Does Electoral Observation Influence Electoral Results? Experimental Evidence for Domestic and International Observers in Mozambique*

Stefan Leeffers† and Pedro C. Vicente‡

September 2018

Abstract

Electoral fraud is a common problem in young democracies. Election observers constitute one possible remedy. Yet, quantitative evidence of the causal effects of different types of observers is scarce. Data on the random assignment of observers during Mozambique's 2009 general elections are used to estimate the impact that observers have on electoral results. We are able to distinguish between domestic observers that stayed in the same ballot table for the whole of the election day, who were deployed countrywide, and international observers that circulated across a number of ballot locations, assigned within selected districts. We show that the presence of domestic observers reduced voter turnout and increased the share of blank votes countrywide. This suggests a reduction of ballot fraud activities. For the selected districts in which international observers were active findings are less clear, as we do not find ballot fraud-reducing effects for any of the two types of observers. A possible interpretation is that local politicians anticipate the presence of international electoral observers in convenient districts or use different fraudulent strategies.

***JEL Codes**: D72, O55, P16.*

***Keywords**: Electoral Observation, Electoral Politics, Randomized Experiment, Field Experiment, Mozambique, Africa*

* We wish to thank Alberto da Cruz, Miguel Ferreira, and Ana Vaz, who provided superb research assistance. We also thank Paul Collier, Eliana La Ferrara, and Gerard Padro-i-Miquel for important initial support to this project. Tavneet Suri, as well as seminar participants at Universidade Nova de Lisboa and the NEUDC conference provided very useful comments. We are particularly grateful to Observatório Eleitoral, STAE, and UNDP Mozambique for fruitful collaboration. Sheikh Abdul Carimo, Jocelyn Mason, Felisberto Naife, and João Pereira offered crucial inputs to this project for which we are most thankful. Finally, we also wish to thank Tom Willaert for creating our maps. We wish to acknowledge financial support from the International Growth Centre. Leeffers gratefully acknowledges financial support by FCT – Fundação para a Ciência e Tecnologia - PD/BD/128122/2016. All errors are our responsibility.

† Nova School of Business and Economics, Universidade Nova de Lisboa, Campus de Campolide, 1099-032 Lisbon, Portugal and NOVAFRICA. Email: stefan.leeffers@novasbe.pt.

‡ Nova School of Business and Economics, Universidade Nova de Lisboa, Campus de Campolide, 1099-032 Lisbon, Portugal, NOVAFRICA, and BREAD. Email: pedro.vicente@novasbe.pt.

1 Introduction

Many developing countries have been facing difficult democratization processes since the early 1990s. Elections have been central to democratic transitions in these countries. Although much progress has been achieved, these elections are often subject to irregularities such as electoral fraud. At the same time, electoral observers have been playing an active role in the promotion of democracy and in the validation of electoral processes. They are believed to reduce electoral fraud and increase the quality of elections (Kelley, 2012).

The main research question that we address in this paper is whether different types of electoral observers managed to affect electoral results at the polling location level during the Mozambican elections of 2009. We examine two types of electoral observers: domestic observers that stay at one particular polling location during the whole of the election day (fixed), and international observers that visit multiple locations during the election day (mobile). Our focus of attention lies on variations in electoral outcomes that suggest the reduction of ballot fraud. Ballot fraud can be implied by high levels of turnout (ballot box stuffing), invalid votes (spoiling of ballot papers), and low levels of blank votes (validation of blank votes).

The effect of electoral observation on electoral outcomes is estimated in the context of the randomized allocation of electoral observers during the 2009 elections in Mozambique. We worked with both domestic observers deployed by a consortium of national NGOs and international observers organized by the United Nations Development Program (UNDP). We employ in our analysis the official disaggregated electoral results from the 2004 and 2009 Mozambican general elections, including voter turnout, null and blank votes, and voting for the different candidates/parties. We focus our attention on difference-in-differences estimations at the level of the polling location.

There exists a small but growing body of literature using field experimental techniques to evaluate the impact of electoral observers on fraudulent electoral activities. So far, these studies have been focused on the impact of either international or domestic observers on turnout and party vote shares. Hyde (2007, 2010) studies international mobile observers and analyzes changes in vote shares. More recent work has been focused on domestic fixed observers, see for example Sjoberg (2012), Buzin et al. (2016), and Asunka et al. (2017). With this paper we complement the literature by simultaneously evaluating domestic and international observers on fraudulent electoral activities in Mozambique. Consequently, we are able to study some of the differences in effects between the two. Furthermore, we are interested in assessing regional differences of the impact of observers that may arise from different degrees of local party support and political competitiveness (Asunka et al., 2017; Harvey, 2016; Rundlett and Svolik, 2016). Finally, we look at possible spillover effects of electoral observation to neighboring polling locations (as in Asunka et al., 2017; Enikolopov et al., 2013 and Ichino and Schündeln, 2012).

On domestic electoral observation, we find that the polling locations that were visited by those observers countrywide seem to suffer less from fraudulent activities in comparison to their unobserved counterparts. The presence of domestic observers suggests a reduction in ballot box stuffing inferred from lower voter turnout in areas where the incumbent party has strong support. We also observe a higher share of blank votes for observed polling locations, which suggests a lower degree of undue manipulation of blank ballot papers in observed locations. However, we do not find any reduction in the share of invalid (null) votes. On international electoral observation, we show no evidence of a clear effect on ballot fraud of those observers. Still, we see an increase in the vote share of the opposition party in provinces known to have a more competitive political environment. Moreover, we identify a spillover effect by which

nearby polling locations have similar effects to those observed. Note that international observers were only deployed in a selected set of Mozambican districts.

Despite the clear countrywide results obtained for the domestic observers, we do not find effects of these observers in the districts selected for international observation. This pattern of results is consistent with a setting in which the districts observed by international observers are not comparable to the (representative) countrywide locations observed by the domestic observers and have less ballot fraud to be deterred. This could be interpreted as a confirmation of a common concern about international electoral observation. Namely, that resourceful politicians recognize that international observers are more likely to visit conveniently located districts, which in turn leads to a higher concentration of fraudulent activities in areas that are less likely to be observed (Hyde, 2007). Instead less risky activities such as vote-buying and voter intimidation[1] could be deployed in areas with potentially more (international) observers (Harvey, 2016).

The paper continues as follows. Section 2 discusses the existing literature on the impacts of electoral observation. In section 3 we provide contextual information on the political scene in Mozambique. Electoral observation and research design are discussed in section 4. We present the hypotheses in section 5. The data and the measures of fraud are described in sections 6 and 7, respectively. The estimation strategy is explained in section 8. Section 9 examines the estimation results, and section 10 concludes with a discussion about the implications of these results.

[1] See Vicente (2014), Collier and Vicente (2012, 2014) for recent theoretical and empirical work on these illicit electoral strategies.

2 Related Literature

Electoral observation is considered to be an important tool in the promotion of democracy. The presence of credible and impartial observers is taken as creating confidence about the legitimacy and quality of an electoral process. It has become a norm for young democracies such as Mozambique to invite international observers (Hyde, 2011; Kelley, 2012). International legitimacy became a condition for receiving international aid and maintaining regional relations because of the strengthening of democracy and human rights from the end of the Cold War (Kelley, 2012). Beyond international legitimacy, domestic legitimacy is just as important. The first multiparty elections in Mozambique, held in 1994 in the aftermath of its civil war, are the perfect example for how essential national validation is to convince citizens that domestic institutions are reliable: there was then a lot of international support (for example via electoral observers) to avoid a conflict similar to the one that resumed in Angola in 1992; the incumbent party won the elections, which were generally regarded as free and fair; the main opposition (rebel) group did not reject the results while it had threatened a boycott in the case of an unfavorable outcome; the absence of observers would probably have led to different actions (Lyons, 2004).

The general rationale behind electoral observation can be well described as follows: "States, IGOs, NGOs, and scholars who support electoral observation argue that it increases voter and political party confidence in the electoral process, deters fraud when it exists, and generates a third-party evaluation of election quality for international and domestic audiences, thus making negative consequences for a leader who holds fraudulent elections more likely" (Hyde, 2010, 5-6). Critics however argue that especially international observers are often biased and label them as "glorified tourists" (Carothers, 1997). Different case studies were written founded on anecdotal evidence or cross-national qualitative data aiming to understand if, why, and how

electoral observation works.[2] However, these case studies lack the ability to compare observed elections to a proper counterfactual, and thus have clear limitations in attributing causal effects to electoral observation (Hyde, 2010). Consequently, recent literature on electoral observation has shown increasing interest in the use of experimental designs to evaluate the impact that observers have.

The innovative study by Hyde (2007) was the first to explore this area, following the allocation of international observers in Armenia in 2003. Hyde compares the incumbent vote share averages across treatment and control groups. A clear decrease in vote shares of the incumbent is identified in the observed locations. Hyde argues that the incumbent party is the party most likely to commit fraud, and thus the result suggests that electoral observation deterred fraud. During the 2004 presidential elections in Indonesia, Hyde (2010) randomly assigned international observers to polling locations. This author finds a positive relation between the presence of observers and the vote shares of the losing incumbent party. The unexpected results show that observers might have had an effect on the final results, although not necessarily through fraud prevention. In both studies the international observers were mobile, visiting multiple polling locations throughout the corresponding election days.

Experimental studies evaluating the impact of domestic observers are more diverse and include work on Russia's 2011 parliamentary elections (Enikolopov et al., 2013; Buzin et al., 2016), several elections in three former Soviet Republics (Sjoberg, 2012), Ghana's 2012 elections (Asunka et al., 2017) and Malawi's 2014 elections (Ofosu and Posner, 2014).

Both studies which focus on Russia find that the random assignment of observers to polling locations in Moscow had a negative impact on voter turnout and incumbent's vote shares. While all other parties benefit from the presence of observers, these results and anecdotal evidence suggest that the incumbent party used ballot fraud to inflate its vote share. However,

[2] See for example, Bjornlund (2004) and Kelley (2012).

Buzin et al. (2016) report more moderate results than Enikolopov et al. (2013), and in fact they do not find significant effects for 17 of the 21 studied cities in that paper. Sjoberg (2012) followed the random assignment of domestic election observers during elections in Azerbaijan, Georgia, and Kyrgyzstan. He finds a small reduction in turnout for observed locations across most elections but no change in incumbent vote shares. These results suggest that the ruling party has the capacity to compensate observer effects through the use of other manipulative techniques.

Asunka et al. (2017) use a randomized saturation design to show that the presence of domestic electoral observers in Ghana reduced turnout and the probability of over-voting, defined as abnormally high turnout rates (e.g., higher than 100 percent). They conclude that the probability of fraudulent activities is significantly reduced in the presence of observers. Similarly, Ofosu and Posner (2014) find a decrease in turnout, over-voting and vote shares for the incumbent in observed locations. However, they also conclude that there is displacement of fraud across time towards the aggregation phase of the electoral process.

Some studies look for possible spillover effects of electoral observation across space. Enikolopov et al. (2013) find that polling locations close to observed locations also experience a reduction of fraud. However, in a study focusing on voter registration in Ghana, Ichino and Schündeln (2012) conclude that fraudulent activities were relocated to nearby polling locations where no observer was present. These locations experienced an increase in the number of registrations, whereas the number of registrations at the observed locations decreased. Asunka et al. (2017) use the saturation aspect of their randomization design to also address the issue of observer externalities. They find that in less electorally competitive areas ballot fraud relocated to polling locations without observers.

In this context, our research contributes to the literature in two important ways. First, we implement a country-wide field experiment in the context of Mozambique, which allows us to

examine regional differences of the impact of electoral observers. Second, we consider various types of electoral observers while comparing domestic fixed with international mobile observers.

3 Study Context

In 2009, Mozambique had about 23.6 million inhabitants and was one of the poorest countries in the world, recording a gross domestic product per capita of 453 current U.S. dollars. With official development assistance accounting for 19.2 percent of the gross national income in 2009, Mozambique ranked among the 10 countries that are most dependent on foreign aid.[3]

During the 1960s and 1970s, FRELIMO (*Frente de Libertação de Moçambique*), the independence movement, led the fight against the Portuguese colonial rule and established a single-party rule following the independence in 1975. Soon FRELIMO was challenged by RENAMO (*Resistência Nacional Moçambicana*), a guerrilla movement operating in central Mozambique and founded with foreign support. The 16-year long civil war that followed ended with the Rome Peace Accord in 1992. Both parties agreed on multi-party elections and became each other's main political competitor. As the incumbent party, FRELIMO, has a certain advantage of having known strongholds, which stem from the times of the civil war. These strongholds generally have significantly higher proportions of votes going towards FRELIMO and are thus less competitive from other provinces with a more equal distribution between the parties. Figure 1 shows the geographic location of Mozambique and an indication of the political competition per province.[4]

[3] World Development Indicators, 2015

[4] There exists no general definition for party strongholds in Mozambique. The rule followed in this paper is that the seven provinces with above average vote shares for FRELIMO (at least 74%) are considered FRELIMO strongholds. To calculate these averages, the election outcomes of both 2004 and 2009 were employed. We consider the other four provinces to have a more competitive political environment. In 2004 and 2009 the average

<Figure 1 near here>

The general elections of October 2009 were Mozambique's seventh multi-party elections. Presidential and parliamentary elections were held in 1994, 1999, 2004 and 2009; elections for mayors and municipal assemblies were held in 1998, 2003 and 2008. The president is elected by direct popular vote in a two round run-off system. The 250 members of parliament are elected using the party-list (proportional representation) system with a different list for each constituency.[5] At the national level the executive power has never changed. FRELIMO won every election; RENAMO always ranked second. Since the first elections there has been a clear bi-polar political landscape in Mozambique. Figure 2 illustrates the turnout and shares of votes for FRELIMO, RENAMO and all remaining parties combined in each of the four parliamentary elections. The sudden fall in votes for RENAMO and its presidential candidate in 2004 was unexpected after two closely fought elections in 1994 and 1999, but the decline in share of votes continued through 2009. A general sentiment of disappointment about earlier elections, a lack of interest and fraudulent activities by FRELIMO, could have kept RENAMO voters away (Sitoe, 2006). Additionally, RENAMO suffered from internal conflicts (Wimpy, 2011).

