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IS VOTE BUYING EFFECTIVE? EVIDENCE FROM A RANDOMIZED EXPERIMENT IN WEST AFRICA

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Is Vote Buying Effective?
Evidence from a Randomized Experiment in West Africa[1]

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Abstract:

Vote buying is a frequent practice during election time in many parts of the world. But no research has been done to quantify its effects on voters' electoral behavior. To address this challenge, we have designed and conducted a randomized experiment during the presidential elections of July 2006 in Sao Tome and Principe. This is a newly found oil-rich West African country that has been facing an increase in 'retail' vote buying. Our research design included a randomized campaign against vote buying sponsored by the Electoral Commission of the country, and pre-electoral campaign/post-election panel surveys in treatment (exposed to the campaign) and control locations, including 1034 subjects across 50 different areas. We observe a significant effect of the campaign on perceptions of vote buying, which constitutes the exogenous variation we use to identify effects on voting behavior. We characterize determinants of vote buying (more frequent in swing and rural locations), and find that vote buying energizes the electorate by increasing turnout. Crucially, we capture real effects on candidates' relative performance, by identifying the challenger to be driving more votes through vote buying (after the treatment), which is consistent with the timeline of events (late challenger candidacy). This result controls for changes in information about the candidates (e.g. policy platforms) and location-specific minutes spent by international electoral observers.

JEL Codes: D72, O55, P16.

Keywords: Vote Buying, Electoral Politics, Political Economy, Randomized Experiment, West Africa

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> "We like vote buying. It is essential. That is the only way we have to see anything good coming from the politicians. Anyway, I can vote for whoever I want."
>
> - Anonymous Sao-Tomean

1 Introduction

Vote buying takes many forms and happens in most democracies. Indeed, its relation to general campaign spending in elections is not free of discussion. But political scientists tend to agree that if one wants to identify vote buying, one should find it in campaign spending activities with no political substance (handing of cash/goods for votes). We can therefore infer that vote buying may be thriving in settings with low political accountability. This is clearly the case in many developing countries.

Still numerous observers (as in the above citation) argue that apart from substituting to political accountability, vote buying may be harmless in terms of driving voters' behavior. The main purpose of this paper is to test whether vote buying actually changes the balance of power by affecting the outcome of elections.

We look at the case of Sao Tome and Principe, a small West African country, where a significant oil discovery happened in the end of the 90s. Interestingly, earlier work (Vicente, 2006) found an important increase in corruption after the discovery announcements, where vote buying featured prominently (consistently with the idea that elites see political power as more valuable after the oil news). This has been related to an increase in foreign oil-industry related interests (Frynas et al, 2003). In this perspective, we also view this paper as contributing to better understanding the natural resource curse (Sachs and Warner, 1995; Mehlum et al, 2006) by showing that vote buying may be a channel to the capture of political power in a newly rich oil developing country.

To reach our research objectives we have undertaken a fully tailored randomized experiment during the Presidential elections of July 2006 in Sao Tome and Principe. Our design was centered on a leaflet, door-to-door campaign against vote buying, sponsored by the National Electoral Commission of the country. Crucially, the locations (census areas) chosen for this campaign were chosen randomly. This intervention was accompanied by pre and post-election household-representative surveys in 50 census

areas (out of the total 149 for the country), targeting a panel of 1034 respondents. This corresponds to more than 1% of the electorate of the country. We contrast pre and post-election perceptions of vote buying (making use of the comparable parliamentary elections of March 2006 for the pre-election questions), as well as voting intentions (before elections) and reported voting (after elections).

We use standard difference-in-difference econometric estimators to derive our main results. We first test whether the campaign was able to change vote buying. This enables us to argue for the existence of exogenous variation in vote buying (whether on its perceived frequency or effectiveness). This exercise also provides evidence on the power of an anti-vote buying campaign on undermining those practices, which constitutes important information for those interested in fighting for strict accountability-based politics.

In a second stage, informed on the existence of exogenous variation on vote buying, we use the randomized campaign to derive effects of vote buying on voting behavior.

We use a rich set of control variables when deriving our results, stemming not only from the surveys conducted, but also from electoral observation data collected from the main international mission deployed to the presidential elections. The first set includes changes in policy platforms and general information about the candidates (alternative-to-the-campaign causes of changes in voting behavior). The second includes minutes of electoral observation in all locations sampled, gathered in the context of purposely-tailored questionnaires.

We interpret our results in the light of a simple model of electoral competition (in the spirit of Dixit and Londregan, 1996) that fits the context of the Presidential elections of 2006 in Sao Tome and Principe. This is a sequential game where both incumbent and challenger buy votes – the incumbent moves first (consistently with the late and unexpected candidacy announcement by the challenger in Sao Tome and Principe). We assume the electorate has a fixed distribution of ideology (or innate biases for the candidates). The model predicts that all vote buying will be targeting voters with low innate biases for the candidates (swing voters) and that, in the event of an intervention against vote buying close to the election, it is the challenger who is mostly affected in the power of his vote buying activities.

Consistently with the model, we find that more competitive locations (as given by previous electoral results data) tend to witness more vote buying, as the probability of finding a swing voter tends to be higher in those locations.

We find that the anti-vote buying campaign was effective in terms of diminishing its frequency, but mostly in diminishing its effectiveness (as perceived by the respondents in our panel). This is consistent with the message of the campaign that underlined the need to 'vote in conscience' (more than that of not accepting gifts). We do not find robust effects of the electoral observers on vote buying.

We also find that perceived vote buying at the location level seems to be inducing higher voter turnout (working as an energizer of the electorate), and that the campaign had a clear and significant effect on increasing changes of votes (from intention before elections to actual voting after elections) towards the incumbent, which is consistent with the main prediction of the theoretical model. We check whether the campaign had an effect at the macro-level election results by exploring effects on per-ballot results: we find a consistent sign (favoring the incumbent) but borderline statistical significance.

The remaining of the paper begins by presenting a literature review, the theory we take as the benchmark for the analysis of our experiment, and the actual institutional setting faced in Sao Tome and Principe. We then describe the experimental design and the data collection/randomized campaign fieldwork. Descriptive data on the research questions at stake together with econometric results constitute the following sections. We finally conclude.

2 Literature

This research connects to several strands of literature on quantitative political science and political economy.

The historical studies of Cox (1987) and Cox and Kousser (1981) on the emergence of the 20th century electoral politics of England and New York State (respectively) provide important insights and data for the understanding of the process that led to the steep decrease of vote buying in both countries. While the first underlines the fact that most legal reforms in England (like the Corrupt Practices Act in 1883) came after the decline

of power in individual MPs (relative to parties) and the bulk of the change in electoral behavior (from purely patron-client politics), the second emphasizes the effects of legal electoral reforms (e.g. secret voting) on decreasing electoral corruption leading to diminished voter turnout in New York (even though it documents perverse effects of vote buying on decreasing turnout, e.g. bribing opponent's voters to stay at home). Both studies provide an important comparative evolutionary perspective that helps framing our study in Sao Tome and Principe.

This paper directly relates with empirical work on clientelism and vote buying in developing countries. Namely, experimental work by Wantchekon (2003) on clientelism (votes in exchange for future politicians' favors, when elected), performed in Benin by randomly drawing locations for clientelistic and public policy campaign messages, showed that clientelism works better for regional and incumbent candidates and is less well viewed by women, who are more attracted to public policy type of campaigning. Brusco et al (2004) present comprehensive survey-based non-experimental work on vote buying in Argentina, reaching results that are consistent with effectiveness of vote buying when vote buying transactions are enforceable. We build on these methods, by combining survey (pre and post-election) and experimental methods to directly target the consequences of vote buying.

The extensive literature on empirical effectiveness of campaign spending for the US is also connected with this paper. Although we focus on a very specific kind of campaign spending, there is still much we can relate with this literature. It began with Jacobson (1978), who presented evidence for Congressional elections that challengers have clearly higher returns to campaign spending than incumbents. However, OLS regressions were performed, which are generally tainted with endogeneity bias (this is clear for incumbents, who are seen as responding with higher campaign spending when faced with stronger threats). This led to a far-reaching debate that included somewhat different results: while Jacobson (1985, 1990) and Abramowitz (1988) still find the same pattern for Congressional and Senate elections (respectively), Green and Krasno (1988), Levitt (1994), Gerber (1998), and Erikson and Palfrey (2000) find that challenger and incumbent have similar voting returns from campaign spending, mostly close to zero. Note that most of these studies also feature different than OLS methods, namely using

instrumental variables and panel data to overcome the referred technical difficulty. Recently, Gerber (2004) recovers the initial Jacobson pattern by analyzing several experimental settings (where exogeneity of campaign spending is ensured by construction)[3]. These stem from randomization of direct mail-based campaign in a number of different elections in the US (mayoral, state assembly, state legislature, Congressional primary, and Congressional general elections). Note that Gerber (2004) also introduces a theoretic exploration to fundament the found empirical pattern: by assuming candidates only care about winning the elections (not about their share of votes[4]), one can find that an incumbent may want to insure himself against the worst case scenario (by targeting his base), which yields low spending returns on average, but an effective winning boost in case he cannot reach effectively the larger electorate.

It is indeed the prominent pattern of this campaign spending literature (that challenger spending is more effective than the incumbent's) that we find in our experiment on vote buying, which lends some consistency to the finding, while extending it to a more specific kind of campaign spending and to a dramatically different, developing country.

