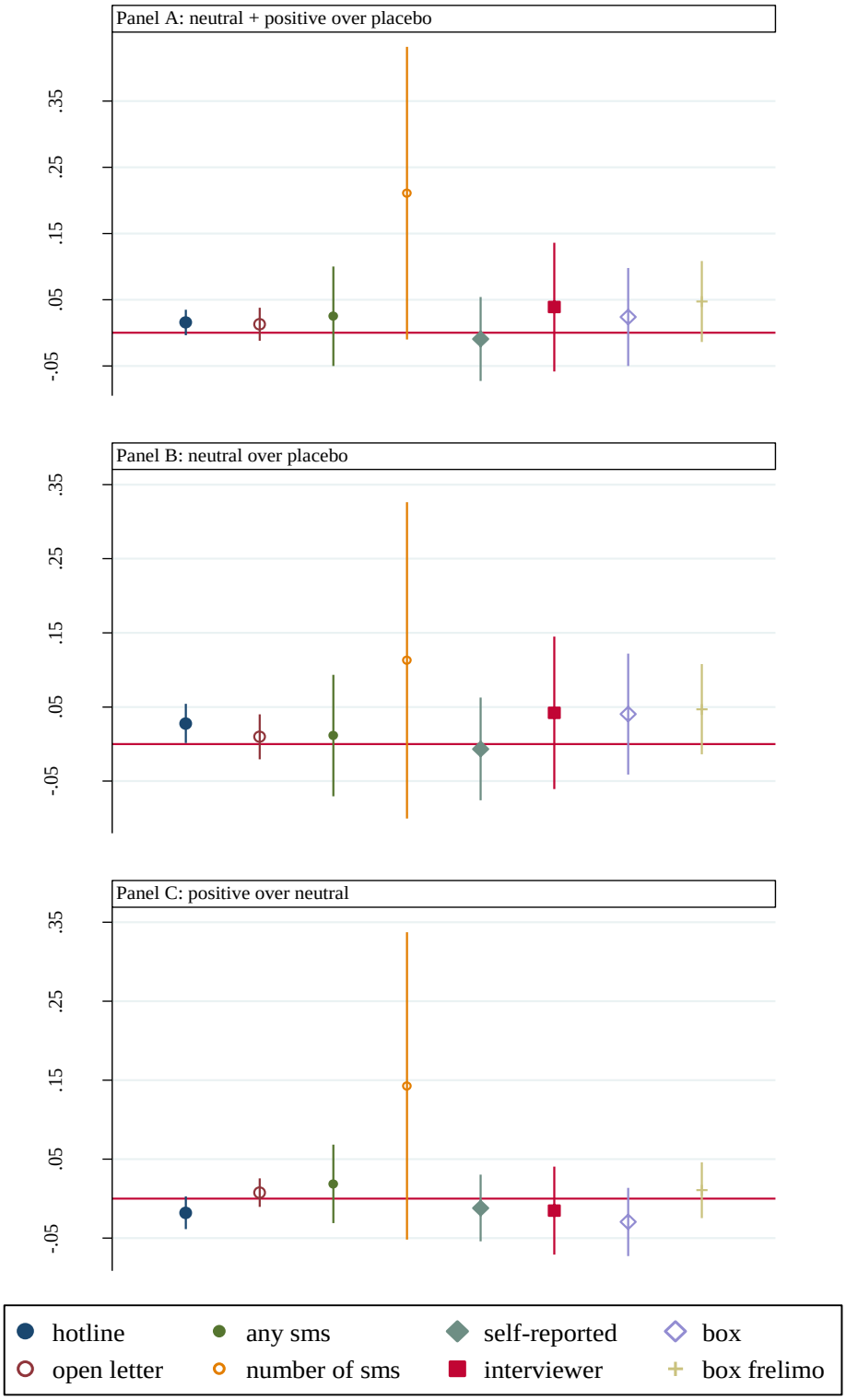

Table 5: Quasi-network SMS treatments on political behavior (conditional on SMS treatments)

	behavior				electoral outcomes			
					turnout			voting
dependent variable ---->	**hotline**	**open letter**	**any sms**	**number of sms**	**self-reported**	**interviewer**	**box**	**box frelimo**
panel A: similar and dissimilar								
similar	**0,013**	**-0,006**	**0,001**	**0,121**	**-0,004**	**0,008**	**-0,001**	**0,045***
	(0,009)	(0,012)	(0,026)	(0,091)	(0,023)	(0,030)	(0,025)	(0,024)
rw p-value	0,524	0,851	0,970	0,524	0,988	0,988	0,988	0,086
dissimilar	**0,001**	**0,025*****	**0,034**	**0,105**	**-0,005**	**0,018**	**0,023**	**0,022**
	(0,009)	(0,008)	(0,025)	(0,090)	(0,022)	(0,029)	(0,023)	(0,019)
rw p-value	0,956	0,063	0,492	0,492	0,822	0,804	0,687	0,687
mean dep. variable (control)	0,008	0,016	0,205	0,369	0,918	0,741	0,875	0,870
r-squared adjusted	0,001	0,020	0,008	0,017	0,006	0,036	0,013	0,170
number of observations	1 125	1 125	1 125	1 125	836	836	779	701
h0: similar=dissimilar F-stat p-value	0,353	0,029	0,392	0,900	0,979	0,806	0,461	0,478
panel B: gender and age								
similar	0,007	-0,012	-0,025	0,022	-0,045	-0,066	-0,018	0,010
	(0,011)	(0,018)	(0,048)	(0,120)	(0,042)	(0,051)	(0,041)	(0,037)
dissimilar	0,001	0,021	-0,009	-0,097	-0,006	0,057	0,082*	-0,012
	(0,018)	(0,013)	(0,045)	(0,179)	(0,031)	(0,046)	(0,042)	(0,030)
male	0,014	0,007	-0,027	0,030	-0,018	-0,088	-0,003	-0,006
	(0,016)	(0,019)	(0,053)	(0,163)	(0,042)	(0,070)	(0,047)	(0,046)
old	0,008	-0,001	0,102*	0,311*	0,035	0,061	-0,033	-0,054
	(0,016)	(0,018)	(0,061)	(0,175)	(0,046)	(0,067)	(0,048)	(0,052)
similar*male (a)	**0,015**	**0,020**	**0,090**	**0,334****	**0,068**	**0,126***	**0,018**	**-0,024**
	(0,018)	(0,023)	(0,055)	(0,169)	(0,044)	(0,068)	(0,044)	(0,040)
rw p-value	0,540	0,540	0,286	0,286	0,330	0,177	0,775	0,775
dissimilar*female (b)	**0,016**	**0,018**	**0,060**	**0,346***	**-0,024**	**-0,125***	**-0,046**	**0,044**
	(0,018)	(0,018)	(0,049)	(0,192)	(0,043)	(0,066)	(0,047)	(0,034)
rw p-value	0,632	0,632	0,592	0,226	0,599	0,163	0,599	0,599
similar*old (c)	**-0,005**	**-0,009**	**-0,034**	**-0,110**	**0,013**	**0,017**	**0,014**	**0,095****
	(0,016)	(0,021)	(0,057)	(0,191)	(0,043)	(0,061)	(0,045)	(0,045)