<Figure 2 near here>

The National Electoral Commission (CNE) and the Technical Secretariat for Election Administration (STAE) are responsible for the administration of the electoral process. Since 2004, domestic and international observers have been criticizing CNE and STAE for their non-

vote share for FRELIMO in its strongholds was respectively 76.2% and 84.8%, while in the competitive provinces their vote share was respectively 39.2% and 59%.

[5] Since the 2004 general elections, Mozambique contains 13 constituencies: 11 provinces, 1 for other African countries and 1 for Europe. Before 2004, only Mozambicans inside Mozambique were allowed to vote.

transparent functioning and practical shortcomings (see Carter Center, 2005; European Union Electoral Observation Mission, 2004, 2009). Allegations of fraud have become a key characteristic of the Mozambican general elections. RENAMO and other opposition parties usually file complaints about fraud committed by members of FRELIMO. The Constitutional Council has never ruled in favor of RENAMO by invalidating results nor has it demanded recounts.

4 Electoral Observation and Research Design in the 2009 Mozambican Elections

Electoral observation is not limited to the day of the elections. Adebisi and Loremikan (2013) define three moments of observation: before, during, and after election day. Several weeks or even months before the elections, observers' main focus lies on the registration of voters, candidates, campaign activities and fairness in media coverage. Typically, these long-term observers also analyze election laws and voter education. Observers on election day are mainly short-term observers that move in teams between polling locations or stay at one location during the entire day. These observers keep track of all the relevant electoral activities including the casting and counting of ballots, possible violations of elections laws, and the levels of violence or perceived intimidation surrounding the vote. In the days following the elections, observers monitor the tabulation process, the publication of the final results, and the handling of complaints by the electoral authorities. This paper focuses on the role of observers during the election day.

Historically, electoral observation was solely conducted by international organizations and foreign states. This has changed however, and domestic observation efforts have become increasingly relevant (Canton and Nevitte, 1997; Carothers, 1997). Both played a role during the 2009 Mozambican elections.

The main Mozambican group dedicated to electoral observation, *Observatório Eleitoral* (OE), is a consortium of religious civil society organizations, and some local governance NGOs.[6] OE deployed electoral observers for the 2009 election day with the purpose of conducting a Parallel Vote Tabulation (PVT), which is a system that allows early identification of ballot fraud. This process had the technical assistance of international NGO Electoral Institute for Sustainable Democracy in Africa (EISA). These PVT observers were assigned to random ballot tables meant to be statistically representative of the full Mozambican electoral map. Each observer stayed, as he/she kept track of activities, in just one polling location, in a specific polling table,[7] for the entire election day.[8] OE made the allocation and reports of the PVT observers available for this research.[9]

International groups also had a role that played in observing the 2009 elections in Mozambique.[10] We focus our attention in the deployment of the observers organized by UNDP, who were locally recruited foreign diplomats from the following origin countries: Canada, Denmark, Germany, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States. The assignment of these observers was conducted in coordination with one of the authors of this paper, who participated in the training of the mission members. Within districts selected by the UNDP, the observer teams (composed

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

[7] Polling locations, usually schools or other public buildings, are divided into several polling tables.

[8] PVT observers keep track of all activities at the specific polling tables they observe. Crucially, that includes the counting of votes. In the end of the election day, these observers report the final results of their corresponding tables to a central location (typically employing electronic means of communication), which allows to aggregate results quickly and have an estimate of the true electoral results with a high level of statistical confidence. Large differences to official counts can then be taken as a sign of fraud in the official aggregation of electoral results.

[9] Note that OE also deployed another type of observers, namely mobile observers, circulating across a number of ballot tables/locations during the election day. These observers were not randomized. Other domestic organizations that monitored the elections were the National Youth Council and the Mozambican Forum of Election Observation.

[10] Namely those sponsored by the United Nations Development Program (UNDP), the Commonwealth, the Electoral Institute of Southern Africa, the Community of Portuguese Speaking Countries, the South African Development Community, the African Union and the European Union (EU EOM, 2009).

of at least two individuals each) were randomly drawn to polling locations, with pre-determined routes.

The observer groups that are studied in this paper are the *domestic fixed* OE and *international mobile* UNDP observers. OE randomized their 989 observers through the whole country at the table level.[11] OE supplied the records of the observers after the elections from which the actual treatment could be retrieved. The 67 UNDP international observers were divided into 31 groups of 2 or 3 observers. These groups were randomized at the polling location level within 24 districts selected by UNDP. The experimental results will only have validity within these 24 districts that contain an above-average share of urban locations and are of easy access from Maputo. Figure 3 maps the UNDP sample districts.

<Figure 3 near here>

5 Hypotheses

The non-experimental evidence about electoral observation in the 2004 Mozambican elections that is analyzed by Hanlon and Fox (2006) suggests substantial electoral fraud by the incumbent party FRELIMO. A reasonable prior is then that this is repeated in the 2009 elections. The 2009 European Union Electoral Observation Mission (EU EOM) confirms this expectation and recognizes ballot stuffing and spoiling votes as the main issues. Hence, it is likely that the presence of observers is experienced as a cost for FRELIMO. First, this can be the cost associated with the pronouncement of fraud internally to the country but also to the international community. Second, this cost can be seen as the higher price of hiding fraud when

[11] The observer assignment passes standard randomization tests. The results of these tests are included in the online Appendix A.

an observer is present (Asunka et al., 2017). Therefore, the first hypothesis is: *The presence of electoral observers reduces ballot fraud potentially committed by FRELIMO (Hypothesis 1).*

We can also expect that it is easier to facilitate ballot fraud in provinces with less political competition. Large support, peer pressure, and individual dependence on the local political structures create a corrupt atmosphere in which fraud is likely to be committed (Asunka et al., 2017). Rundlett and Svolik (2016) designed and tested a model in line with this idea. They infer fraud from rounding patterns in Russian precinct-level electoral results. In their model there is a positive relation between popularity of the incumbent and fraud. After a certain threshold, fraud happens and then continues increasing in support.

Moreover, it is more costly to hide fraud in competitive provinces because opposition parties are more capable of mobilizing supporters in those provinces. In Mozambique, the allowed presence of political party representatives at polling locations is a good example of this idea. UNDP observers used an observation form to record information on the people within the polling location, all activities such as opening and closing, and other comments on the procedures in and around the polling location. We used this information to analyze the presence of political party representatives at the polling locations. The coverage of RENAMO representatives in competitive provinces reached 97.30 percent, while only 57.41 percent of the polling locations were covered in FRELIMO strongholds. This is respectively 100 and 91.67 percent for FRELIMO representatives. It is likely the case that these partisan representatives can help prevent falsification and ballot box stuffing. When exposed, these practices are relatively easy to connect to a specific polling location or election official, making it riskier for an incumbent than other types of fraud such as voter intimidation or vote-buying. Consequently, Harvey (2016) suggests that ballot box fraud will mainly occur in the strongholds while less risky forms of fraud should be more present in competitive areas.

Therefore, we expect that *the reduction of ballot fraud due to the presence of electoral observers is larger in FRELIMO's strongholds than in other provinces (Hypothesis 2)*.

We know that FRELIMO is a well-organized, hierarchical political party holding power at all governmental levels. We therefore expect that FRELIMO has the capacity to respond to the presence of electoral observers by relocating fraudulent activities to polling locations that are not visited, as it was the case in Ghana (see Asunka et al., 2017; Ichino and Schündeln, 2012). Consequently, *electoral observers may cause the displacement of fraudulent activities to polling locations where no observer is present (Hypothesis 3).*

As explained in section 4, our study concerns two different types of electoral observation missions, domestic and international. Existing experimental evidence in the literature does not allow making any inference on the possible differences in impact between these two types of observers. We are then left to a qualitative debate. Critics of international electoral observation see some advantages in domestic observers. They know the local language, geography, and culture. It is reasonable to assume that these observers are more aware of the situation around them and therefore, ceteris paribus, have a higher impact on fraud prevention. Others underline that domestic observers might not be impartial and easily influenced or intimidated, and thus less suitable for the job (Carothers, 1997). Still, different studies have suggested that domestic observers can reduce ballot fraud, namely when elections are not violent (Sjoberg, 2012; Asunka et al., 2017). In addition to a possible advantage of domestic over international observers, we may argue that fixed observers may be more effective than mobile observers. A concern about mobility is that observations are less careful and detailed, as misbehavior is more difficult to identify and deter during relatively short visits.[12] Another concern is that mobile observers do not observe the vote count at the end of the day for any but the last polling location they visit, while most ballot fraud occurs when votes are counted. In sum, *the presence of*

[12] Based on their reports, the average time UNDP observers spent at a polling location in 2009 was 58 minutes.

domestic fixed observers reduces ballot fraud to a greater extent than the presence of international mobile observers (Hypothesis 4).

6 Data

This paper employs the official electoral results for the 2004 and 2009 elections (STAE 2006 and STAE 2012, respectively) that were published some years after each corresponding election. The electoral results in both documents contain the same type of detailed information. For identification they show the names of the province, district, administrative area, village, polling location (usually a school) and the table code. A polling location is divided into tables, with each table including up to 1000 registered voters (note that this upper limit is often violated). As the set of results for each table, STAE published the number of registered voters, votes for each of the political parties and presidential candidates, blank and invalid votes, and the total votes in the ballot box of a table.

A dataset is constructed that aggregates the table results into polling location outcomes for 2004 and 2009. Listwise deletion and corrections were performed leaving 9,073 observations (3,830 from 2004 and 5,243 from 2009). For each type of election (parliamentary and presidential) the turnout rate, share of invalid votes, share of blank votes, and the vote shares of two main political forces (FRELIMO or Guebuza, as FRELIMO's presidential candidate, and RENAMO or Dhlakama, as RENAMO's presidential candidate) are calculated. Other parties were excluded from the analysis, as they were not present in all provinces during the 2009 elections. Only the third presidential candidate (Simango) ran in all provinces in 2009, but is not included because the impact on his vote share can be inferred from the vote shares of the other two candidates.

In order to interpret the results, we also used data on the geographical location of province capitals, UNDP and OE individual observer reports, and a post-election survey conducted as part of the project described in Aker et al. (2017) in November 2009.

7 Measuring Fraud

The main objective of our paper is to test whether the presence of domestic fixed observers reduces ballot fraud to a greater extent than the presence of international mobile observers. The most common fraud committed on election day is ballot fraud (undue manipulation of ballot papers). This paper considers three types of ballot fraud, namely ballot box stuffing, spoiling ballot papers, and validating blank votes.

First, ballot box stuffing means that additional votes in actual ballot papers are fabricated and added to the true ballot papers. This can happen at any moment during the election day. This leads to abnormally high turnout rates in the affected polling locations. We also consider falsification of the final vote count numbers at the end of the day by a polling agent (without the corresponding ballot papers) an equivalent type of ballot box stuffing. Using only the final official results, it is not possible to distinguish between these two forms of fraud. STAE admitted that poor registration of voters resulted in many invalid registrations due to a failure of deleting deceased voters from the system and 160,000 duplicated names (EU EOM, 2009). Being conservative, a turnout of over 95 percent is therefore suspicious and known as overvoting. Table 1 displays the percentage of polling locations in each province that are categorized as overvoting. The four provinces with the highest degree of overvoting are all FRELIMO strongholds. In two provinces around 17 percent of the locations have a turnout of 95 percent or more. This is in line with the observations of the EU EOM. Figure 4 illustrates the distribution of turnout for the FRELIMO strongholds and competitive provinces using

univariate kernel density estimations. Notice that the distribution for FRELIMO strongholds has two peaks, one at 50 percent and another one just before 100 percent. The second peak suggests ballot stuffing by FRELIMO when comparing with the one peaked distribution in the other provinces.