3 A Theory of Electoral Competition

We propose a simple model in the spirit of the classic Colonel Blotto game[5] and of Dixit and Londregan's (1996) model of redistributive politics. We consider electoral competition between two candidates, *I* (for Incumbent) and *C* (for Challenger). The two can differ for each voter in terms of fundamental values (for simplicity, 'ideology') or in terms of cash transfers (vote buying propositions). Ideologies are assumed to be fixed for each candidate.

The voters are modeled as a continuum and distinguished by the degree of their ideological affinity to one candidate or the other: a voter located at *X* has an ideological preference *X* for candidate *I* over *C*. We assume for simplicity that this ideological

[3] See Gerber and Green (2000) for an additional experimental exercise related to non-partisan voter turnout.
[4] In the model below we opt to maintain the more general assumption that candidates maximize their shares of votes. In fact Gerber's model seems to be rejected in our data provided we will find ahead incumbent and challenger seem to be pursuing similar targeting strategies.
[5] See Roberson (2006), for a complete characterization of the classic game, which contrary to ours is a simultaneous-move game.

attachment is distributed uniformly among the voters in the interval $[1/2, 1/2]$. We postulate that the voters also care about material benefits *Y*. We therefore assume that a voter *i* will vote for *C* if

$$Y_{iC} - Y_{iI} > X_i .$$

Note that in this model each candidate only cares about its percentage of vote P_j ($j = I, C$). Candidates are assumed to take as given the budgets B_j they have available to spend in the elections (for simplicity these can only be spent buying voters).

We assume a complete information game where candidate I moves first by setting Y_I, with candidate C moving after that by choosing Y_C. Voters will vote accordingly in a third stage.

3.1 Equilibrium

The above simple model setup implies that candidates will spend all their budgets in equilibrium. The main question is how they are going to spend them.

We know also that each candidate has a relative advantage with different voters, i.e. a voter with top ideological bias in favor of candidate *I* will require much more cash to vote for *C* than a candidate with top ideological bias in favor of *C*.

Solving this game by backward induction and ignoring the obvious voter behavior, candidate *C* will use its budget efficiently by spending the difference $X_i - Y_{iI}$ with all voters *i* such that the budget limit is not exceeded. Given the objective of maximizing her own percentage of votes, Candidate *C* will choose the cheapest votes, i.e. she will start bribing those voters for whom $|X_i - Y_{iI}|$ is lowest.

Candidate *I*, given the described behavior by *C* and given that all voters count the same to her objective, will find wisest to have her lowest-enthusiasm supporters equally protected against vote buying by *C*. However this may mean buying many ideological supporters of candidate *C* or protecting many own ideological supporters (cases a and b in Figure 1 below) from *C*'s vote buying. We find that that the middle term maximizes voting for *I* for the same *C*'s budget (Figure 2) – provided it maximizes the area inside the bottom-left quadrant (implying the challenger will be obliged to spend more money for less

voters). Note that the examples below provide constant budgets, given by the area of the blank triangles in both Figures for *I* and by the coloured rectangle in Figure 2 for *C*.

Figure 1

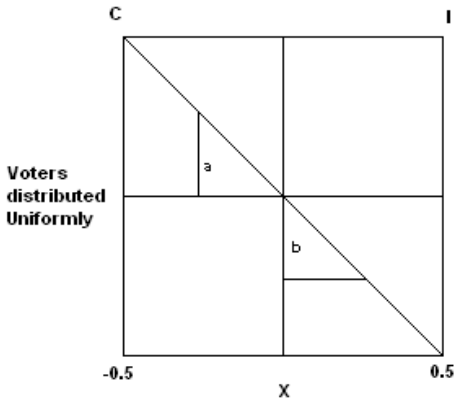
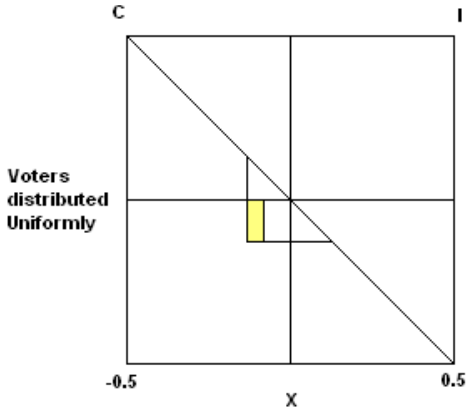


Figure 2



We can therefore conclude that in a setting with both ideology and vote buying as electoral driving forces, candidates will want to buy the votes of swing/most undecided voters (in the view of ideology). Furthermore, in the context where an incumbent has the opportunity of buying votes during her mandate, we should be able to observe mainly the challenger being effective during the stages just before the election takes place (electoral campaign). This is the proposition we take to the data, through the analysis of our experiment. We now turn to the empirical part of the paper.

4 Institutional Setting

Sao Tome and Principe (STP) is a two-island West African country with 148,000 inhabitants[6] and one of the poorest countries in the world (USD 1200 in 2003[7], ranking 207 out of 233 countries). After almost five centuries of Portuguese colonization, it was made independent in 1975. Its first regime, as a common trend in Lusophone Africa, was soviet-like, with MLSTP (Movimento de Libertacao de Sao Tome e Principe), the independence movement party taking on the role of ruling party. In the late eighties, the international context together with a steep decline in cocoa prices (STP's main export)

[6] World Development Indicators, World Bank.
[7] CIA Factbook, 2006.

led the ruling elite to start a democratization process that culminated in the first free elections in 1991. STP was constituted as a semi-presidentialist democratic regime, with most executive/legislative powers attributed to the National Assembly, from which the government emerges, but some arbitrage and defense/foreign affairs authority given to the president. Contrary to most first multi-party elections in Africa, the incumbent party MLSTP and president Pinto da Costa (1975-1991) were ousted in 1991. After that, MLSTP was back to the government in 1994 (to be ousted only in March 2006 as the second most voted party) but never gained the presidency again.

Post-democratization politics in STP have been dominated by the MLSTP/Pinto da Costa and alternative prominent 'political families'. These have mainly centered around Miguel Trovoada (STP president in the period 1991-2001), who founded ADI (Alianca Democratica Independente) in 1993, and Fradique de Menezes (STP president in the period 2001-present), who founded MDFM (Movimento Democratico Forca da Mudanca) in 2001. ADI was the second most voted party in 1994 and 1998, third in 2002 (in coalition Ue-Kedadji) and 2006. MDFM allied with PCD (Partido da Convergencia Democratica), the winning party in 1991 (then still with the support of Miguel Trovoada) which then took on third place for the remaining of the nineties. MDFM-PCD was second in 2002 and won the 2006 parliamentary elections.

Importantly, interesting news was brought to this country in the late nineties: significant oil reserves were discovered off its coast. This fact has been bringing considerable international attention to STP. The process of oil exploration has itself not been free from problems: these ranged from clearly damaging (to STP) initial contracts for soundings and exploration[8], maritime demarcation negotiations with Nigeria leading to the joint exploration of several oil blocks (also seen as biased against STP by international institutions), and numerous allegations of corruption within the STP political elite. Although production is not expected to start before 2011, auctions were opened and concession blocks have been allocated to oil companies from 2003. Just as an example, bidding for the 2003 round of auctions represented 240% of the GDP of the country in

[8] Namely, in 1997, for USD 5m the STP government signed a controversial exclusive deal with ERHC – (Environmental Remediation Holding Corporation), an obscure US-based oil company, which managed to secure a percentage of future exploration revenues as well as preferential rights in the future allocation of blocks. The initial contract was however renegotiated as a response to pressures by international institutions.

that year – STP faces an overwhelming oil discovery for its dimension as a country. This meant the STP government has been seen to be facing strong pressures from the competing oil firms. This has been pointed by many sources – Frynas et al, 2004, Vicente, 2006 - to be linked to a steep increase in vote buying, starting with the 2001/2002 round of elections and continuing with the 2006 parliamentary and presidential elections. This is the interesting context in which we propose to study the consequences of vote buying.

4.1 The 2006 Round of Elections

In 2006 both the parliamentary and presidential elections took place in STP. The first took place in March, with some repetitions due to population boycotts in some constituencies taking place in April. The presidential elections took place on July 30th. As described above, mainly due to the expected oil boom but also due to a reform attributing more powers to the government, stakes were considered to be very high for the parliamentary elections. MDFM-PCD gained control of the parliament with a sweep victory over MLSTP (36.8 vs. 29.5%); ADI came third with 20%; interestingly, a new party Novo Rumo won a parliament seat making a campaign out of an anti-vote buying platform. International observers considered these elections to have respected international standards but warned/reported about frequent vote buying.