rw p-value	0,958	0,958	0,958	0,958	0,984	0,984	0,984	0,072
dissimilar*young (d)	**-0,019**	**-0,010**	**0,018**	**0,032**	**0,020**	**0,034**	**-0,075**	**0,029**
	(0,020)	(0,017)	(0,054)	(0,178)	(0,043)	(0,059)	(0,047)	(0,041)
rw p-value	0,770	0,933	0,933	0,933	0,857	0,857	0,328	0,857
constant	0,006	0,032	0,194**	0,369	0,906***	0,778***	0,876***	0,959***
	(0,036)	(0,040)	(0,086)	(0,305)	(0,084)	(0,137)	(0,087)	(0,061)
r-squared adjusted	0,003	0,016	0,013	0,021	0,006	0,043	0,014	0,174
number of observations	1 125	1 125	1 125	1 125	836	836	779	701
h0: (a)+(b)=0 F-stat p-value	0,254	0,204	0,042	0,009	0,492	0,994	0,669	0,688
h0: (c)+(d)=0 F-stat p-value	0,333	0,522	0,832	0,764	0,583	0,568	0,343	0,055

Note: OLS regressions. Similar and dissimilar treatments defined, respectively, as receiving a similar quasi-network SMS (neutral or positive), and as receiving a dissimilar quasi-network SMS (neutral or positive). Values 0 are defined for placebo SMSs. All dependent variables are binary, except number of SMS. All regressions include province dummies and controls. Controls are: gender, age, household size, education, and employment status. Clustered standard errors by enumeration area reported in parenthesis. We show p-values from applying the Romano-Wolf resampling-based stepdown multiple testing procedure to the two groups of outcome variables in this table. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6: Newspaper treatment on political behavior (administrative data)

	turnout share		null votes share		blank votes share		voting share			
dependent variable ----->	**PM**	**MA**	**PM**	**MA**	**PM**	**MA**	**frelimo PM**	**frelimo MA**	**mdm PM**	**mdm MA**
panel A: full sample										
treatment effect	**0,057*** **	**0,058*** **	**-0,000**	**-0,002**	**-0,003**	**-0,002**	**0,092*** **	**0,048*** **	**0,008**	**-0,038** **
	(0,016)	(0,016)	(0,002)	(0,003)	(0,002)	(0,002)	(0,026)	(0,015)	(0,012)	(0,016)
rw p-value	0,005	0,004	0,925	0,528	0,359	0,528	0,005	0,009	0,761	0,040
mean dep. variable (control)	0,405	0,404	0,031	0,041	0,031	0,028	0,494	0,575	0,235	0,328
r-squared adjusted	0,468	0,465	0,298	0,344	0,262	0,151	0,585	0,570	0,760	0,505
number of observations	331	331	331	331	331	331	331	331	331	331