<Table 1 near here>

<Figure 4 near here>

Second, the spoiling of ballot papers occurs when otherwise perfectly valid votes are made or labeled invalid by staff members of the polling location. This activity takes place most likely during the counting of ballots at the end of the day. During the elections of 2004, Hanlon and Fox (2006) noticed many votes for Dhlakama that were made invalid with additional ink fingerprints and other marks. The results and reports of 2009 suggest similar fraudulent behavior from FRELIMO-aligned members of the polling locations staff. Figures 5a and 5b are pictures of ballot papers showing this type of ballot fraud (AWEPA, 2009). Table 2 shows the results of re-qualifying invalid ballot papers. All invalid ballot papers were re-assessed by CNE in Maputo. Unfortunately, this happened in mixed bundles and therefore does not allow tracing back the votes to their corresponding polling locations. However, the results of re-assessment show a disproportional gain for Dhlakama, suggesting invalidation of ballot papers committed by FRELIMO.

<Figures 5a and 5b near here>

<Table 2 near here>

Lastly, on the validation of blank votes, Figures 5a and 5b show that there is no room for the indication of a blank vote.[13] To vote blank a voter leaves its ballot paper blank. This creates a situation in which fraud can be easily committed during counting. A member of the polling location only needs to mark the preferred candidate or party on blank ballots. This type of fraud would lead to relatively low shares of blank votes. Figure 6 compares the kernel distributions of blank votes between the two groups of provinces. The FRELIMO strongholds distribution is skewed more to the left, indicating lower levels of blanks. This is an interesting variable to look at in the analysis that follows, as it is basically a form of ballot stuffing without increasing the turnout.

Summing up, our objective is to test the observer effect on the levels of turnout, invalid votes, and blank votes. In addition, the vote shares of FRELIMO and RENAMO are analyzed to see if there is a direct relation between fraud, or a certain type of fraud in particular, and a gain or loss of either party.

<Figure 6 near here>

8 Estimation Strategy

Since the randomization and allocation of OE observers is performed at the table level, the obvious estimation strategy would be based on the table level dataset of 2009. However, it lacks some precision because it might not have always been clear for the observer which exact

[13] There are several reasons for the existence of invalid and blank votes, such as expression of protest, product of the social structure, abstention, or mistakes. Driscoll and Nelson (2014) argue that blank and invalid ballots are differentiable in nature and report that blank voting is more common among less informed and lower educated voters and invalid voting happens more among politically sophisticated individuals. In the 2009 elections in Mozambique the polling location average share of blank and invalid votes were respectively 9 and 4 percent.

table within the group needed to be observed at a polling location.[14] Aggregating to the polling location level potentially solves this problem. Our initial focus below is on the treatment effects of OE observers followed by the introduction of UNDP observers to the specification.

Our basic specification estimates the effect β_8 of the presence of at least one OE observer at one or more tables in a specific polling location:

$$Y_{jl1} = \beta_0 + \beta_8 T_j + \varepsilon_{jl1}, \qquad (1)$$

where Y is one of the indicators of fraud or vote shares of either main political forces. The indicators of j, l, and t=1 are identifiers for polling location, administrative area and time (specifically, 0 for 2004, 1 for 2009), and T_j is the treatment dummy variable, which takes the value 1 for a polling location observed by OE.

When aggregating the treatment to the level of the polling location, it becomes correlated with the size of these locations as domestic observers were randomized at the table level. This creates an endogeneity problem due to an omitted variable. Taking the number of tables per polling location m_{j1} out of the error term corrects this inconsistency. A second problem is that several papers show evidence that this simple specification causes a violation of the stable unit treatment value assumption (Ichino and Schündeln, 2012; Enikolopov et al., 2013; Asunka et al., 2017). This means that due to spillovers, the model yields biased estimates of the causal effect (Rubin, 1974). Therefore, a spillover binary variable S_j is included, taking value 1 if the polling location is a control one in a village with at least one treated location. A vector of administrative area dummies α_l was added. These dummies take value 1 for each

[14] Given the number of tables at a polling location, the treatment table was indicated by a number in ordinal form (e.g., 'third table'). It might have been unclear which table was meant exactly.

administrative area and correct for any other unobservable factors at that level that might impact the outcome variable. This leads to the following specification:

$$Y_{jl1} = \beta_0 + \beta_1 m_{j1} + \beta_7 S_j + \beta_8 T_j + \alpha_l + \varepsilon_{jl1}, \qquad (2)$$

where β_7 estimates the spillover effect.

Although adding m_{j1} solves the endogeneity problem as a result of the randomization at the table level, it is also reasonable to believe that the impact of T_j on outcome Y is heterogeneous depending on the size of a polling location (the number of tables). The impact a single observer can have on the outcome of many aggregated tables is smaller than when a polling location only contains one or two tables. To capture this effect, the main specification in a single time period includes an interaction term between the number of tables and treatment:

$$Y_{jl1} = \beta_0 + \beta_1 m_{j1} + \beta_7 S_j + \beta_8 T_j + \beta_9 (m_{j1} * T_j) + \alpha_l + \varepsilon_{jl1}. \qquad (3)$$

The observer effect in specification (3) is now $\beta_8 + \beta_9 m_{j1}$, and is thus dependent on the number of tables in a polling location.

Specifications (1) – (3) do not use the time dimension. It is relevant to control for pre-existing differences and common trends among the treatment and control groups, when possible. Including the 2004 election data results in the following difference-in-difference (DD) regression:

$$Y_{jlt} = \beta_0 + \beta_1 m_{jt} + \beta_2 S_j + \beta_3 T_j + \beta_4 t + \beta_5 (t * m_{jt}) + \beta_6 (m_{jt} * T_j) + \beta_7 (t * S_j) + \beta_8 (t * T_j) + \beta_9 (t * m_{jt} * T_j) + \alpha_l + \varepsilon_{jlt}, \qquad (4)$$

which can be improved by using the polling location fixed effects γ_j – as a consequence we need to omit the original treatment and spillover dummy variables, as follows:

$$Y_{jt} = \beta_1 m_{jt} + \beta_4 t + \beta_5(t * m_{jt}) + \beta_6(m_{jt} * T_j) + \beta_7(t * S_j) + \beta_8(t * T_j) + \beta_9(t * m_{jt} * T_j) + \gamma_j + \varepsilon_{jt}, \qquad (5)$$

with observer effect $\beta_8 + \beta_9 m_{jt}$ and spillover effect β_7. This specification will allow for a full appreciation of the observer effect. Additionally, we will run a DD regression without the interaction effect between treatment and number of tables to obtain the country wide average treatment effect.

The data is further limited to the districts selected by the UNDP for electoral observation to allow for the analysis of the UNDP observer effect. The specification for UNDP evaluation is:

$$Y_{jt} = \mu_1 m_{jt} + \mu_4 t + \mu_{12}(t * V_{jt}) + \mu_{13}(t * U_{jt}) + \delta_j + \epsilon_{jt}. \qquad (6)$$

Specification 6 is a DD regression with UNDP treatment dummy U_{jt}, spillover dummy V_{jt} and δ_j as the polling location fixed effects. Because this treatment was randomized at the polling location level, meaning that all tables were observed in a treated polling location, interactions with the number of tables are irrelevant. However, m_{jt} is included as a useful proxy for the size of a location. Including the specification for OE gives the following regression:

$$Y_{jt} = \mu_1 m_{jt} + \mu_4 t + \mu_5(t * m_{jt}) + \mu_6(m_{jt} * T_j) + \mu_7(t * S_j) + \mu_8(t * T_j) + \mu_9(t * m_{jt} * T_j) + \mu_{12}(t * V_{jt}) + \mu_{13}(t * U_{jt}) + \delta_j + \epsilon_{jt}. \qquad (7)$$

Using this specification it is possible to compare the impact of OE, $\mu_8 + \mu_9 m_{jt}$, with that of UNDP, μ_{13}, to get an idea on how these different types of electoral observation relate to each other. The standard errors in all specifications are clustered at the village level.

9 Results and implications

The results presented here are based on the outcome variables corresponding to the parliamentary elections.[15] Table 3 presents the summary statistics of all outcome variables across groups, time and samples. The bias due to the aggregation of table results can be inferred from the means in 2004. For example, treatment locations have 3 percentage points lower turnout than the control locations. Accounting for this bias, the difference in means between the two groups in 2009 is -3.8 instead of -6.8 percentage points. It suggests that assuming randomization at the polling location level in 2009 would give inconsistent coefficients. Figure 7 compares the distributions of turnout in treated (OE) and untreated polling locations for both years. The changes in distributions are in line with the results in Table 3. The observed locations have overall lower turnout in both years. For 2009 there is a clear reduction in the second peak. This is not evident for 2004. Our main results are based on the most complete estimation strategies, as described in specification (5) for OE observers country-wide and specification (7) for UNDP and OE observers in the UNDP sample districts.

<Table 3 near here>

<Figure 7 near here>

[15] Given typical straight tickets when voting for the parliamentary and presidential elections in Mozambique, the presidential election variables show similar results and these results can be found in the online Appendix B.

Domestic fixed observers

Using specification (5), Table 4 presents the observer effect of OE observers on the fraud indicators and vote shares of FRELIMO and RENAMO. For each outcome variable the results of three regressions are presented: 1) using all provinces, 2) only the FRELIMO strongholds and 3) only the competitive provinces. The effect of interest is $\beta_8 + \beta_9 m_{jt}$. As examined and proposed by Braumoeller (2004), the effect needs to be calculated for each number of polling tables. One way to calculate these effects with the corresponding standard errors is by estimating the model 19 (maximum number of tables) additional times for each dependent variable, while each time subtracting the number of tables from the original 'tables' variable. This way each value in the variable 'table' is zero once, allowing the parameter β_8 and its standard error to measure the full effect for a particular number of tables. To facilitate interpretation, Table 5 illustrates this technique for the observer effect in locations with one, two and three tables.[16] The results show significant impacts on turnout and blank votes in the whole country.

<Table 4 near here>

<Table 5 near here>

<Table 6 near here>

Turnout decreases by 4.9, 3.7 and 2.5 percentage points for locations with respectively 1, 2 and 3 tables. Table 7 shows the results of the regression without allowing for dependence on the number of tables. The observer effect on turnout in that case is -2.0 percentage points countrywide. The heterogeneity in the number of tables at the polling location is graphically

[16] Polling locations with up to 3 tables are 80 percent of all polling locations in 2009 - see Table 6 for the frequencies and percentages per category of 'number of tables'.

illustrated in Figure 8. As the number of tables increases, the effect observers have on turnout decreases. The effect is even positively significant for locations with 8 or more tables, which accounts for two percent of all polling locations. This fraud-increasing effect could be interpreted as negative spillover. After getting to know the exact table at which an OE observer takes place, a fraudulent polling location official can redirect its ballot box stuffing efforts towards other unobserved tables. This could potentially result in overcompensation and thus increase in turnout.

<Table 7 near here>

<Figure 8 near here>

These results on turnout are similar to those found by Sjoberg (2012) in Azerbaijan and Kyrgyzstan, where the observer effects ranged from 1 to 2 percentage points countrywide. Methods used by Sjoberg are closely related to ours which shows the generalizability of the impact domestic fixed PVT observers can have. Our findings are however moderate when compared to the results found by Asunka et al. (2017) in Ghana. They encounter a 4.5 percentage point decrease of turnout in untreated polling location. The larger impact can be explained by the non-random sample of regions that were selected for that study. Their main concern was to balance strongholds for each major political party and competitive regions. As a result, half of their sample is in regions with a high degree of electoral competitiveness, which does not reflect the whole country. From our results in tables 5 and 6 we can conclude that competitiveness matters for the impact of electoral observers in our Mozambican setting, namely in terms of turnout and vote shares. It is possible that oversampling of stronghold areas in Ghana might have inflated the observer effect. On the other hand, the results of Buzin et al. (2016) suggest that the observer effect of domestic observers is much smaller. They do not find

consistent effects across their sample of 21 major Russian cities. In order to understand better the difference to our results, we examined heterogeneity of the treatment effect in the distance from the closest province capital. Table 8 shows the results for impact on turnout for districts that are less than 100 kilometers away from the closest province capital and for those that are more than 100 kilometers away. While the estimate for closer polling locations is very small and statistically insignificant the polling locations further away from the capital cities show a significant decrease of on average 2.9 percentage points due to the presence of electoral observers. This suggest that ballot fraud in particular was deterred in the more rural areas rather than in proximity to the main cities, which were of main interest in the Russian study.

<Table 8 near here>

When continuing to analyze the results in tables 5 and 6 it is interesting to note that the share of blank votes increases across the country. The form of ballot fraud in which blank votes are validated seems to be significantly reduced due to the presence of OE observers, while there is no effect on the invalidation of votes. The effect in the whole country ranges from 2.3 percentage points for locations with one table to 1.4 percentage points for locations with three tables. Again, the graphical representation (Figure 9) implies that observed locations with many tables do not contribute to the fraud deterring effect.