Although generally taken as less important, the presidential elections featured Fradique de Menezes (FM), MDFM-PCD driving force, running for re-election. We argue that an interesting setting, prone for experimental work, formed for these elections. Although only close to the elections in June, FM announced formally that he was running for re-election, it was well-known he would do so before that time. What was not clear at all, still in the beginning of June was who would run against him, representing MLSTP and/or ADI. This was known formally later that month: Patrice Trovoada (PT), son of Miguel Trovoada, an increasingly prominent STP political figure, former minister with responsibilities (to much extent assigned by his father when leaving the presidency) in the oil-related deals, head of ADI, managed to get MLSTP support, apart from the natural ADI sponsorship. Many observers took this original alliance (in the STP context) as a

sign that financial liquidity by the Trovoada family was a key factor in the face of a broken MLSTP, which had spent all its resources in the parliamentary elections and saw diminished financial international support by long-standing allies like Angola's MPLA. Since our analysis starts in the beginning of July, we will argue that we are able to capture in our data the process of learning about PT as a very much 'new' presidential candidate, taking a first layer politician role for the first time, with the support of the main opposition parties in STP. FM won comfortably with 60.6% against 38.8% by PT. There was a third, to much extent, negligible candidate (Nilo Guimaraes) who won 0.6% of votes. These results yielding a clear difference were well accepted, not only by the candidates but also by international observers, who nevertheless repeated vote buying-related concerns[9].

Note that the main contingent of international observers was deployed by CPLP (Portuguese-Speaking Community of Countries), including representatives from Angola, Brazil, Cape Verde, East-Timor, Guinea-Bissau, Mozambique, and Portugal[10]. In addition to our experimental data addressing the main structure of our intervention, we will use ahead data purposely collected in STP from these CPLP observers.

4.2 Relation with Theory

From the above-described institutional context of the 2006 presidential elections, we can now identify the key assumptions of our theoretical model. These are mainly the existence of a clearly defined incumbent who has a first mover condition – FM is in fact the most powerful political personality in the country since 2001, having faced in practice three elections before the July 2006 suffrage, with a known history of vote buying -, and the short-notice candidacy of PT, the main challenger (we will assume from now on in our analysis it was the unique challenger). This implied a 'last-minute' window for vote buying by the PT candidacy, which strengthens the sequential nature of our game. Although clear ideological positioning is to a large extent absent in the politics of STP,

[9] CPLP (Portuguese-Speaking Community of Countries), *Relatório da Missão de Observação Eleitoral da Comunidade dos Países de Língua Portuguesa às Eleições Presidenciais de São Tomé e Príncipe de 30 de Julho de 2006*.

[10] The remaining observers were deployed locally by foreign diplomatic representations.

there are still strong biases pro and against each candidate (stemming from historical paths, and general 'attachment' to political families) – our theoretical 'ideology' variable attempts at capturing that component of the politics of STP, potentially helpful in determining the pattern of vote buying.

5 Experimental Design

The basic structure of our experimental design is provided by a panel of 1034 individuals, interviewed just before the bulk of the electoral campaign in July (officially this was the period of two weeks before the election day), and just after the election day in August[11]. These individuals were spread over 50 representative census areas. We have conducted a campaign in 40 of these areas during the pre-election survey. These treatment areas were chosen randomly. This enables contrasting comparable, homogeneous treatment and control areas. This campaign was publicly sponsored by the National Electoral Commission and focused on the issue of vote buying, namely on its illegal and democracy-harming nature. Verbally, the importance of 'voting in conscience' – by not letting vote buying affect voting choices – was also underlined.

Our basic data design comes from survey questions on vote buying perceptions asked in the pre-election survey about the parliamentary elections of March (our reference period), and asked in the post-election survey about the presidential elections of July. Voting behavior intentions (on the presidential elections) in the pre-election survey will also be compared with voting behavior reported in the post-election survey.

In our design we also address what we call the 'conformity bias'. This is a bias that may be present in any experiment where the treatment works by convincing people. In our case, in the post-intervention survey respondents may be induced to 'conform' to the ideas conveyed in the intervention, which would then overestimate the effects of the campaign. Note that the fact that our field team conducted not only the surveys but also the actual randomized campaign (using the sponsorship of the National Electoral Commission) may potentially increase this bias. We address this problem by rather

[11] The pre-election survey went on from July 3rd to July 21st. The post-election survey was on the field from August 1st to August 16th.

conservatively having the campaign, i.e. leaflet distribution and explanation, positioned before the relevant questions on vote buying perceptions in the pre-election survey. In that fashion any existing conformity bias would be present in both surveys, enabling a better measure of the difference on perceptions, our target in this design.

This research setting enables the use of a difference-in-differences econometric design, by comparing variables before-after anti-vote buying campaign, across treated and control areas. In a first stage, we hope to be able to evaluate the effects of the anti-vote buying campaign on vote buying; this is interesting per se, but also enables the identification of the power of the campaign in driving behavior, which is useful for the remaining of the exercise. This can be written as

$$\Delta VB = a + bX + cT + \varepsilon ,$$

where the dependent variable is change in vote buying (comparing perceptions about the parliamentary and presidential elections), X is vector of controls, and T is a dummy variable taking value 1 in treated areas.

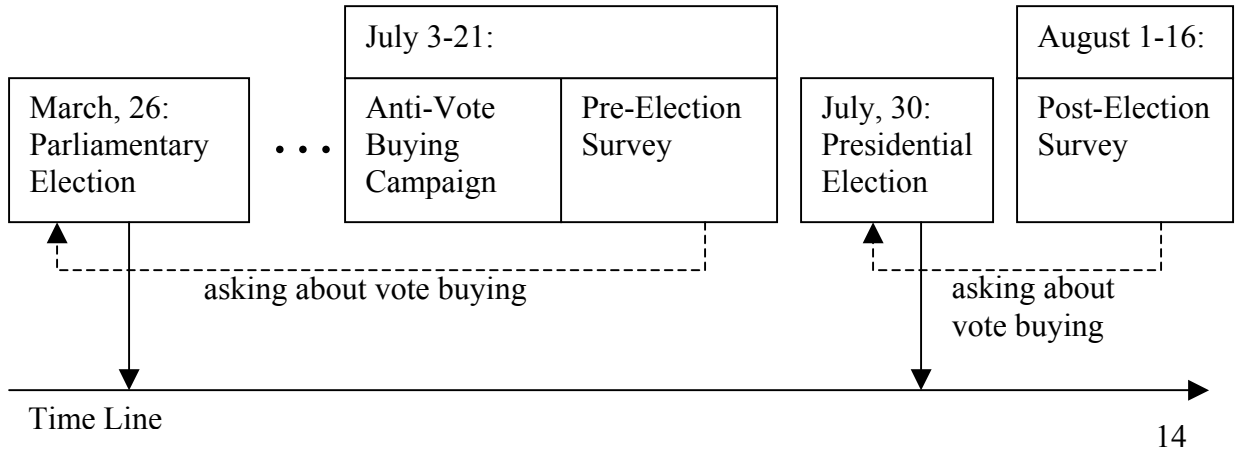
In the second stage, given significant effects of the campaign in diminishing the power of vote buying (we are then safe in assuming there is exogenous variation in vote buying), we hope to be able to identify the effect of vote buying on electoral behavior. This is by using a regression of the form:

$$\Delta V = d + eX + fT + \varepsilon ,$$

where the dependent variable is change in voting behavior (intended vs. actual reported, for the presidential elections).

The overall design can be seen in schematic form in the following figure.

Figure 3: Vote Buying Experiment in Sao Tome and Principe



Note that we use several important controls when deriving our effects of interest. Apart from demographic and regional variables, we use controls for:

- information gathered about the candidates (about candidacies per se, surprises during the electoral campaign, and policy platforms perceived for the candidates; we also use proxies for individual participation in the electoral campaign),
- for the electoral observation mission of CPLP (minutes spent at each location) - which can be considered as the most important institutionalized source of enforcement of good electoral behavior,
- psychological consistency biases of respondents (e.g. tendency not to report change in opinion even if it took place).

6 Data Collection and Randomized Campaign

The experiment was conducted by a team of 11 local interviewers/campaigners. This team was fully trained by the author and a research assistant. The author was on the field at all times of the conduction of the experiment. Each interviewer had a total of 10 hours of training in small groups of 2-3 people. Training included: lectures on the content/objectives of the experiment (with special attention to the questionnaire and the script for the campaign); answering the questionnaire; individual piloting of both the questionnaire and campaign delivery.

6.1 Survey Sampling Procedure

Our sample consisted of 50 census areas (these can be seen in the maps of the Appendix). These were chosen randomly within the 149 census areas of the country (we were able to reach one third of the country), weighting by the number of households (using the 2001 census data from the National Statistics Office). Households within a census area chosen randomly using standard techniques like picking the n^{th} house (depending on the number of households in the census area), with second visits tried in the same day. The conditions

for sampling a respondent within a household were: aging 18 years or more, and criteria related with residence in the country.

Despite the fact that this was a standard sampling procedure, we still face imperfections to random sampling of households. These stem from differences in attempted interviews across census areas and from non-respondents (including panel drops). To address this problem, in the regressions we will show ahead, we use weighted data. The weighting accounts for both problems (it is made possible given the collection of basic characteristics from non-respondents: gender, age, schooling, income), and is made for consistency with the sampling approach: differences to un-weighted data are negligible.

We were able to gather 1275 observations in the pre-election survey and 1034 observations in the post-election survey. This represented an 81% rate of re-surveying in the panel[12], with a minimum of 61% and a maximum of 100% across census areas in our sample. Table A1 in the Appendix has all details per census area.

The survey instruments were mainly tailored for this experiment[13]. The pre-election questionnaire featured demographic and psychology questions followed by the questions on individual political positioning and vote buying (mainly about the parliamentary elections of March 2006). The post-election survey only included questions on individual positioning in the presidential elections and on perceptions about those elections (mainly on vote buying, but also including some items on intimidation and electoral observation).