controls	no	no	no	no	no	no	no	no	no	no
panel B: surveyed sample										
treatment effect	**0,025**	**0,026**	**-0,003**	**-0,005**	**-0,006** **	**-0,004***	**0,012**	**0,014**	**0,006**	**0,000**
	(0,018)	(0,018)	(0,003)	(0,004)	(0,003)	(0,003)	(0,028)	(0,017)	(0,015)	(0,019)
rw p-value	0,468	0,429	0,760	0,454	0,194	0,374	0,863	0,665	0,863	0,974
mean dep. variable (control)	0,448	0,448	0,038	0,050	0,036	0,032	0,615	0,636	0,227	0,261
r-squared adjusted	0,369	0,368	0,244	0,301	0,206	0,125	0,393	0,544	0,719	0,500
number of observations	193	193	193	193	193	193	193	193	193	193
controls	no	no	no	no	no	no	no	no	no	no
treatment effect	**0,033***	**0,035***	**-0,000**	**-0,000**	**-0,005***	**-0,005***	**0,032**	**0,024**	**0,002**	**-0,012**
	(0,019)	(0,019)	(0,003)	(0,004)	(0,003)	(0,003)	(0,027)	(0,017)	(0,015)	(0,019)
rw p-value	0,309	0,286	0,989	0,968	0,309	0,286	0,566	0,402	0,989	0,759
mean dep. variable (control)	0,449	0,449	0,037	0,049	0,035	0,032	0,614	0,636	0,228	0,263
r-squared adjusted	0,367	0,368	0,375	0,443	0,276	0,225	0,479	0,590	0,715	0,597
number of observations	191	191	191	191	191	191	191	191	191	191
controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Note: OLS regressions. Treatment defined at the location level as having received newspaper @Verdade. PM- President of the Municipality; MA- Municipal Assembly. All dependent variables are shares of registered voters (turnout) or votes (other variables). Specifications without and with controls include province dummies. Controls are: mean gender, mean age, mean household size, mean education, mean employment of the sample of the enumeration area. Robust standard errors reported in parenthesis. We show p-values from applying the Romano-Wolf resampling-based stepdown multiple testing procedure by election type (PM and MA) in this table. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7: Exogenous network effects on political behavior (conditional on SMS treatments)

	behavior				electoral outcomes			
					turnout			voting
dependent variable ---->	**hotline**	**open letter**	**any sms**	**number of sms**	**self-reported**	**interviewer**	**box**	**box frelimo**
newspaper	-0,022	-0,041	-0,068	-0,301	-0,141***	-0,100	-0,190***	-0,067