<Figure 9 near here>

The impact on blank votes is similar across all provinces while the negative effect on turnout is only significant in FRELIMO strongholds. The results for ballot box stuffing are in line with our Hypothesis 2 that states that the presence of observers has a larger impact on ballot fraud

in FRELIMO strongholds than in competitive provinces. However, validating blank votes seems not to differ. Following the reasoning of Harvey (2016), a possibility could be that validating blank votes is easier than ballot box stuffing and thus happens across the country. In the Table 8 we can see that the impact on blank votes is just like that of turnout, mainly driven by polling locations further away from the province capitals.

Meanwhile, the reduction of fraud influences the vote shares of the parties only in competitive provinces. Table 5 and Figure 10 show opposite effects on vote shares and suggest a shift from FRELIMO to RENAMO votes due to the presence of observers. In the FRELIMO strongholds, FRELIMO seems to be able to counteract a potential negative effect on its vote shares. A possible explanation for this could be a substitution of fraud. While ballot fraud is reduced, other types of electoral misbehavior such as voter intimidation and vote-buying may increase. Another possibility as suggested by Harvey (2016) is that the loss of the less risky types of fraud in competitive provinces drive the loss of vote shares for FRELIMO and consequently increased vote shares for RENAMO.

<Figure 10 near here>

The interaction term between Spillover OE (S) and time (t) in Table 4 tests for any spillovers outside of the polling location. There only seems to be a positive (fraud-reducing) spillover on blank votes in FRELIMO strongholds, meaning that overall there is no evidence for the replacement of ballot fraud to other polling locations within the same village.

As shown in Table 1, the FRELIMO strongholds of Gaza and Tete are outliers in terms of over-voting during the 2009 elections. Because we are concerned that this might have been the main driver of results on turnout, we perform a robustness check by excluding these provinces from our regressions. Overall, we find estimates with similar magnitude and significance as before.

International mobile observers

To analyze the effect of the international UNDP observers, Table 9 shows the results for specification (7). This is an extension of Table 4 and specification (5) by adding the UNDP treatment variable and the related spillover dummy but restricting attention to the UNDP sample districts. A reduced version of this estimation in which the OE variables are excluded (specification 6) gives similar results and therefore is not shown here.[17] Table 9 shows that there is no evidence for any ballot fraud reducing effects of the UNDP observers. During the election day a polling official could refrain from ballot box stuffing during the relatively short visit of an international observer and the types of ballot fraud that we discuss in this paper most likely take place during counting at the end of the day. Therefore, we also estimate some simple UNDP treatment regressions in which we interact the actual treatment with (i) time spent at the polling location, and (ii) an indicator for the last location visited sequentially. These estimations help understand whether the mobile aspect of the UNDP observers is driving these null results, but we do not find evidence of that.

<Table 9 near here>

In Table 9 we do observe some large effects on the vote shares in competitive provinces. RENAMO's vote shares in those provinces increases by 8.9 percentage points in directly observed locations and by even 12.6 percentage points in other polling locations in the same village. Voters seem to be more comfortable voting for RENAMO, when UNDP observers are present. Although ballot box fraud was not reduced, other types of fraud such as intimidation around the polling location might have decreased.

[17] See online Appendix C for the results of specification (6).

FRELIMO, however, did not lose any vote shares. Its vote shares even increase for unvisited polling locations in visited villages belonging to competitive provinces. It is also possible that FRELIMO supporters feel safer in the proximity of UNDP observers to vote freely. An explanation of these results could be the mobile nature of the UNDP mission. Ballot fraud can occur before the observers arrive and after they leave, especially during counting at the end of the day. In the 95 UNDP sample villages roughly half of all locations were visited. Their presence would most likely not go unnoticed and at the end of the day most of the teams self-selected themselves back to one of the already observed polling locations. It is thus not unlikely to assume that a large proportion of the voters in those villages must have known about their presence, with behavioral changes as a result. We have data about four provinces (Cabo Delgado, Gaza, Maputo, and Zambezia) that support this claim. As part of the project described in Aker et al. (2017), a post-election survey was conducted in those provinces starting in November 2009. From this survey we know that 42 percent of the respondents remembered seeing an international observer on the election day. To put this number in perspective, in those provinces, 50 percent of the OE observers report to have seen an international observer at their polling location. This shows how visible these international observers are for the voters.

When analyzing the impact of OE treatment in the districts selected for UNDP observation, it can be concluded that the previously found fraud-reducing effects have disappeared. There is only a small negative effect on the FRELIMO vote shares due to the presence of domestic observers. There are a number of possible explanations for the null result in these selected districts. One possible interpretation for the absence of the observer effect is the fact that there is no ballot fraud in the UNDP sampled districts. As pointed out by critics of electoral observation, international observers tend to visit convenient and interesting areas (Hyde, 2007). These results suggest that FRELIMO identified the districts that international observers visited before-hand. In response to this, the fraudulent activities may have been reallocated to areas

where these observers are less likely to go. A politician could predict a potential visit by looking at past electoral observer mission routes. We do not have access to the deployment data of observers organized by UNDP prior to 2009, however we were able to obtain the mission deployment plans of the Carter Center. The Carter Center had missions in 2004 and 2014, which allows us to investigate the persistence in visiting the same areas. The UNDP sample covered 24 of the 142 Mozambican districts in 2009, 19 of those districts were part of the 2004 Carter Center deployment, and 20 later in 2014. The Carter Center missions were composed by 50 and 78 observers (respectively for 2004 and 2014). Some key characteristics of these districts are that they are above average urban, 41% versus 11% country wide, and much easier to reach. The average distance from the UNDP sample districts to the closest airport is 45.5 kilometers and for the Carter Center in 2004 47.3 kilometers, while the country average is 80.3 kilometers.

Besides expectations, the actual presence of other (international) electoral observers and political party observers in these convenient and easy to access districts during the 2009 elections is also higher. Like the UNDP observers, OE observers filled in an observation form about the people within the polling location, all activities and additional comments. Based on these forms we can conclude that 45 percent of the OE observed polling locations in UNDP sample districts were visited by non-UNPD international observers, while this is only 38 percent in the rest of the country. It is very unlikely that there was coordination between the UNDP and other international groups as the randomized allocation was given to observers only a few days before the election. For that reason, we are confident to observe the real but marginal effect of an UNDP observer team at a polling location at some point during the day. However, the presence of other observers could have at least partially neutralized some of the potential effects.

In order to test these explanations, in Table 10 we estimate the UNDP and OE observer effects for polling locations in districts within and outside of the 100-kilometer radius from the closest province capital. Reducing ballot fraud in the more distant districts would suggest that ballot fraud is relocated away from the more convenient locations. Nonetheless, just as before in the main estimation we do not find evidence that either UNDP or OE observers reduce ballot fraud. We cannot rule out that this could be because the UNDP sample districts are not diverse enough in geographical terms. Table 10 does however show that when focusing on the polling locations less than 100 kilometers away from the closest province capital there are sample wide effects for UNDP observers on vote shares. While FRELIMO loses 3.8 percentage points, RENAMO gains 6.8 percentage points. These results support the idea of Harvey (2016) that in locations where ballot fraud is too risky due to higher levels of electoral observation other forms of manipulation are deployed by the incumbent, which seem to decrease due to the presence of international observers.

<Table 10 near here>

10 Concluding remarks

In this paper, effects of domestic fixed and international mobile electoral observation are estimated in different settings during the 2009 general elections in Mozambique. We find significant effects of domestic observers, suggestive of a reduction in ballot fraud. In particular, ballot box stuffing and the validation of blank votes seem to be deterred. We do not find evidence that the presence of international observers deters ballot fraud. The response to the presence of domestic observers differs across the country. Only in strongholds of FRELIMO, ballot box stuffing seems to be significantly reduced. However, this has no implications for the

vote shares, suggesting an increase in other types of electoral fraud. Clear evidence for electoral observation spillovers is not found, even though we can report spillovers of international observers on voting shares. The results for domestic observers are mostly in line with those of the recent literature and too small to imply any changes in the overall election outcomes.

The results related to the international observers are ambiguous. Indeed, their presence has no significant impact on any of the ballot fraud indicators. Given no effects of domestic observers in the same districts, this could be an indication that ballot fraud was displaced to other parts of the country, and that international organizations are selecting convenient districts to deploy their observers. Still, we find that international observers are the only ones inducing spillovers at the village level. This could be due to their mobile character and notable presence as foreigners.

Our paper started the comparative analysis of different types of electoral observation, and finds that domestic fixed observers in a country-wide setting were more effective than international mobile observers in a selected sample. A good comparison of the OE and UNDP observers is difficult due to the lack of ballot fraud in those selected districts. The results suggest some advantages of working with domestic fixed observers to reduce ballot fraud. However, we also find a degree of complementary between domestic and international observers: while the former seem able to counteract ballot fraud, the latter seem to have village-wide effects potentially on other types of electoral misconduct. These findings have implications for the implementation and coordination of future domestic and international electoral observation missions.

References

Adebisi, Ademola, and Shina Loremikan. 2013. *Election Observation in Nigeria: Prop or Threat to Democratic Consolidation?*. Canadian Social Science, 9(6): 140-146.

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

Asunka, Joseph, Sarah Brierley, Miriam Golden, Eric Kramon, and George Ofosu. 2017. *Electoral Fraud or Violence: The Effect of Observers on Party Manipulation Strategies*. British Journal of Political Science.

AWEPA. 2009. *Mozambique Political Process Bulletin*. Published irregularly by AWEPA, European Parliamentarians for Africa, Maputo. Issue 43, November 19, 2009. Published in Portuguese as *Boletim sobre o Processo Politico em Moçambique*.

Bjornlund, Eric C., 2004. *Beyond Free and Fair: Monitoring Elections and Building Democracy*. Woodrow Wilson Center Press, Washington.

Braumoeller, Bear F. 2004. *Hypothesis Testing and Multiplicative Interaction Terms*. International Organization, 58(4): 807-820.

Buzin, Andrei, Kevin Brondum, and Graeme Robertson. 2016. *Election Observer Effects: A Field Experiment in the Russian Duma Election of 2011*. Electoral Studies, 44(2016): 184-191.

Canton, Santiago A., and Neil Nevitte. 1997. *The Role of Domestic Observers*. Journal of Democracy, 8(3): 47-61.

Carothers, Thomas. 1997. *The Rise of Election Monitoring: The Observers Observed*. Journal of Democracy, 8(3): 17-31.

Carter Center. 2005. *The Final Carter Center Report on the Dec. 1-2, 2004, Mozambique Elections*.

− − −. 2014. *Election report: Presidential, Legistlative, and Provincial Assembly Elections in Mozambique Final Report*, October 2014.

Collier, Paul, and Pedro C. Vicente. 2012. *Violence, Fraud, and Bribery: The Political Economy of Elections in Sub-Saharan Africa*. Public Choice, 153(1-2): 117-147.

− − −. 2014. *Votes and Violence: Evidence from a Field Experiment in Nigeria*. Economic Journal, 124(574): F327-355.

Driscoll, Amanda, and Michael J. Nelson. 2014. *Ignorance or Opposition? Blank and Spoiled Votes in Low-Information, Highly Politicized Environments*. Political Research Quarterly, 67(3): 547-561

Enikolopov, Ruben, Vasily Korovkin, Maria Petrova, Konstantin Sonin, and Alexei Zakharov. 2013. *Field Experiment Estimate of Electoral Fraud in Russian Parliamentary Elections*. Proceedings of the National Academy of Sciences, 110(2): 448–452.

European Union Election Observation Mission to Mozambique. 2004. *Final report on the Presidential, Legislative and Provincial Assembly Elections 2004*.

− − −. 2009. *Final report on the Presidential, Legislative and Provincial Assembly Elections 2009*.

Hanlon, Joe, and Sean Fox. 2006. *Identifying Fraud in Democratic Elections: A Case Study of the 2004 Presidential Elections in Mozambique*. Crisis States Working Papers Series no. 8. London School of Economics and Political Science.

Hyde, Susan D. 2007. *The Observer Effect in International Politics: Evidence From a Natural Experiment*. World Politics, 60(1): 37–63.

− − −. 2010. *Experimenting in Democracy Promotion: International Observers and the 2004 Presidential Elections in Indonesia*. Perspectives on Politics, 8(2): 511–527.

− − −. 2011. *The Pseudo-Democrat's Dilemma: Why Election Observation Became an International Norm*. Cornell University Press.

Ichino, Nahomi, and Matthias Schündeln. 2012. *Deterring or Displacing Electoral Irregularities? Spillover Effects of Observers in a Randomized Field Experiment in Ghana*. Journal of Politics, 74(1): 292–307.

Kelley, Judith G. 2012. *Monitoring Democracy: When International Election Observation Works, and Why It Often Fails*. Princeton: Princeton University Press.

Lyons, Terrence. 2004. *Post-conflict Elections and the Process of Demilitarizing Politics: The Role of Electoral Administration*. Democratization, 11(3): 36-62.

Ofosu, George, and Daniel N. Posner. 2014. *Domestic Election Observers and Electoral Fraud in Malawi's 2014 Elections*. University of Berkeley.