6.2 The Anti-Vote Buying Campaign

The anti-vote buying campaign was implemented by the experiment team in 40 out of the 50 locations sampled for the surveys. This choice was made randomly by the author. The campaign was sponsored by the National Electoral Commission, and this endorsement was systematically announced during all times of the conduction of the campaign.

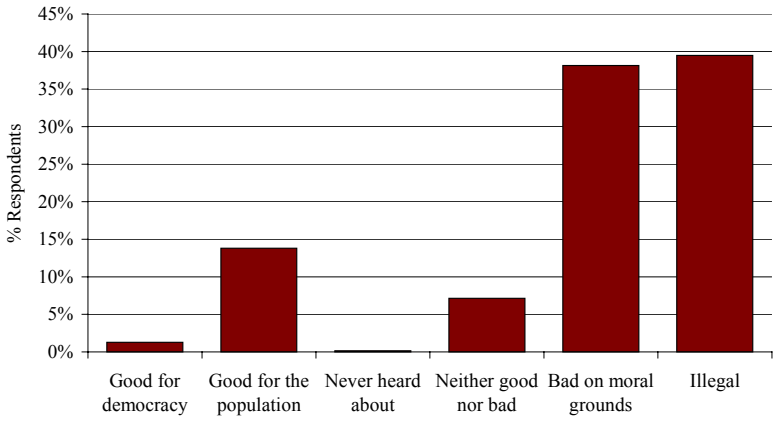
[12] The lost observations were nevertheless all tried in the post-election survey. A thorough tracking method, implemented during the pre-election survey, including questions on individual identification, address descriptions, and the representation of all houses surveyed in the census area maps supplied by the National Statistics Office, allowed the successful identification of all houses in the post-election survey. However, refusals, empty houses, and respondents' absence, implied the above dropping rate.

[13] This is with exception of a module on perceived corruption on public services and a module on political accountability (both in the pre-election survey) submitted at all locations. Both pre and post-election instruments are available upon request to the author.

The campaign consisted of the distribution of a leaflet (see Appendix), which was mainly legalistic, conveying the message that vote buying is illegal under the Sao-Tomean law. Its main slogan was 'Do not let your conscience have a 'banho'', where 'banho' refers to vote buying (meaning literally 'bath' or 'shower' in Portuguese). The leaflet also included an allusive drawing which enabled reaching the illiterate population.

Even though this was the written message, from early piloting it was clear that vote buying is a popular phenomenon for the impoverished STP population. See next chart for how respondents perceived vote buying before the campaign: although many associate it primarily with a bad practice on moral or legal grounds (not meaning many of these respondents are not satisfied with vote buying), there is a noteworthy section who views it primarily in a weakly positive manner (22%). This led to include on the campaign's verbal approach the idea that 'taking gifts is not important, what is important for democracy is not letting those gifts influence voting'. Despite the fact that the legalistic view is being taken less seriously with this statement, this is still fully consistent with the research questions in our experiment (on the effect of the campaign on the effectiveness of vote buying, and on the effect of effectiveness of vote buying on actual voting behavior).

Chart 1: How Was Vote Buying Seen by the Population before the Campaign?



Source: Own data (Field Experiment STP 2006).

The campaign was able to deliver 10,000 leaflets in treated locations (on average 1 leaflet per household). The distribution of leaflets was done during the period of the pre-election

survey. More specifically, all respondents were given the leaflet before the questions on vote buying (to diminish the possibility that the above-referred conformity bias contaminates the differences we aim to identify); neighbors of respondents (primarily) were also targeted in treated areas.

6.3 Electoral Observation Data

We were able to submit a questionnaire to all 16 international observers of CPLP. This submission was done ex-ante, at the beginning of their week-long electoral observation mission.

In the questionnaire, each location visited was evaluated by each observer. We collected data on the reason for choosing to visit the location[14], on the time spent in the location, and quantification of electoral problems in the location.

Ex-post, 147 observations were achieved in 175 out of the total 235 (75%) ballot locations of the country. This meant the electoral observation mission was very comprehensive in terms of geographical coverage: it visited all 7 districts, with the same weight given to each district, i.e. two specialized observers. Note that these data (and, in fact, the whole electoral observation mission) mainly concern the election day (82%) – this is consistent with the data from the post-election survey (within respondents having witnessed the presence of observers, representing 31% of the sample, 72% report that only on the election day the observers were active). This is probably the reason why survey respondents consider electoral observers to be most effective in fighting ballot fraud - average 5.1 on a scale from 1 to 7 (most effective); vote buying comes after intimidation with average 4.3.

From the selection rule data, we reach the conclusion that there is an endogeneity component in the observer geographical deployment. Although 39% of the locations were seen as chosen on purely random terms, 23% as a function of population/number of voters, and 23% as locations 'on the way' to other locations (mainly random), there were 14% of the visits reported to be due to unstable past, reported problems or protests. This

[14] We tried a randomization deal, but were unsuccessful in achieving it a priori. The observation mission did not want to ex-ante commit to such a requirement, though did not rule out that locations would be chosen randomly in the end.

is the basis of the use ahead of the number of voters in each location as an instrument for electoral observation.

7 Descriptive Data

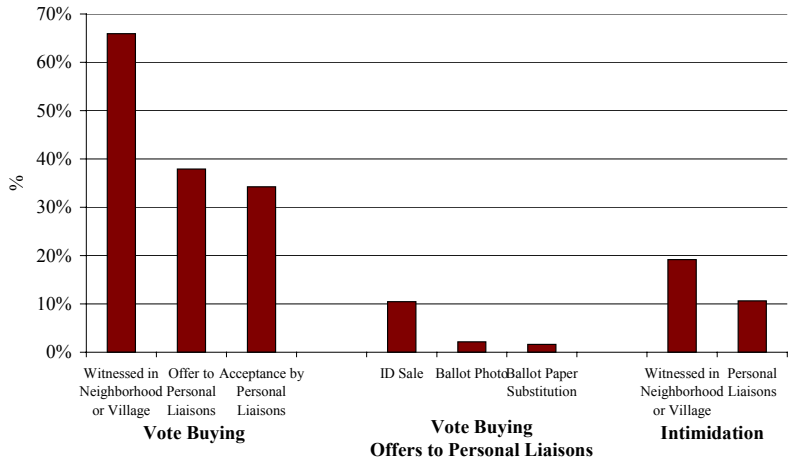
In this section we provide a description of main data findings, in order to motivate the specific econometric results we will show in the end of the paper.

We first analyze the data on vote buying. Vote buying was mainly referred to using the word 'banho' – this includes not only cash received by candidacies, but also individual or collective gifts such as motorcycles, satellite dishes, fridges. Although we are going to use perceptions of vote buying in the respondents' neighborhood or village, we have also asked about vote buying offers to personal liaisons of surveyed subjects. We show in chart 2 that the difference in the percentage of respondents reporting vote buying is large using these two measure (66% to 38%). This is most probably due to the immoral/illegal notions associated with that practice (this is what precluded us from asking about personal direct experiences with vote buying). We have also asked to the respondents reporting vote buying faced by personal liaisons whether those offers were accepted: almost all reported some degree of acceptance (34%), which leads us to conclude for a 'supply' driven equilibrium.

With respect to the enforcement process of vote buying transactions, we have asked about known techniques used by vote buyers to ensure the appropriate induced voting (the most common are identification card sale, ballot paper photo[15], and ballot paper substitution) and about intimidation. We find that the above techniques were generally not used: as a percentage of all respondents reporting offers to personal liaisons, only 14% referred the use of these techniques. Intimidation though was reported to be generally more frequent (though an association with vote buying was not sought when asking): 11% of the whole sample did report some experience with intimidation by personal liaisons.

[15] Several reports on the parliamentary elections included references to the use of cell phones with camera devices (supplied by vote buyers) in the ballot stations to take photographs of the filled ballot paper by 'bought' voters.

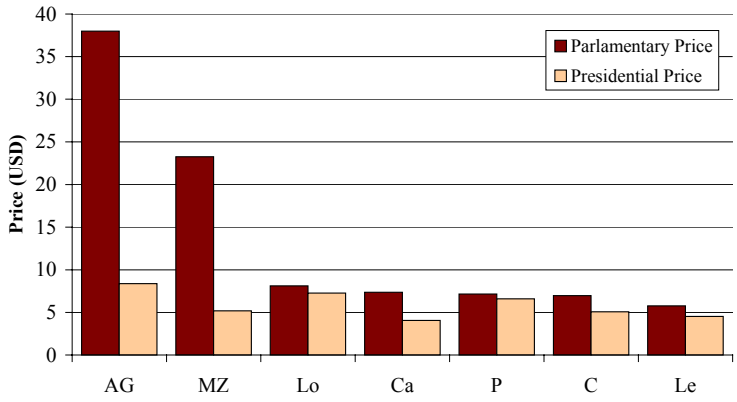
Chart 2: Vote Buying and Intimidation



Source: Own data (Field Experiment STP 2006).

We have also asked our panel about the price of a vote, both in the parliamentary (before-survey) and presidential (after-survey) elections. This referred to cash received to vote for the 'buying' candidacy. The next chart shows or findings (averages per district).