	(0,021)	(0,027)	(0,077)	(0,255)	(0,044)	(0,093)	(0,049)	(0,060)
sms	0,008	-0,016	-0,011	-0,009	-0,093***	-0,032	-0,102***	0,002
	(0,023)	(0,028)	(0,067)	(0,246)	(0,016)	(0,069)	(0,018)	(0,045)
newspaper*sms	**0,014**	**0,048***	**0,055**	**0,347**	**0,124****	**0,090**	**0,188*****	**0,072**
	(0,024)	(0,029)	(0,080)	(0,258)	(0,049)	(0,092)	(0,054)	(0,059)
rw p-value	0,752	0,401	0,752	0,520	0,181	0,419	0,033	0,419
constant	-0,002	0,014	0,223***	0,447*	1,023***	0,761***	0,993***	0,985***
	(0,020)	(0,026)	(0,079)	(0,260)	(0,034)	(0,103)	(0,039)	(0,043)
r-squared adjusted	0,003	0,013	0,002	0,007	0,007	0,032	0,014	0,146
number of observations	1 160	1 160	1 160	1 160	849	849	791	713
controls	no	no	no	no	no	no	no	no
newspaper	-0,020	-0,044	-0,060	-0,242	-0,132***	-0,099	-0,188***	-0,067
	(0,023)	(0,027)	(0,079)	(0,242)	(0,047)	(0,095)	(0,052)	(0,064)
sms	0,009	-0,020	0,001	0,027	-0,084***	-0,018	-0,098***	0,003
	(0,025)	(0,028)	(0,067)	(0,241)	(0,017)	(0,068)	(0,020)	(0,047)
newspaper*sms	**0,011**	**0,053***	**0,038**	**0,297**	**0,117****	**0,089**	**0,184*****	**0,074**
	(0,026)	(0,029)	(0,081)	(0,252)	(0,051)	(0,094)	(0,057)	(0,063)
rw p-value	0,886	0,339	0,886	0,685	0,262	0,407	0,040	0,407
constant	0,010	0,081*	0,233**	0,419	0,938***	0,691***	0,934***	0,984***
	(0,041)	(0,048)	(0,099)	(0,405)	(0,071)	(0,131)	(0,085)	(0,061)
r-squared adjusted	0,001	0,017	0,007	0,017	0,010	0,037	0,021	0,166
number of observations	1 125	1 125	1 125	1 125	836	836	779	701
controls	yes	yes	yes	yes	yes	yes	yes	yes

Note: OLS regressions. SMS treatment defined as having received a quasi-network SMS treatment (neutral or positive). Control SMS condition is excluded from the analysis. Newspaper treatment is defined at the location level as having received newspaper @Verdade. All dependent variables are binary, except number of SMS. All regressions include province dummies. Controls are: gender, age, household size, education, and employment status. Clustered standard errors by enumeration area reported in parenthesis. We show p-values from applying the Romano-Wolf resampling-based stepdown multiple testing procedure to the two groups of outcome variables in this table. * significant at 10%; ** significant at 5%; *** significant at 1%.