Rubin, Donald B. 1974. *Estimating Causal Effects of Treatments in Randomized and Nonrandomized Studies*. Journal of Educational Psychology, 66(5): 199-234.

Sitoe, Eduardo J. 2006. *Abstenções: Perspectivas e Desafios para a Consolidação da Democracia*. In *Moçambique: Eleições Gerais, 2004. Um olhar do Observatório Eleitoral*, edited by Brazão Mazula. Maputo, Observatório Eleitoral.

Sjoberg, Fredrik M. 2012. *Making Voters Count: Evidence from Field Experiments about the Efficacy of Domestic Election Observation*. Working Paper no. 1, Columbia University, Harriman Institute.

STAE. 2006. *Eleições Gerais 2004, Secretariado Técnico de Administração Eleitoral*, Maputo. No ISBN. (accessed December 2, 2015).

− −−. 2012. *Eleições Gerais 2009, Secretariado Técnico de Administração Eleitoral*, Maputo. No ISBN. (accessed September 14, 2015).

Rundlett, Ashlea, and Milan W. Svolik. 2016. *Deliver the Vote! Micromotives and Macrobehavior in Electoral Fraud*. American Political Science Review, 110(1): 180-197.

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

Wimpy, Cameron. 2011. *The 2009 presidential and parliamentary elections in Mozambique*. Electoral Studies, 30: 366-383.

Figure 1: Mozambique, its geographic location with provinces and neighboring countries

Dark grey provinces are considered FRELIMO strongholds; light grey provinces have a more competitive political environment

Figure 2: Trends in turnout and vote share for the Mozambican Parliamentary Elections from 1994 to 2009

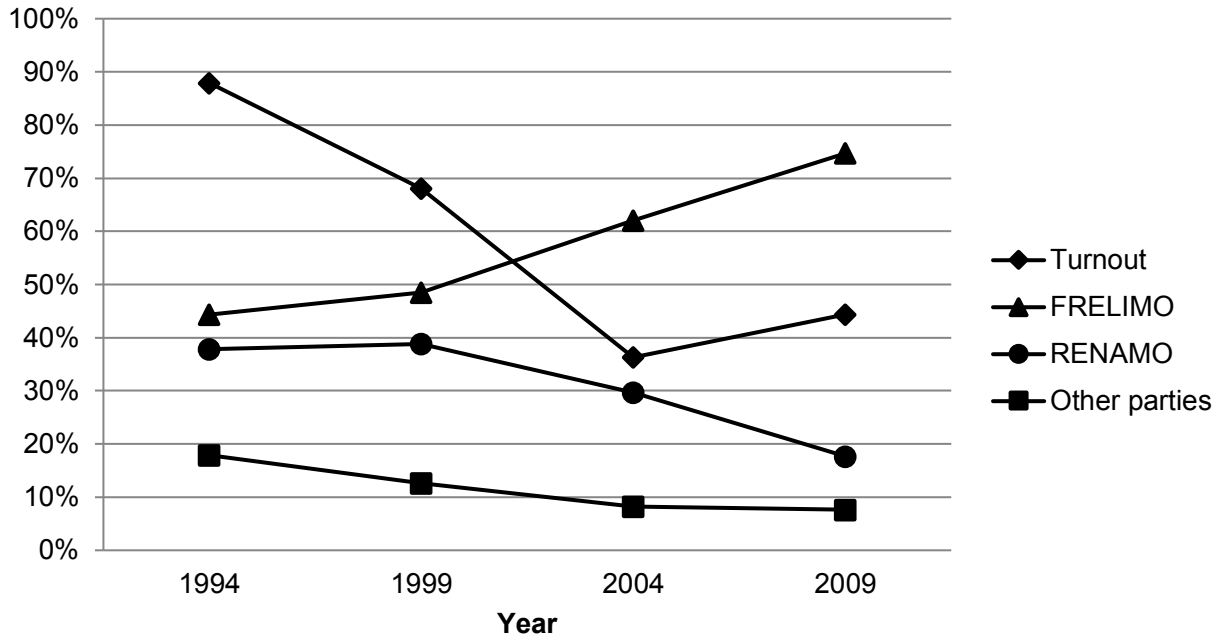


Figure 3: UNDP sampled districts and province capitals

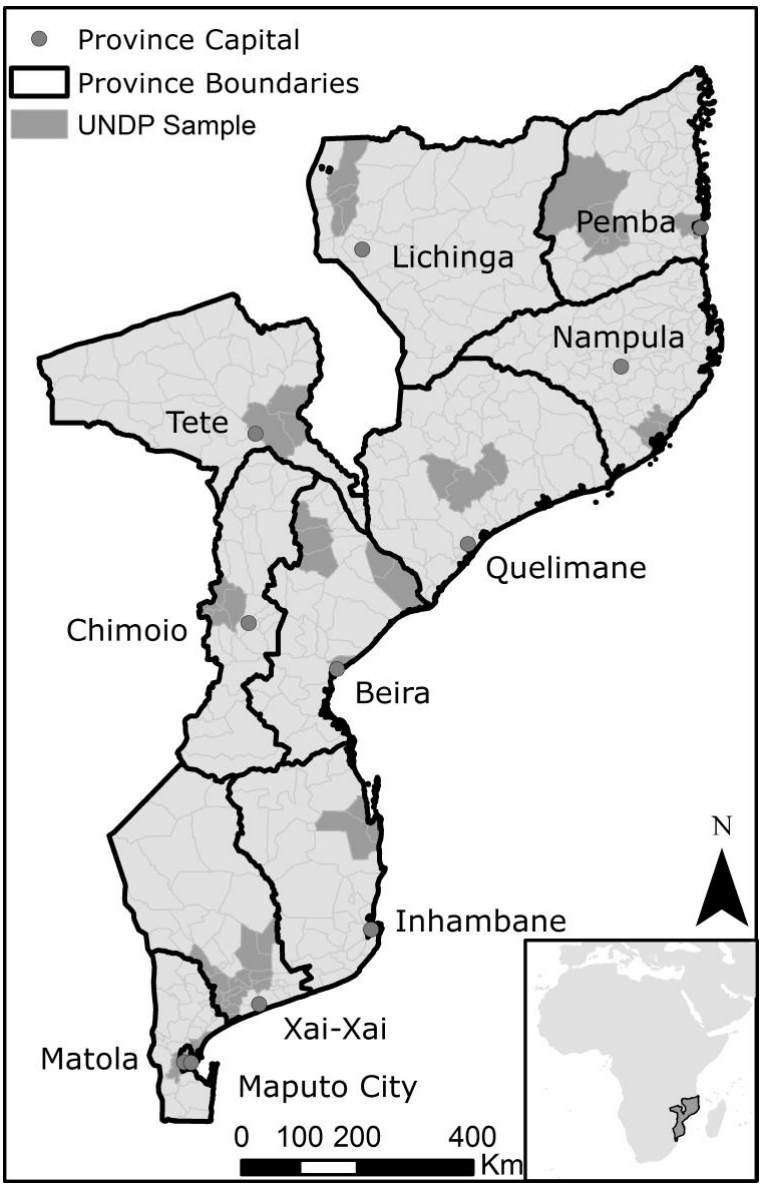
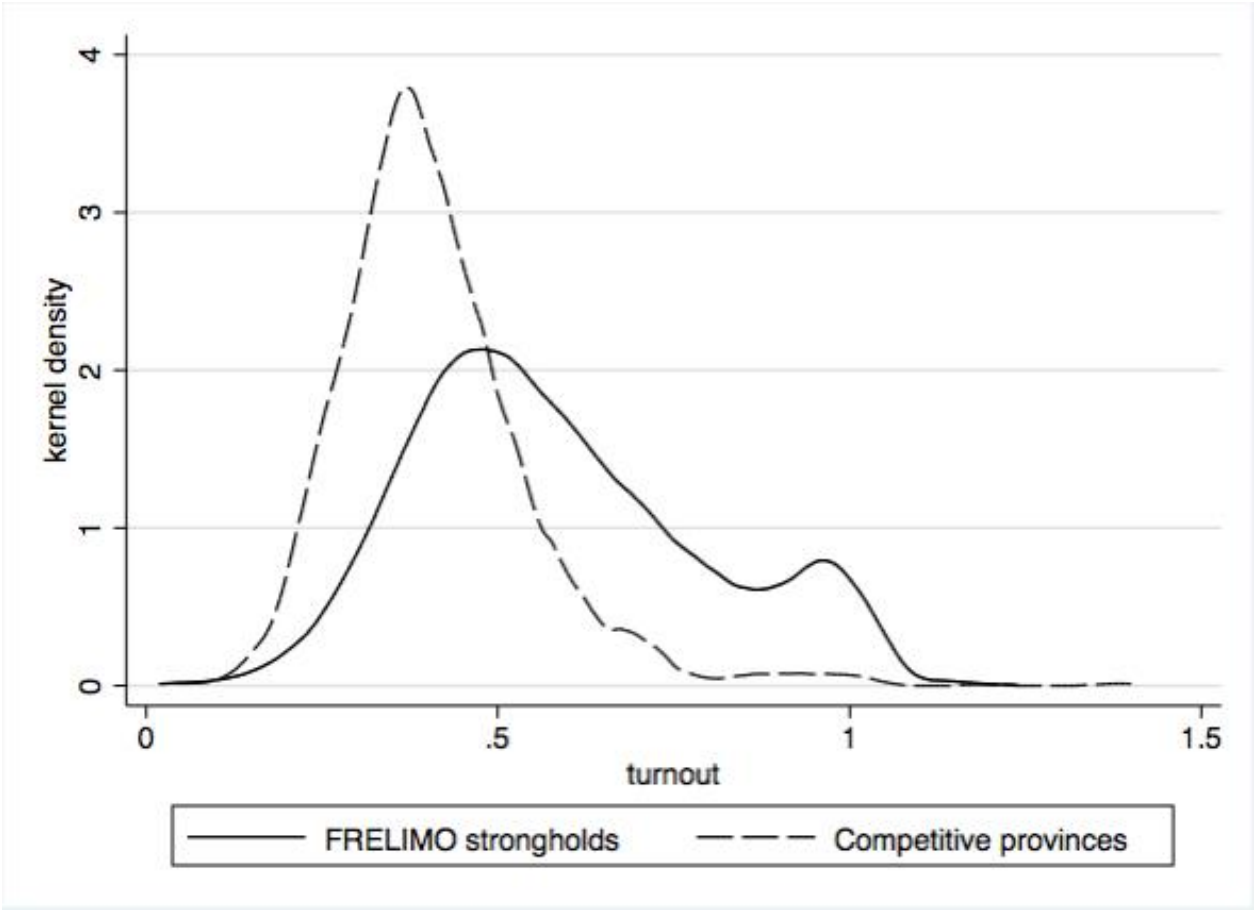


Figure 4: Distribution of turnout in 2009 by competitiveness, based on parliamentary election results on polling location level



Figures 5a and 5b: Examples of spoilt ballot papers (AWEPA, 2009)

Figure 6: Distribution of blank votes in 2009 by competitiveness, based on parliamentary election results on polling location level

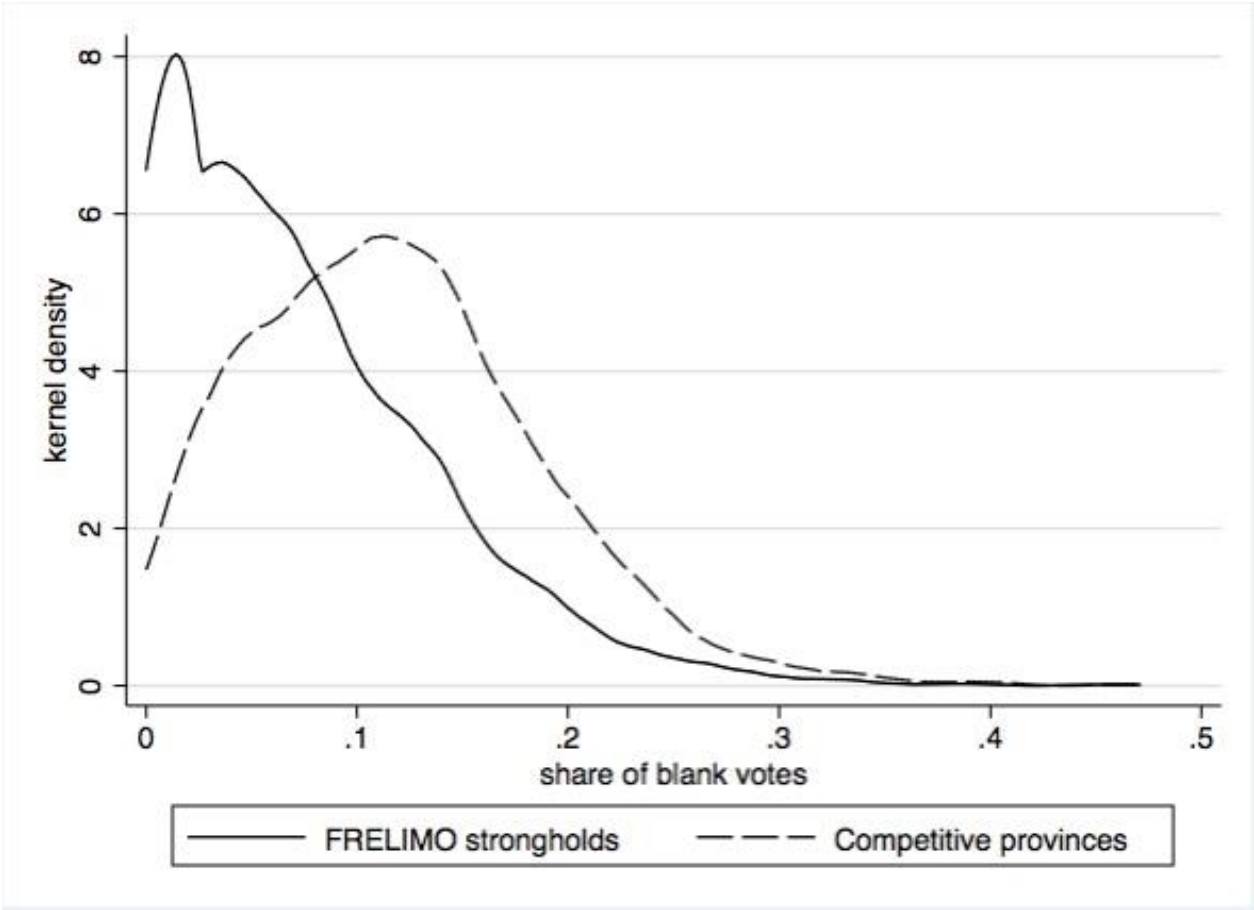


Figure 7: Distribution of turnout in both elections by treatment, based on parliamentary election results on polling location level