Chart 3: Prices of Votes



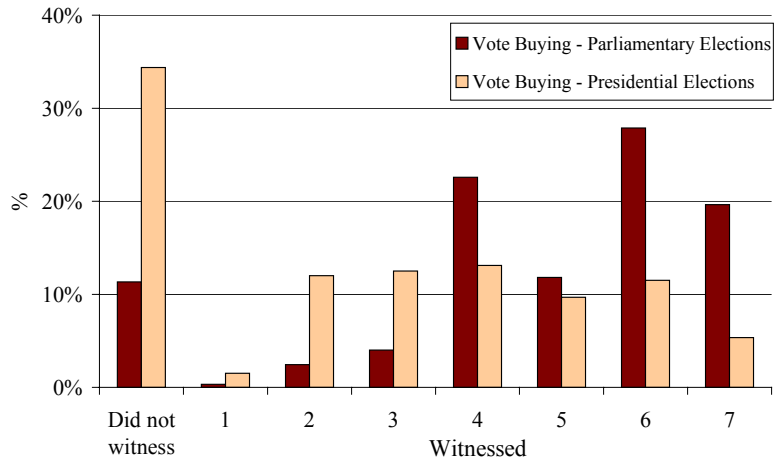
Source: Own data (Field Experiment STP 2006).

We have found median prices reported (only by respondents stating they witnessed vote buying in their neighborhood or village) to be 7.1 and 4.2 USD in the parliamentary and presidential elections (respectively). These are clearly high prices for a country that

makes 100 USD per capita a month. We have also found, consistently with the differential power of the Parliament and the President, that parliamentary elections are more valuable. The fact that the capital district (AG) and the second city (Trindade) district (MZ) have very high prices for the parliamentary elections is tentatively explained (made more specific in the regressions below) with the idea that the most influential voters of the country (for the whole country) are based in those districts.

In terms of frequency of witnessing of vote buying the same differential patter arises (parliamentary vs. presidential elections). This can be seen in chart 4, where the actual distribution on the 1 to 7 (extremely frequent) scale used in the instrument[16].

Chart 4: Vote Buying in the 2006 Political Campaigns in STP



Source: Own data (Field Experiment STP 2006).

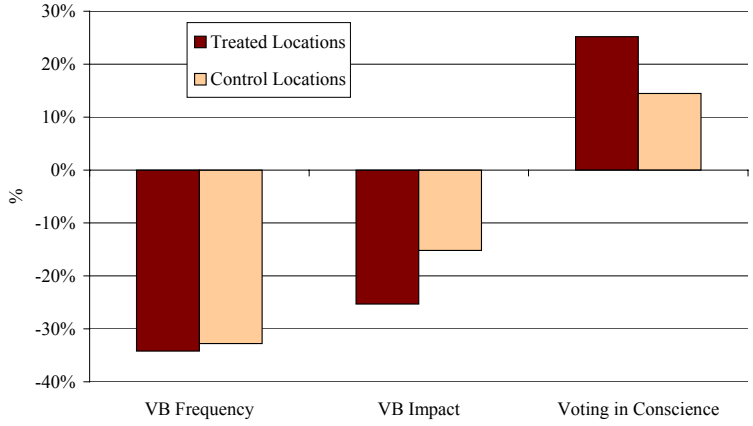
Our two main research questions regard the effect of the campaign on the above vote buying differences across the two elections, and the effect of the campaign on voting behavior (changes between intended and realized behavior). Chart 5 displays differences in perceived vote buying for treated and control locations. The three questions used are on: the frequency of vote buying transactions witnessed, the perception of influence of vote buying on actual voting in the neighborhood or village of the respondent, and the

[16] Note that all subjective scales used in our instrument had 7 points. All were referred to using adjectives (numbers were never used) in a step-wise manner (first on a 3-point scale: in this example, frequent, more or less, not frequent; then depending on the side chosen by the respondent, either frequent or not frequent, a further different 3-point sub scale was used. We then hope the scales used have been perceived linearly by surveyed subjects.

perception of actual 'voting in conscience' in the neighborhood or village of the respondent (the positive counterpart for the second question). We can see that all effects seem to point to an effect of the campaign in decreasing vote buying or its effectiveness, though smaller in terms of pure frequency of vote buying (as we saw above, mainly supply-driven).

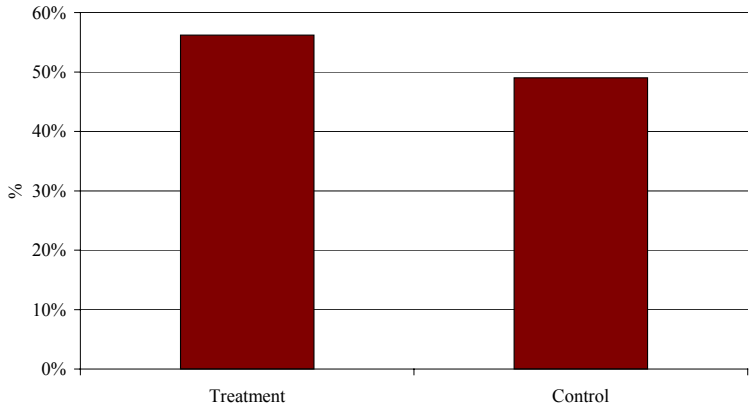
We also show that consistently to our model, just looking at averages across treatment and control locations, a larger percentage of the respondents who change from voting intention to actual reported choice state they changed towards the incumbent in treatment areas relative to control locations. This is displayed in Chart 6 below.

Chart 5: Impact of the Anti-Vote Buying campaign in STP
Differenced After-Before Campaign



Source: Own data (Field Experiment STP 2006).

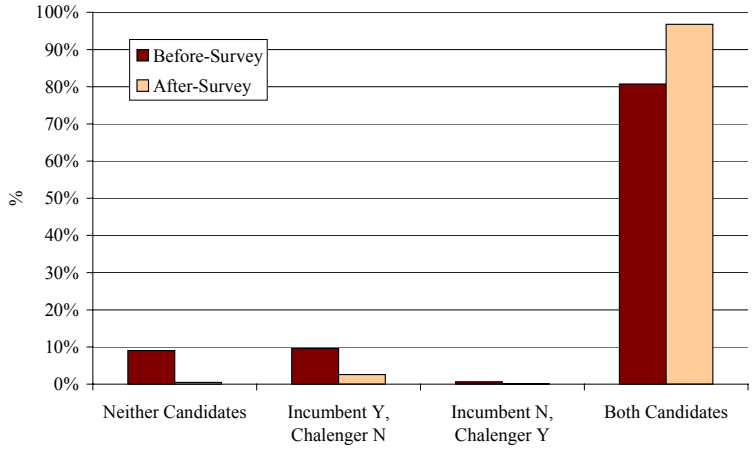
Chart 6: % Changes towards the Incumbent in Vote Reporting



Source: Own data (Field Experiment STP 2006).

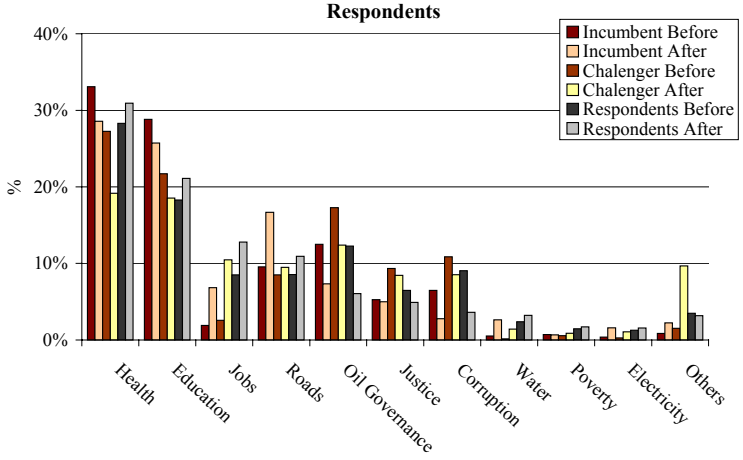
Crucially, we will control this result in the regressions of the next section, by using data on changes of information about the candidates, not only about strict knowledge about candidacies (see Chart 7) but also about perceived (about the candidates) and own policy platform preferences. Regarding the latter, we have asked all surveyed subjects to name the two policy priorities for each candidate and for themselves, both in the pre- and post-election questionnaires. These are displayed in the chart 8. First, there is a clear build up in knowledge about the candidacy of the challenger. We can also see that, although the overall pattern is on the aggregate very stable across both surveys, there are some changes on perceptions about policies supported by politicians during the last weeks before elections: namely there is a shift from health, education, oil and corruption, towards jobs, roads, water and electricity (topics targeting the short run). For respondents though, health and education still gain adherence during that period.

Chart 7: Information about Presidential Candidacies



Source: Own data (Field Experiment STP 2006).

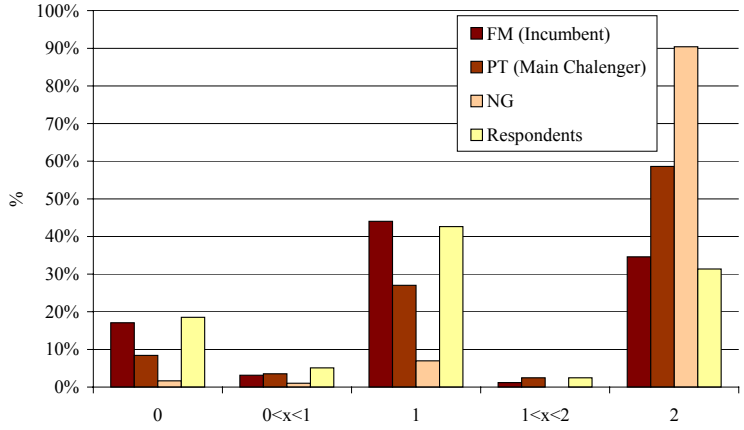
Chart 8: Most Important Policy Issues for Candidates and Respondents



Source: Own data (Field Experiment STP 2006).

We have also concluded from these data that policy platforms are not at all, if they exist, stable at the individual level, not only concerning candidates but also regarding own respondents' positions. We display the percentages of respondents that are consistent (even if wrongly) regarding priority policies defended by the candidates and by themselves (i.e. report no change in the two policies named across both surveys), and that are not consistent (1 or 2 changes across both surveys – numbers in the middle regard data peculiarities concerning respondents who gave less or more than 2 policies as a response to these questions). We can see in Chart 9 that the respondents who do not change their opinion are below 20% for both the incumbent and themselves, and below 10% for the challenger.

Chart 9: Average Number of Changes in Most Important Issues for Candidates and Respondents



Source: Own data (Field Experiment STP 2006).

8 Econometric Results

In a difference-in-differences setting, it is an important procedure to verify the exogeneity of the intervention, i.e. assess the effectiveness of the randomization procedures in defining similar treatment and control groups. We present in Table A2 in Appendix the results of regressions of key demographic variables (for our panel) and of parliamentary elections outcomes (actual turnout and voting shares for each location) on the treatment.

Given these variables are unaffected (or its report is most likely unaffected) by the intervention, any differences between treatment and control should be seen as a product of luck. We find that generally differences across both groups are statistically insignificant, which backs a suitable randomization of the anti-vote buying campaign[17].

We now explore the determinants of vote buying. We run regressions (Table A3 in Appendix) on the prices of votes (where we stack information on both parliamentary and presidential elections given by the respondents), frequency of vote buying at the presidential elections only, and vote buying by the incumbent and the challenger in the respondents' neighborhood or village in the presidential elections only[18]. The first two regression sets are OLS and the last two regressions sets are Probits (on the probability of reporting the incumbent/challenger undertaking vote buying in the respondent's neighborhood or village; for these regressions, marginal effects are shown in addition to the original regression estimates and statistical significance). The first regression for each dependent variable includes a dummy on urban locations (all areas in the capital district plus Trindade city) and a dummy on tight competition zones (where the difference between incumbent and challenger parties, as given in the previous elections is lowest – for simplicity this variable takes value 1 for the 25 out of the 50 surveyed locations where this difference is lowest). In the regression on the price we also include a dummy for parliamentary elections in the first specification. For the following specifications we include demographic[19] and psychological variables[20], and then add political controls (including our randomized intervention and the observers' presence times)[21].

[17] Note that we cannot use perceptions of vote buying or voting behavior intentions in the pre-election questionnaire to undertake this exercise provided these are already affected by the treatment (as a way to control for its psychological biases).

[18] The specific questions used were: 'Did you witness any 'banho' in your neighborhood/village in the (March parliamentary or July Presidential) elections? If yes: On average, how much has(have) this(these) party(ies)/candidate(s) spent for a vote in this 'banho'? (Value of VB: local currency) How frequent was this 'banho'? (Frequency of VB: 1-7) Which candidate(s) offered this 'banho'? (VB by Incumbent/Challenger: dummies)'.

[19] These variables come from the following rich set of characteristics: Basic Demographics: age, sex (dummy), household size, number of children, nationalities (dummies), ethnic groups (dummies), catholic and non-religious (dummies), marital status (dummies), malaria in the household (dummy); Household Schooling: no schooling (dummy), schooling (1-7), children in primary and secondary school (dummies), fluency of the respondent (1-7); Occupation: sectors (dummies), job insecurity (0-3); Financial Variables: household expenditure (1-7 or in local currency/day), expenditure per capita (1-11 or in local currency/day), loans (0-2), property (dummies). Age and gender are included in all regressions. Individual

Our basic findings here are that prices of votes seem to be higher in urban areas and 'tight competition' zones (apart from the fact that parliamentary elections appear to yield higher values, already clear in the last section). The second observation (on 'tight competition') remains for the frequency of vote buying and the vote buying presence of the two candidates. This supports our theory in the sense that all vote buying efforts (included in both candidates' strategies) seem to be directed to 'swing voters', who are more likely to be found in 'tight competition' locations (if one reasonably assumes that for each candidate, for each location, biases/ideology are uniformly distributed)[22]. However the first observation (higher values in urban areas) changes sign for frequency of vote buying and the vote buying presence of the candidates: i.e. rural areas seem to be the focus of vote buying activities. This is consistent with the idea that rural voters may be more easily convinced to vote for money – at the same time the price evidence seems to tell that key influential voters (also in the view of other than urban locations) may be the ones in urban areas. Note that consistently with our model, regarding vote buying strategies, both candidates seem to be following a very similar pattern (though some differing statistical significance arises).

In Table A4 in Appendix we show the regressions on the vote buying measures (frequency witnessed, perceptions of effectiveness of vote buying on voting behavior, perceptions of 'voting in conscience', perceptions of vote buying values[23]). The OLS

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statistical significance was the criterion pursued for the choice of the remaining variables in specific regressions at the margin.

[20] For each regression we choose psychological proxies from the following list of variables: Conformity variables (agree/disagree 1-7: 'When I am wrong I admit it'; 'I change my mind easily'); degree of comfort/trust concerning the questionnaires (1-7); Pessimism variables (agree/disagree 1-7: 'Good times were those when you were young'; 'The future of STP will be better than the present').

[21] The political controls also include variables from the following list: general political indifference (1-5); history of voting for the three main political families (in all elections since 1991) MLSTP/Pinto da Costa, ADI/Trovoada, MDFM/Fradique (dummies); interest in presidential campaign (1-7), participation in presidential campaign (0-28), participation in the ballot process for the presidential election (dummy); knowledge about candidacies (0-2). Individual statistical significance was the criterion for the choice of specific use of these variables at the margin.

[22] One can also explain this pattern with a fixed cost of reaching a more friendly (where tight competition goes on between the candidates) or less friendly (dominated by the opponent) locations.

[23] The specific questions used for the second and third measures were (1-7): 'How frequent was that the 'banho' decided a voter's vote in your village/neighborhood (in the March parliamentary or the July Presidential elections)?' and 'How frequent was that a voter in your village/neighborhood voted following his/her conscience, i.e., voted in the candidate that offered better perspectives of mandate for the country in his/her opinion in the (March parliamentary or the July presidential) elections?'.

specifications used first apply the treatment alone, then add urban, 'tight competition', and observers' time variables, then add demographic and psychological controls and finally political controls. Note that these political controls use in addition to the set described in the last set of regressions (Table A3), measures of changes of policy priorities by the candidates, changes in knowledge about the candidacies, and surprises about the respondents' supporting candidates in the post election survey[24]. In the end we run 2SLS (where we instrument the observers' mission time variable by the number of voters in each location, which is consistent with their 'selection rule' as seen in Section 6.3).

We encounter treatment effect signs that are consistent with an effective campaign in decreasing overall frequency and effectiveness of vote buying (in affecting votes). These effects are clearly significant (at the 1% level) for both strict effectiveness of vote buying and 'voting in conscience' (18-22% impact in decreasing the first and 23-24% impact in decreasing the second[25]). For frequency witnessed, as expected from last section, we have lower effect (9-11% effect on decreasing frequency) and significance (at the 10% level) of the treatment. Regarding values of vote buying, we do not find significant effects of the campaign. These results are consistent with the idea that campaign effects on vote buying happened primarily through convincing voters not to vote according to money received, in a context where actual vote buying transactions (handing/acceptance of gifts, to be precise) seem to be mainly supply-driven (as advanced in the last section). Finally, we also find that the observers do not seem to have clear effects (whether on sign or statistical significance) on vote buying.

In the following table in Appendix (Table A5) we show results of Probit regressions on voter turnout (intended as reported in the pre-election survey vs. actual reported in the post-election survey, using all observations stacked), change in voter turnout for the presidential elections (intended vs. actual reported), and change in voting in the presidential elections (intended vs. actual reported). The dependent variable in the third

[24] These variables were always included (all) in these regressions. The ranges of the variables were respectively: 0-2 (number of policy-priority changes), –2 to 4 (difference between knowledge of candidacies in both surveys), and 1-7 (subjective scale).

[25] These values are computed by dividing coefficient estimates by the range of the subjective scale.

set of regressions takes value 1 for changes towards the incumbent and value 0 for changes towards the challenger. In the first regression we are mainly interested in testing whether vote buying frequency (witnessed in the respondents' neighborhood or village) works as an energizer of the electorate – according to a well know STP saying 'No 'banho', no vote'. The first specifications only include the independent variable of interest, then we add basic controls (urban, 'tight competition', observers' time), demographic/ psychological controls, and political variables (as in the regressions of table A4).