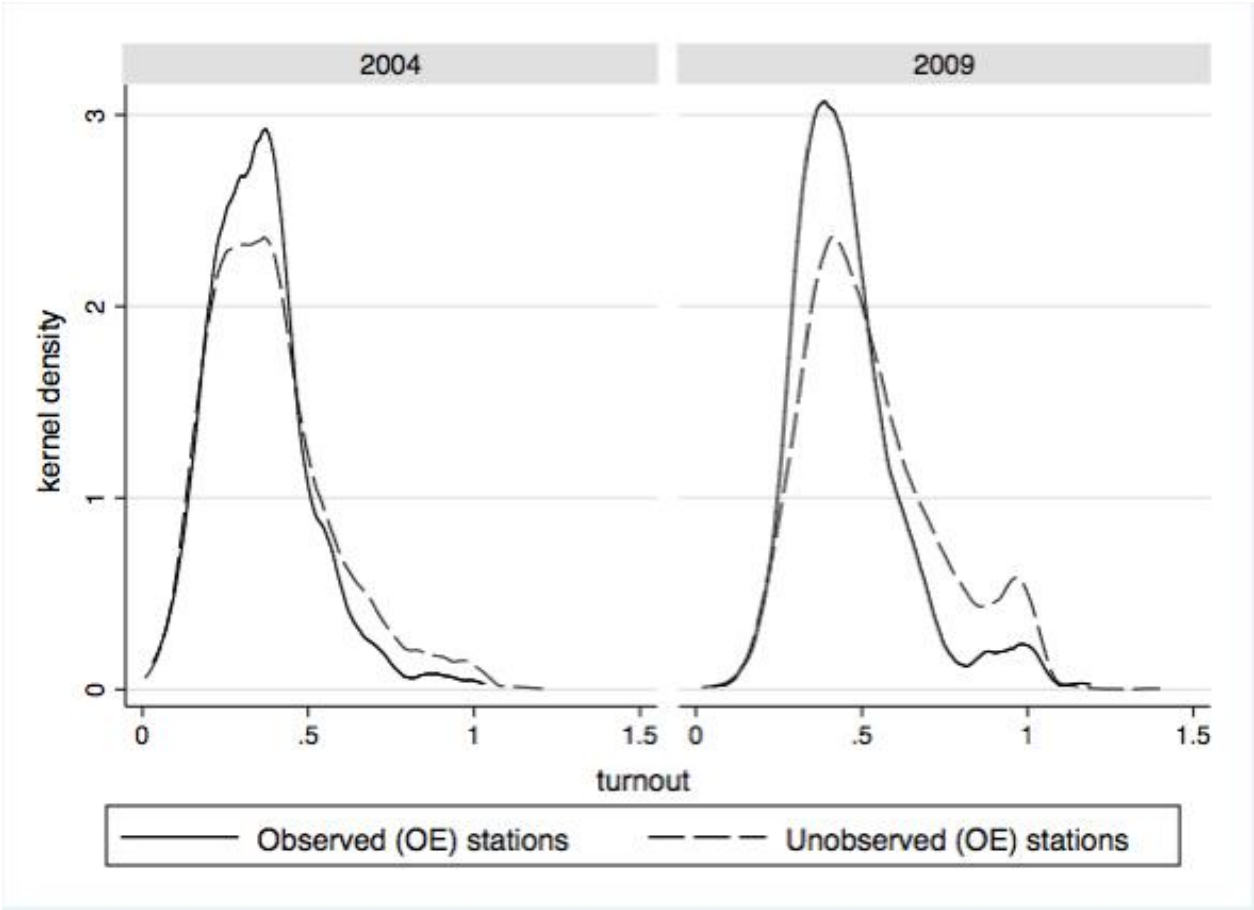
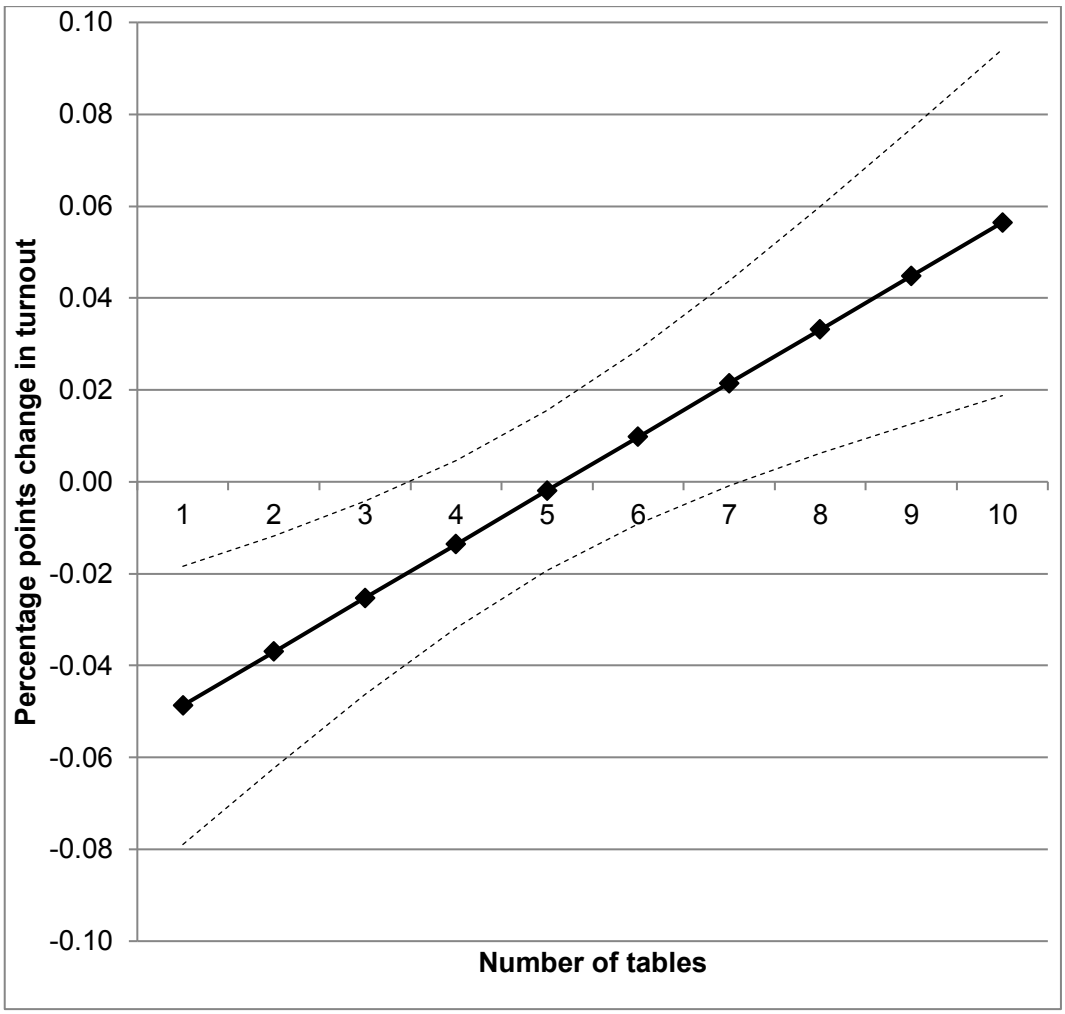
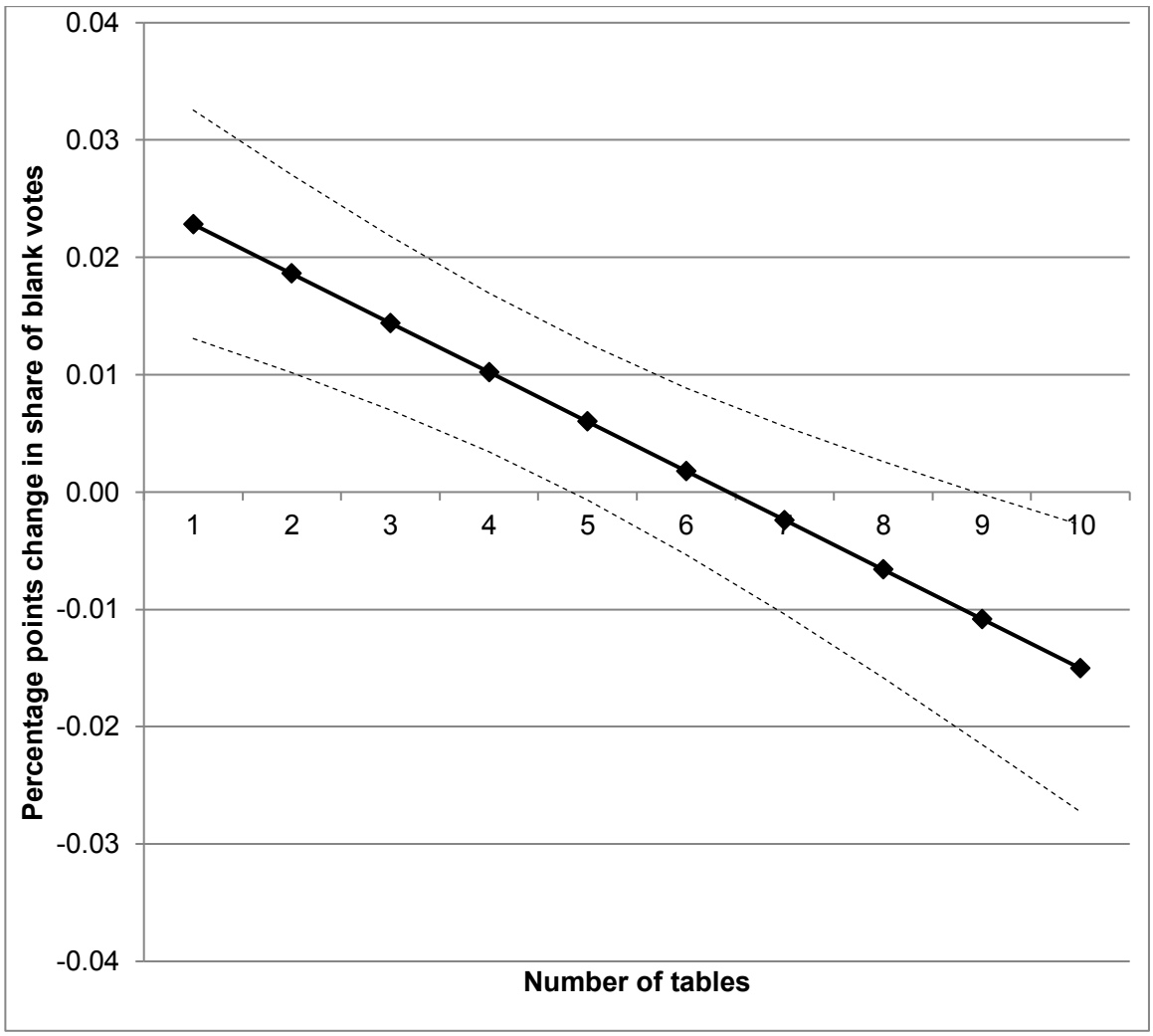


Figure 8: Graphic representation of observer effect (OE observers) on turnout by number of tables in polling location using all provinces.