We find that indeed vote buying seems to be inducing more people to vote – this is a clear (7% increase in probability of voting when considering an increase from lowest to highest vote buying) and highly statistical significant effect (at the 1% level). Note that endogeneity concerns are diminished by having individual turnout regressed on lagged, location-wide averaged perceptions of vote buying. Concerning the effects of our campaign on voter turnout change, we do not find a significant effect. This is consistent with the idea that vote buying energizes the electorate and the campaign was actually working against vote buying; also, the main message of the campaign was not on increasing turnout but on the quality of voting decisions. Finally we find a significant effect of the campaign (which under the results above should be interpreted as exogenous variation on frequency/effectiveness of vote buying) on increasing changes of votes (from pre-election intentions) towards the incumbent (40% increased probability of voting for the incumbent). This confirms the model prediction that an anti-vote buying intervention just before the challenger moves by buying votes will be mostly damaging this candidate's performance. This is therefore evidence that vote buying actually can change the voting outcome. This is the main finding of the paper. This is also consistent with the literature on campaign spending effects, which points to the challenger as the main beneficiary of such efforts. Note that in undertaking this exercise, we are not quantifying the pure effects of vote buying, since these would require measuring at the individual level who was exposed to vote buying, by which candidate(s), and differential randomized interventions for each candidate. These are highly difficult conditions to guarantee for any research on vote buying, though we hope can be achieved in future efforts.

Finally, we look at OLS regressions of the difference in the scores of the incumbent vs. the challenger per ballot station, which composes the unit of observation (Table A6 in the Appendix). We basically want to find out whether the anti-vote buying campaign had macro-effects (i.e. actually changed the election results). We actually conclude for a borderline significant effect (at the 15% level) of the campaign with a consistent (with the panel-based analysis) sign. This is evidence that the anti-vote buying campaign was just not powerful enough to have effects at the country level – that expectation (together with having measures of vote buying and suitable controls) was indeed what made us focus the analysis to these research questions on our panel of respondents. In addition, interestingly, we find that after accounting for endogeneity of the observers' effort, there is evidence consistent with electoral fraud by the incumbent[26]. This is provided effort by observers diminishes the difference between the scores of the two candidates.

8.1 Robustness

We undertake a further robustness exercise, which is frequent in the analysis of location-wide treatments in experiments. We test whether there was contamination of the randomized intervention from treatment to control locations. In the affirmative case, this would represent an underestimation of our effects of interest. To address this problem, we run the same key regressions we have analyzed above (regarding vote buying outcomes and electoral behavior outcomes), but focusing on the control group and using as treatment the distance to closest location where the randomized campaign was undertaken.

We show these results in Table A7 in the Appendix. We find no significant effects of distance except for VB Frequency and VB Impact on Voting, for which opposite signs to the ones expected as impact of the campaign (shown above) are observed. Namely, we find negative effects (distance to treatment diminishing vote buying). This enables us to conclude for no clear effects of the campaign in control locations (no clear

[26] This result is consistent and comparable with the analysis by Hyde (2006) on the 2003 presidential elections in Armenia, where she argues the deployment of observers 'happened in a manner that approaches randomization'.

contamination), which ensures us on the precision of the estimates presented for our main experimental research questions.

9 Concluding Remarks

This paper makes a methodological contribution to the literature by proposing a randomized design targeting the causes of electoral behavior (which can be applied to many phenomena like vote buying, electoral fraud, or violence/intimidation). Specifically we address the well-known difficulty in having the exogenous variation on political variables that enables a reliable understanding of their causes.

Regarding vote buying, this paper shows that:

- a simple National Electoral Commission-sponsored campaign can actually work on undermining vote buying,
- vote buying seems to energize the electorate,
- vote buying seems to change the preferences of the electorate; namely the challenger seems to benefit more from vote buying (consistently with much of the empirical literature on campaign spending effectiveness).

In terms of policy implications, this paper underlines that vote buying may in fact be changing the balance of power within democratic institutions (constituting a form of non-conditional lobbying that can actually change policy: the population is being effectively bribed to give access to policy determination). This may be specially problematic in democracies (like the Sao-Tomean one) where vote buying seems to be substituting political accountability, and where significant oil revenues are expected in the future (linking to the well-known resource curse). At the same we also provide some good news, by showing that a campaign targeting vote buying may be effective in diminishing its impact (therefore contributing to undermining this phenomenon). We are hopeful that this paper may contribute to convince researchers and policy makers to deepen the study of election malpractices in the developing world.

References

Abramowitz, Alan I. (1988), *Explaining Senate Election Outcomes*, American Political Science Review, 82(2), pp. 385-403;

Brusco, Valeria, Marcelo Nazareno, and Susan C. Stokes (2004), *Vote Buying in Argentina*, Latin American Research Review, 39(2), pp. 66-88;

Cox, Gary W. (1987), *The Efficient Secret: The Cabinet and the Development of Political Parties in Victorian England*, Cambridge University Press;

Cox, Gary W. and J. Morgan Kousser (1981), *Turnout and Rural Corruption: New York as a Test Case*, American Journal of Political Science, 25(4), pp. 646-663;

Dixit, Avinash, and John Londregan (1996), *The Determinants of Special Interests in Redistributive Politics*, Journal of Politics, 58(4), pp. 1132-1155;

Erikson, Robert S. and Thomas R. Palfrey (2000), *Equilibria in Campaign Spending Games: Theory and Data*, American Political Science Review, 94(3), pp. 595-609;

Frynas, Jedrzej G., Geoffrey Wood, and Ricardo S. Oliveira (2003), *Business and Politics in São Tomé and Príncipe: From Cocoa Monoculture to Petro-State*, African Affairs, 102(1), pp. 51-80;

Gerber, Alan S. (1998), *Estimating the Effect of Campaign Spending on Senate Election Outcomes Using Instrumental Variables*, American Political Science Review, 92(2), pp. 401-411;

Gerber, Alan S. (2004), *Does Campaign Spending Work? Field Experiments Provide Evidence and Suggest New Theory*, American Behavioral Scientist, 47(5), pp. 541-574;

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.

Green, Donald P. and Jonathan S. Krasno (1988), *Salvation for the Spendthrift Incumbent: Reestimating the Effects of Campaign Spending in House Elections*, American Journal of Political Science, 32(4), pp. 884-907;

Hyde, Susan (2006), *Can International Election Observers Deter Election Day Fraud? Evidence from a Natural Experiment*, Yale University, mimeograph;

Jacobson, Gary C. (1978), *The Effects of Campaign Spending in Congressional Elections*, American Political Science Review, 72(2), pp. 469-491;

Jacobson, Gary C. (1985), *Money and Votes Reconsidered: Congressional Elections, 1972-1982*, Public Choice, 47, pp. 7-62;

Jacobson, Gary C. (1990), *The Effects of Campaign Spending in House Elections: New Evidence for Old Arguments*, American Journal of Political Science, 34(2), pp. 334-362;

Levitt, Steven (1994), *Using Repeat Challengers to Estimate the Effect of Campaign Spending on Election Outcomes in U.S. House*, Journal of Political Economy, 102(4), pp. 777-798;

Mehlum, Halvor, Karl Moene and Ragnar Torvik (2006), *Institutions and the Resource Curse*, The Economic Journal, 116(508), pp. 1-20;

Roberson, Brian (2006), *The Colonel Blotto Game*, Economic Theory, 29(1), pp. 1-24;

Sachs, Jeffrey D. and Andrew M. Warner (1995), *Natural Resource Abundance and Economic Growth*, NBER, Working Paper 5398;