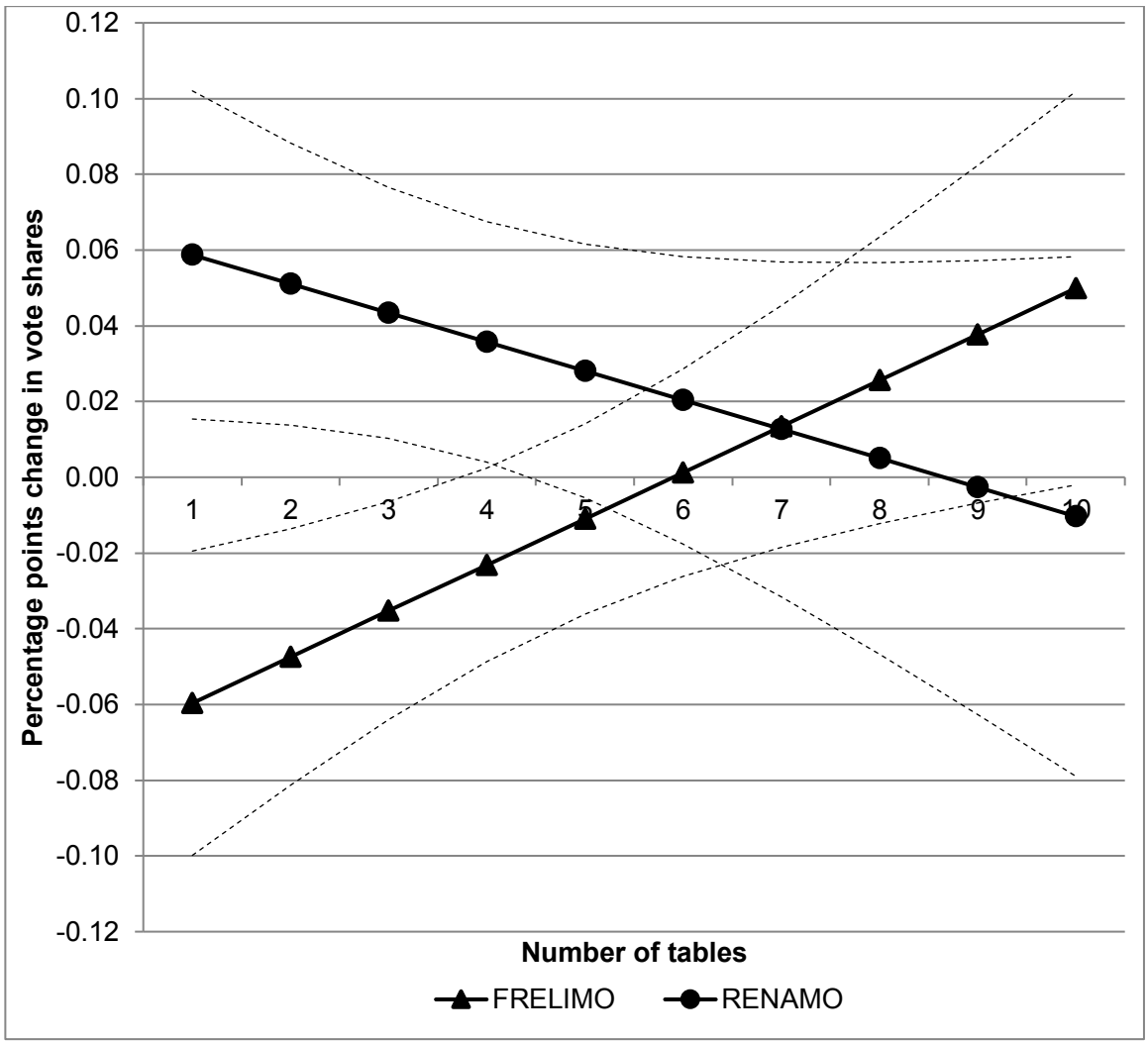
The thin dashed lines are the 2 times standard error upper and lower bound

Figure 9: Graphic representation of observer effect (OE observers) on share of blank votes by number of tables in polling location using all provinces.



The thin dashed lines are the 2 times standard error upper and lower bound

Figure 10: Graphic representation of observer effect (OE observers) on vote shares of FRELIMO (triangles) and RENAMO (circles) by number of tables in polling location using only competitive provinces.



Thin lines are the 2 times standard error upper and lower bound

Table 1: Percentage of polling locations with turnout higher than 95 percent, per province.

Province	Percentage overvoting	Number of locations
Cabo Delgado*	0.18%	546
Gaza*	17.24%	493
Inhambane*	4.28%	467
Manica	1.42%	351
Maputo City*	0.00%	161
Maputo Province*	0.85%	353
Nampula	0.79%	757
Niassa*	5.29%	435
Sofala	1.35%	296
Tete*	16.91%	680
Zambezia	0.15%	648
Total	**5.07%**	**5 187**

Note: Starred provinces are considered FRELIMO strongholds. Results are based on parliamentary election outcomes of 2009.

Table 2: Presidential vote shares of the elections compared with the re-qualified votes

	Guebuza FRELIMO	Dhlakama RENAMO	Simango MDM	Total
Vote count	2 962 974	641 559	337 645	3 942 178
Percentage	75.2%	16.3%	8.6%	100%
Re-qualified by CNE	11 653	9 120	2 934	23 707
Percentage	49.2%	38.5%	12.4%	100%

Table 3: Means of outcome variables by group for each sample and year

	Full Country		UNDP Sample		
Means in 2004	**Control**	**Observed OE (difference to control)**	**Control**	**Observed OE (difference to control)**	**Observed UNDP (difference to control)**
turnout	0.384***	-0.030***	0.403***	-0.017	-0.019
	(0.006)	(0.008)	(0.009)	(0.010)	(0.015)
% null votes	0.055***	-0.007***	0.041***	-0.010***	0.004
	(0.001)	(0.002)	(0.003)	(0.003)	(0.006)
% blank votes	0.056***	-0.004*	0.042***	-0.007**	-0.007
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
% votes for FRELIMO	0.609***	-0.019	0.673***	0.014	0.030
	(0.009)	(0.013)	(0.020)	(0.018)	(0.027)
% votes for RENAMO	0.297***	0.023*	0.253***	-0.005	-0.029
	(0.008)	(0.012)	(0.018)	(0.017)	(0.025)
Means in 2009					
turnout	0.526***	-0.068***	0.515***	-0.030**	-0.013
	(0.006)	(0.007)	(0.011)	(0.012)	(0.014)
% null votes	0.041***	-0.001	0.033***	-0.003	-0.001
	(0.001)	(0.002)	(0.003)	(0.004)	(0.006)
% blank votes	0.089***	0.005	0.069***	-0.011***	-0.011**
	(0.002)	(0.003)	(0.003)	(0.004)	(0.005)
% votes for FRELIMO	0.752***	-0.034***	0.790***	-0.022*	0.020
	(0.006)	(0.008)	(0.013)	(0.013)	(0.014)
% votes for RENAMO	0.187***	0.024***	0.126***	0.002	-0.021*
	(0.006)	(0.008)	(0.010)	(0.010)	(0.011)

Note: Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes.

Table 4: Observer effect (OE observers) on indicators of fraud using specification (5)

	Turnout			Invalid vote share			Blank vote share			FRELIMO vote share			RENAMO vote share		
	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Observed OE (T) x time (t)	-0,060***	-0,065***	-0,036	0,002	0,002	0,002	0,027***	0,021***	0,028***	-0,018	-0,016	-0,072***	0,019	0,015	0,066***
	(0.018)	(0.025)	(0.024)	(0.004)	(0.005)	(0.008)	(0.006)	(0.006)	(0.010)	(0.014)	(0.014)	(0.024)	(0.013)	(0.013)	(0.025)
Observed OE (T) x tables (m) x time (t)	0,012***	0,011**	0,007*	-0,001	-0,000	-0,001	-0,004***	-0,003***	-0,004**	0,002	0,005*	0,012***	-0,001	-0.005**	-0,008
	(0.003)	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.002)	(0.005)
Spillover OE (S) x time (t)	-0,010	-0,011	-0,010	0,002	0,002	0,001	0,007**	0,012***	0,002	0,001	0,013	-0,010	0,005	-0,013	0,026*
	(0.009)	(0.013)	(0.010)	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.005)	(0.010)	(0.011)	(0.014)	(0.009)	(0.011)	(0.015)
Observed OE (T) x tables (m)	0,000	0,002	-0,001	-0,002	-0,002	-0,002	0,000	0,000	0,000	-0,003	-0,003	-0,006	0,003	0,004	0,003
	(0.004)	(0.006)	(0.004)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.006)
Tables (m) x time (t)	-0,012***	-0,015***	-0,002	0,002***	0,002***	0,003***	0,001	0,000	-0,002*	-0,005**	-0,016***	-0,011***	-0,008***	0,003	-0,006
	(0.002)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)
Tables (m)	-0,024***	-0,027***	-0,024***	0,001	0,001	0,001	-0,000	-0,001	0,001	0,002	0,003	0,003	-0,002	-0,004	-0,002
	(0.002)	(0.004)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
Time (t)	0,142***	0,164***	0,089***	-0,020***	-0,019***	-0,022***	0,027***	0,017***	0,051***	0,148***	0,116***	0,241***	-0,088***	-0,063***	-0,162***
	(0.01)	(0.013)	(0.014)	(0.002)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)	(0.009)	(0.008)	(0.015)	(0.008)	(0.008)	(0.015)
Constant	0,464***	0,511***	0,402***	0,052***	0,045***	0,062***	0,056***	0,051***	0,062***	0,607***	0,755***	0,386***	0,300***	0,168***	0,495***
	(0.007)	(0.011)	(0.010)	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)	(0.004)	(0.007)	(0.008)	(0.010)	(0.006)	(0.007)	(0.011)
R-squared	0,325	0,335	0,340	0,056	0,078	0,038	0,266	0,187	0,376	0,415	0,284	0,622	0,318	0,193	0,476
Observations	8394	4954	3440	8394	4954	3440	8394	4954	3440	8394	4954	3440	8394	4954	3440

Note: Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes. 'Observed OE' is the treatment dummy variable, which takes the value 1 for OE observed polling locations. 'Spillover OE' is the spillover dummy variable, which takes the value 1 for unobserved polling locations in villages with at least one other observed polling location.

Table 5: Observer effect (OE observers) by number of tables in polling location

Dependent Variables	All provinces			FRELIMO Strongholds			Competitive provinces		
	Locations with 1 table	Locations with 2 tables	Locations with 3 tables	Locations with 1 table	Locations with 2 tables	Locations with 3 tables	Locations with 1 table	Locations with 2 tables	Locations with 3 tables
Turnout	-0.049***	-0.037***	-0.025**	-0.054**	-0.042**	-0.031**	-0.029	-0.022	-0.014
	(0.015)	(0.013)	(0.011)	(0.021)	(0.018)	(0.016)	(0.020)	(0.016)	(0.013)
Invalid vote share	0.001	0.001	0.000	0.002	0.001	0.001	0.001	0.000	-0.001
	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.007)	(0.006)	(0.005)
Blank vote share	0.023***	0.019***	0.014***	0.018***	0.016***	0.013***	0.024***	0.020***	0.016**
	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.009)	(0.007)	(0.006)
FRELIMO vote share	-0.016	-0.014	-0.012	-0.011	-0.006	-0.001	-0.060***	-0.047***	-0.035**
	(0.012)	(0.010)	(0.009)	(0.012)	(0.011)	(0.010)	(0.020)	(0.017)	(0.014)
RENAMO vote share	0.018	0.017*	0.017*	0.010	0.005	-0.000	0.059***	0.051***	0.043***
	(0.012)	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)	(0.022)	(0.019)	(0.017)

Note: Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes.

Table 6: Frequency and percentage number of tables per polling location in 2009

Number of tables	1	2	3	4	5	6	7	8	9	10	11+
Frequency	2 296	1 241	675	378	246	177	112	72	26	12	8
Percentage	43.79%	23.67%	12.87%	7.21%	4.69%	3.38%	2.14%	1.37%	0.50%	0.23%	0.15%
Cumulative	43.79%	67.46%	80.34%	87.55%	92.24%	95.61%	97.75%	99.12%	99.62%	99.85%	100%

Table 7: Observer effect (OE observers) on indicators of fraud without heterogeneity in number of tables

	Turnout			Invalid vote share			Blank vote share			FRELIMO vote share			RENAMO vote share		
	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Observed OE (T) x time (t)	-0,020**	-0,030**	-0,008	0,001	0,002	-0,000	0,012***	0,012***	0,012**	-0,010	0,002	-0,022*	0,015	-0,003	0,035**
	(0.009)	(0.014)	(0.010)	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.005)	(0.009)	(0.010)	(0.013)	(0.009)	(0.010)	(0.015)
Spillover OE (S) x time (t)	-0,013	-0,013	-0,011	0,002	0,002	0,001	0,008***	0,012***	0,003	0,001	0,012	-0,012	0,005	-0,013	0,027*
	(0.009)	(0.013)	(0.011)	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.005)	(0.010)	(0.011)	(0.014)	(0.009)	(0.011)	(0.015)
Tables (m) x time (t)	-0,009***	-0,012***	-0,000	0,002***	0,002***	0,003***	-0,001	-0,001	-0,003***	-0,005**	-0,014***	-0,008***	-0,008***	0,001	-0,008**
	(0.002)	(0.003)	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
Tables (m)	-0,024***	-0,027***	-0,024***	0,001	0,001	0,000	-0,000	-0,001	0,001	0,001	0,002	0,002	-0,001	-0,003	-0,001
	(0.002)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)
Time (t)	0,134***	0,158***	0,083***	-0,020***	-0,019***	-0,021***	0,030***	0,019***	0,055***	0,146***	0,113***	0,231***	-0,087***	-0,059***	-0,156***
	(0.009)	(0.012)	(0.013)	(0.002)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)	(0.008)	(0.008)	(0.014)	(0.008)	(0.007)	(0.014)
Constant	0,464***	0,511***	0,402***	0,052***	0,045***	0,062***	0,056***	0,050***	0,062***	0,607***	0,756***	0,386***	0,300***	0,167***	0,496***
	(0.007)	(0.010)	(0.010)	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)	(0.004)	(0.007)	(0.008)	(0.010)	(0.006)	(0.007)	(0.011)
R-squared	0,323	0,332	0,338	0,0549	0,078	0,037	0,263	0,185	0,374	0,415	0,284	0,620	0,318	0,192	0,475
Observations	8394	4954	3440	8394	4954	3440	8394	4954	3440	8394	4954	3440	8394	4954	3440

Note: Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes. 'Observed OE' is the treatment dummy variable, which takes the value 1 for OE observed polling locations. 'Spillover OE' is the spillover dummy variable, which takes the value 1 for unobserved polling locations in villages with at least one other observed polling location.

Table 8: Observer effect (OE observers) on turnout and blank vote share without heterogeneity in number of tables

	Turnout			Blank vote share		
	All districts	**More than 100 km**	**Less than 100 km**	**All districts**	**More than 100 km**	**Less than 100 km**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Observed OE (T) x time (t)	-0,020**	-0,029**	-0,004	0,012***	0,018***	0,005
	(0.009)	(0.013)	(0.011)	(0.003)	(0.005)	(0.004)
Spillover OE (S) x time (t)	-0,013	-0,022*	0,002	0,008***	0,014***	0,000
	(0.009)	(0.012)	(0.012)	(0.003)	(0.004)	(0.004)
Tables (m) x time (t)	-0,009***	-0,019***	-0,001	-0,001	0,003***	-0,002***
	(0.002)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
Tables (m)	-0,024***	-0,015***	-0,034***	-0,000	0,000	-0,001
	(0.002)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Time (t)	0,134***	0,185***	0,078***	0,030***	0,021***	0,036***
	(0.009)	(0.013)	(0.011)	(0.003)	(0.004)	(0.003)
Constant	0,464***	0,420***	0,516***	0,056***	0,062***	0,050***
	(0.007)	(0.010)	(0.010)	(0.002)	(0.004)	(0.003)
R-squared	0,323	0,367	0,292	0,263	0,275	0,280
Observations	8394	4677	3717	8394	4677	3717

Note: Columns 1 and 4 include all districts. Columns 2 and 5 include only the districts more than 100 kilometers away from the closest province capital. Columns 3 and 6 include only the districts less than 100 kilometers away from the closest province capital. Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes. 'Observed OE' is the treatment dummy variable, which takes the value 1 for OE observed polling locations. 'Spillover OE' is the spillover dummy variable, which takes the value 1 for unobserved polling locations in villages with at least one other observed polling location.

Table 9: Observer effect (UNDP and OE observers) on indicators of fraud using specification (7)

	Turnout			Invalid vote share			Blank vote share			FRELIMO vote share			RENAMO vote share		
	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces	All provinces	FRELIMO strongholds	Competitive provinces
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Observed UNDP (U) x time (t)	0,018	0,019	0,016	-0,007	-0,004	-0,013	-0,003	-0,002	-0,004	-0,004	-0,026	0,062	0,030	-0,015	0,089**
	(0.013)	(0.017)	(0.017)	(0.007)	(0.005)	(0.018)	(0.006)	(0.005)	(0.014)	(0.025)	(0.017)	(0.046)	(0.026)	(0.016)	(0.044)
Spillover UNDP (V) x time (t)	-0,004	-0,006	-0,005	-0,006	0,002	-0,020*	0,004	0,002	0,012	0,005	0,003	0,063**	0,045*	-0,014	0,126***
	(0.015)	(0.020)	(0.016)	(0.004)	(0.003)	(0.01)	(0.005)	(0.004)	(0.015)	(0.019)	(0.017)	(0.027)	(0.024)	(0.013)	(0.042)
Observed OE (T) x time (t)	-0,011	-0,012	-0,005	0,012	0,010	0,027	0,002	0,003	-0,003	-0,049*	-0,036	-0,085	0,023	0,026	0,012
	(0.03)	(0.037)	(0.043)	(0.010)	(0.009)	(0.026)	(0.009)	(0.008)	(0.029)	(0.028)	(0.023)	(0.076)	(0.029)	(0.021)	(0.097)
Observed OE (T) x tables (m) x time (t)	0,002	0,002	-0,000	-0,003*	-0,001	-0,007*	0,001	0,000	0,002	0,007*	0,009**	0,011	0,004	-0,005	0,014
	(0.005)	(0.006)	(0.007)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)	(0.011)	(0.005)	(0.003)	(0.015)
Spillover OE (S) x time (t)	-0,012	-0,002	-0,038**	-0,005	0,006	-0,025	0,008	0,006	0,013	-0,007	0,009	-0,029	0,039	0,010	0,069
	(0.015)	(0.020)	(0.016)	(0.006)	(0.006)	(0.016)	(0.005)	(0.005)	(0.012)	(0.021)	(0.015)	(0.039)	(0.024)	(0.014)	(0.042)
Observed OE (T) x tables (m)	0,002	0,004	-0,003	-0,002	0,000	-0,007	0,000	-0,000	0,001	0,001	0,007*	-0,005	0,000	-0,002	0,004
	(0.008)	(0.010)	(0.008)	(0.002)	(0.001)	(0.006)	(0.001)	(0.001)	(0.004)	(0.005)	(0.004)	(0.012)	(0.006)	(0.004)	(0.018)
Tables (m) x time (t)	0,000	-0,001	0,008*	0,004***	0,003***	0,006	-0,002**	-0,001	-0,004**	-0,013***	-0,017***	-0,021***	-0,013***	0,001	-0,026***
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.007)	(0.005)	(0.003)	(0.009)
Tables (m)	-0,031***	-0,033***	-0,029***	0,001	-0,000	0,003	0,000	0,001	0,000	-0,001	-0,003	0,002	-0,002	-0,001	-0,006
	(0.005)	(0.006)	(0.008)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.006)	(0.004)	(0.003)	(0.008)
Time (t)	0,081***	0,090***	0,043*	-0,019**	-0,026***	-0,010	0,023***	0,021***	0,033***	0,150***	0,105***	0,285***	-0,118***	-0,061***	-0,252***
	(0.018)	(0.023)	(0.022)	(0.008)	(0.009)	(0.019)	(0.005)	(0.006)	(0.012)	(0.023)	(0.017)	(0.055)	(0.020)	(0.015)	(0.048)
Constant	0,527***	0,545***	0,488***	0,040***	0,039***	0,049***	0,040***	0,037***	0,045***	0,690***	0,793***	0,429***	0,248***	0,148***	0,503***
	(0.017)	(0.019)	(0.031)	(0.004)	(0.004)	(0.010)	(0.003)	(0.003)	(0.009)	(0.012)	(0.008)	(0.023)	(0.014)	(0.008)	(0.039)
R-squared	0,349	0,339	0,443	0,056	0,096	0,081	0,232	0,244	0,239	0,315	0,277	0,624	0,385	0,318	0,692
Observations	1812	1302	510	1812	1302	510	1812	1302	510	1812	1302	510	1812	1302	510

Note: Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes. 'Observed UNDP' and 'Observed OE' are the treatment dummy variables, which take the value 1 for respectively UNDP and OE observed polling locations. 'Spillover UNDP' and 'Spillover OE' are the spillover dummy variables which take the value 1 for unobserved polling locations in villages with at least one other observed polling location.

Table 10: Observer effect (UNDP and OE observers) on indicators of fraud without heterogeneity in number of tables

	Turnout			Invalid vote share			Blank vote share			FRELIMO vote share			RENAMO vote share		
	All districts	More than 100 km	Less than 100 km	All districts	More than 100 km	Less than 100 km	All districts	More than 100 km	Less than 100 km	All districts	More than 100 km	Less than 100 km	All districts	More than 100 km	Less than 100 km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Observed UNDP (U) x time (t)	0,018	0,024	0,018	-0,007	-0,019	-0,000	-0,003	-0,024	0,004	-0,005	0,068	-0,038**	0,029	-0,068	0,068**
	(0.013)	(0.025)	(0.015)	(0.007)	(0.019)	(0.003)	(0.006)	(0.016)	(0.005)	(0.025)	(0.052)	(0.015)	(0.026)	(0.045)	(0.026)
Spillover UNDP (V) x time (t)	-0,004	0,012	-0,006	-0,006	-0,026	-0,001	0,004	0,021	0,003	0,006	0,014	0,016	0,045*	-0,021	0,056*
	(0.015)	(0.037)	(0.017)	(0.004)	(0.016)	(0.003)	(0.005)	(0.020)	(0.003)	(0.019)	(0.048)	(0.019)	(0.024)	(0.051)	(0.029)
Observed OE (T) x time (t)	-0,004	-0,005	-0,000	0,002	-0,009	0,005	0,004	0,008	0,001	-0,018	-0,080	-0,018	0,042*	0,077	0,036
	(0.014)	(0.030)	(0.015)	(0.006)	(0.020)	(0.004)	(0.005)	(0.018)	(0.004)	(0.021)	(0.062)	(0.014)	(0.023)	(0.055)	(0.025)
Spillover OE (S) x time (t)	-0,013	-0,030	-0,007	-0,003	-0,034*	0,007	0,008	0,022	0,002	-0,010	-0,081	-0,009	0,037	0,091*	0,033
	(0.015)	(0.032)	(0.017)	(0.006)	(0.018)	(0.004)	(0.005)	(0.015)	(0.004)	(0.021)	(0.059)	(0.015)	(0.023)	(0.051)	(0.025)
Tables (m) x time (t)	0,001	-0,016**	0,003	0,003***	0,006	0,003***	-0,001**	-0,000	-0,001	-0,011***	-0,007	-0,006**	-0,012***	0,006	-0,017***
	(0.003)	(0.007)	(0.003)	(0.001)	(0.003)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.009)	(0.003)	(0.004)	(0.009)	(0.005)
Tables (m)	-0,030***	-0,029***	-0,031***	0,000	0,002	-0,000	0,000	-0,001	0,001**	-0,001	0,008	0,002	-0,002	-0,009	-0,001
	(0.004)	(0.008)	(0.004)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.003)	(0.008)	(0.002)	(0.003)	(0.007)	(0.003)
Time (t)	0,080***	0,135***	0,067***	-0,017**	0,002	-0,024***	0,022***	0,023*	0,019***	0,144***	0,266***	0,092***	-0,122***	-0,220***	-0,092***
	(0.016)	(0.035)	(0.018)	(0.007)	(0.017)	(0.008)	(0.005)	(0.012)	(0.005)	(0.021)	(0.060)	(0.015)	(0.020)	(0.050)	(0.019)
Constant	0,527***	0,422***	0,563***	0,041***	0,055***	0,035***	0,040***	0,069***	0,026***	0,689***	0,498***	0,733***	0,248***	0,393***	0,206***
	(0.017)	(0.034)	(0.018)	(0.004)	(0.011)	(0.003)	(0.003)	(0.011)	(0.003)	(0.012)	(0.034)	(0.010)	(0.013)	(0.032)	(0.015)
R-squared	0,349	0,379	0,348	0,052	0,095	0,080	0,232	0,301	0,257	0,313	0,515	0,293	0,385	0,445	0,407
Observations	1812	468	1344	1812	468	1344	1812	468	1344	1812	468	1344	1812	468	1344

Note: Columns 1, 4, 7, 10 and 13 include all UNDP sample districts. Columns 2, 5, 8, 11 and 14 include only the UNDP sample districts more than 100 kilometers away from the closest province capital. Columns 3, 6, 9, 12 and 15 include only the UNDP sample districts less than 100 kilometers away from the closest province capital. Standard errors clustered by village are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. Results are based on parliamentary election outcomes. 'Observed UNDP' and 'Observed OE' are the treatment dummy variables, which take the value 1 for respectively UNDP and OE observed polling locations. 'Spillover UNDP' and 'Spillover OE' are the spillover dummy variables which take the value 1 for unobserved polling locations in villages with at least one other observed polling location.