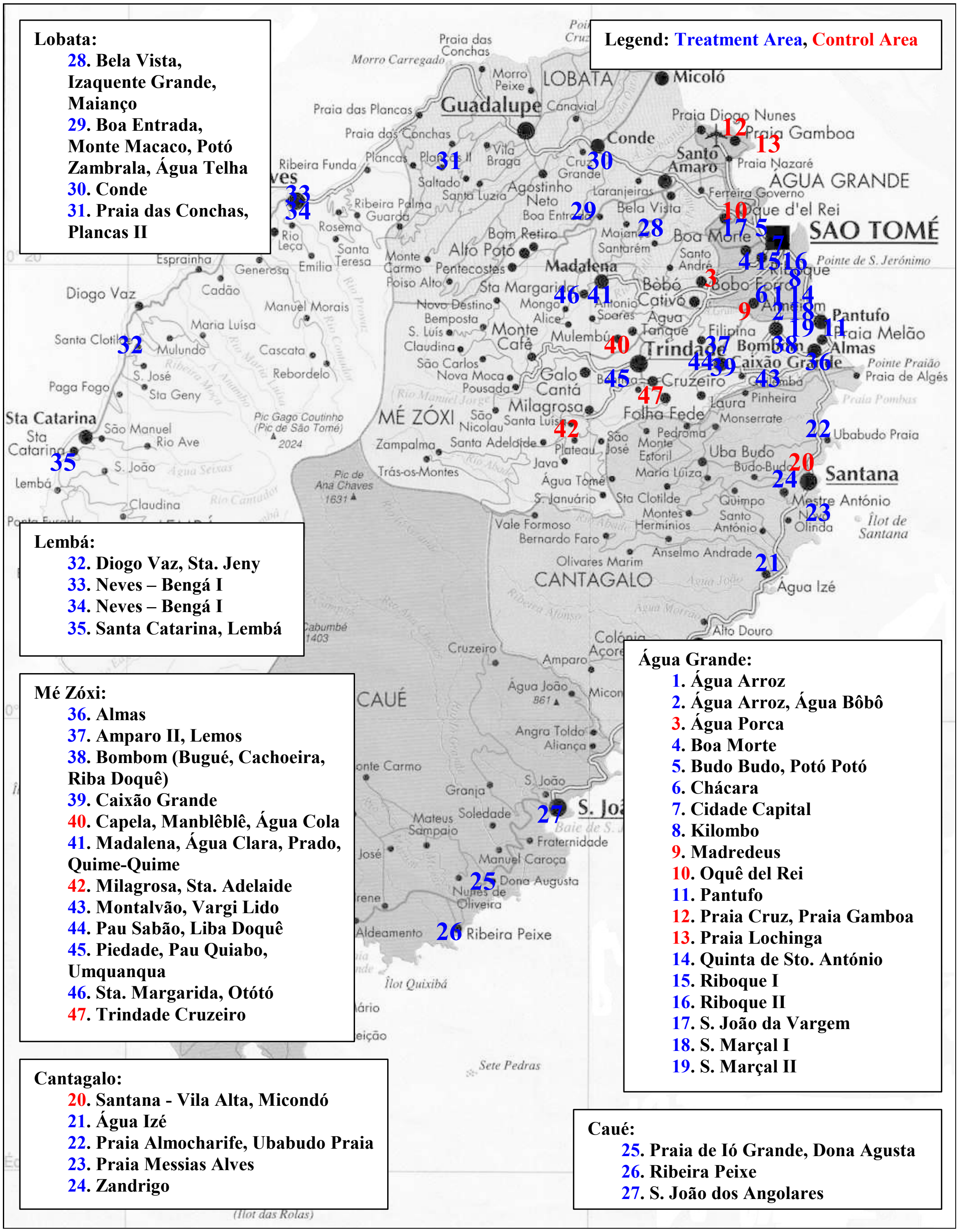
Vicente, Pedro C. (2006), *Does Oil Corrupt? Evidence from a Natural Experiment in West Africa*, Oxford University, mimeograph;

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

Appendix

A.1 Sample and Campaign

Sao Tome Island Map – Treatment and Control Areas



Principe Island Map – Treatment and Control Areas

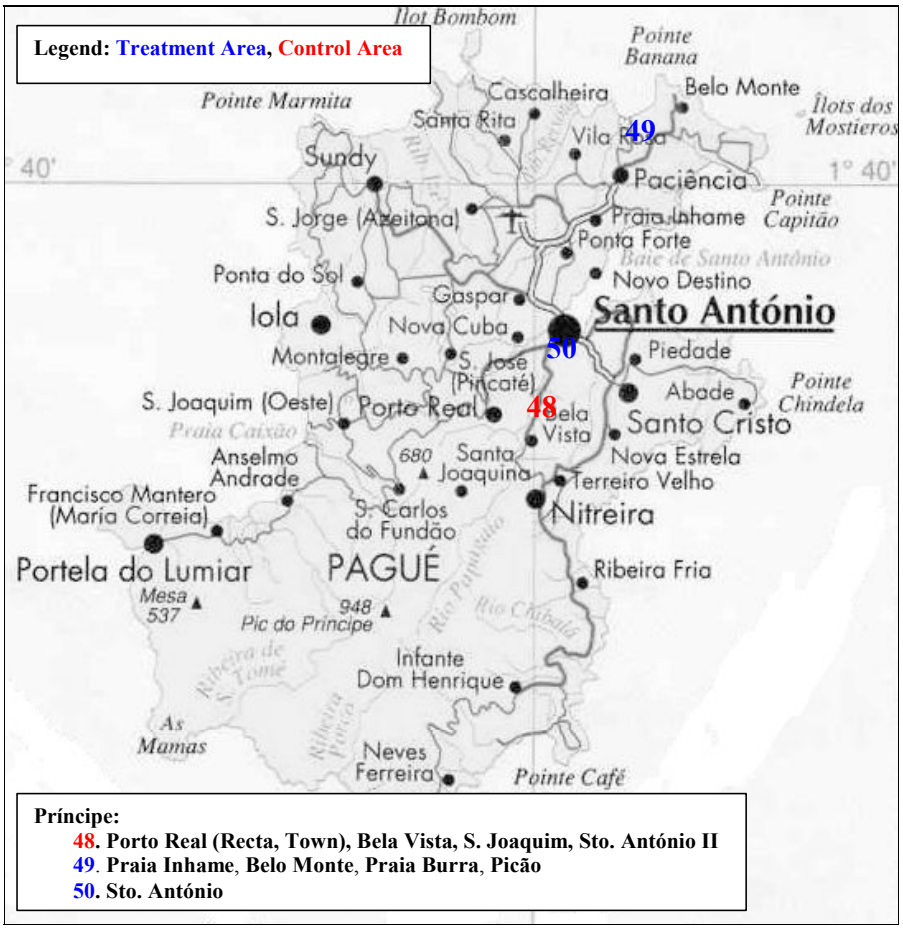


Table A1: Survey Sample

	Pre-Election Survey			Post-Election Survey			% Re-Surveyed
	# Interviews	Non-respondents	Total Attempted	# Interviews	Non-respondents	Total Attempted	
(AG) Água Arroz	23	4	27	18	5	23	78%
(AG) Água Arroz e Água Bôbô	19	0	19	13	6	19	68%
(AG) Água Porca	25	4	29	18	7	25	72%
(AG) Boa Morte	29	5	34	21	8	29	72%
(AG) Budo Budo, Potó Potó	21	8	29	18	3	21	86%
(AG) Chacara	22	1	23	15	7	22	68%
(AG) Cidade Capital	4	0	4	4	0	4	100%
(AG) Kilombo	20	4	24	14	6	20	70%
(AG) Madredeus	28	6	34	22	6	28	79%
(AG) Oquê del Rei	24	4	28	20	4	24	83%
(AG) Pantufo	33	8	41	21	12	33	64%
(AG) Praia Cruz, Praia Gamboa	34	9	43	31	3	34	91%
(AG) Praia Lochinga	28	2	30	26	2	28	93%
(AG) Riboque I	46	7	53	37	9	46	80%
(AG) Riboque II	26	7	33	16	10	26	62%
(AG) S. João Vargem	30	8	38	22	8	30	73%
(AG) S. Marçal I	31	8	39	23	8	31	74%
(AG) S. Marçal II	21	1	22	18	3	21	86%
(AG) Sto. António	23	3	26	18	5	23	78%
(C) Praia de Ió Grande, Dona Agusta	30	0	30	25	5	30	83%
(C) Ribeira Peixe	27	1	28	23	4	27	85%
(C) S. João dos Angolares	29	0	29	25	4	29	86%
(Ca) Água Izé	23	0	23	21	2	23	91%
(Ca) Praia Almocharife, Ubabudo Praia	21	2	23	17	4	21	81%
(Ca) Praia Messias Alves	28	6	34	24	4	28	86%
(Ca) Santana - Vila Alta, Micondó	26	1	27	18	8	26	69%
(Ca) Zamdrigo	26	0	26	20	6	26	77%
(Le) Diogo Vaz, Sta. Jeny	24	0	24	21	3	24	88%
(Le) Neves - Benga I	30	1	31	24	6	30	80%
(Le) Neves - Benga II	18	1	19	17	1	18	94%
(Le) Santa Catarina, Lembá	26	3	29	21	5	26	81%
(Lo) Bela Vista, Izaquente Grande, Maianço	23	0	23	21	2	23	91%
(Lo) Boa Entrada, Monte Macaco, Potó Zambrala, Água Telha	23	0	23	20	3	23	87%
(Lo) Conde	21	2	23	21	0	21	100%
(Lo) Praia das Conchas, Plancas II	26	1	27	23	3	26	88%
(MZ) Almas	25	3	28	17	8	25	68%
(MZ) Amparo II, Lemos	26	6	32	20	6	26	77%
(MZ) Bombom (Bugué, Cachoeira, Riba Doquê)	25	1	26	22	3	25	88%
(MZ) Caixão Grande	22	2	24	15	7	22	68%
(MZ) Capela, Manblêblê, Água Cola	28	8	36	21	7	28	75%
(MZ) Madalena, Água Clara, Prado, Quime-Quime	22	1	23	17	5	22	77%
(MZ) Milagrosa, Sta. Adelaide	30	0	30	29	1	30	97%
(MZ) Montalvão, Vargi Lido	28	3	31	23	5	28	82%
(MZ) Pau Sabão, Liba Doquê	23	2	25	21	2	23	91%
(MZ) Piedade, Pau Quiabo, Umquanqua	27	1	28	22	5	27	81%
(MZ) Sta. Margarida, Otótó	25	2	27	21	4	25	84%
(MZ) Trindade - Cruzeiro	27	6	33	24	3	27	89%
(P) Porto Real (Recta, Town), Bela Vista, S. Joaquim, Sto. António II	20	0	20	17	3	20	85%
(P) Praia Inhame, Belo Monte, Praia Burra, Picão	23	0	23	20	3	23	87%
(P) Sto. António	36	0	36	29	7	36	81%
Total	1275	141	1416	1034	241	1275	81%

The Anti-Vote Buying Campaign - Leaflet Used (front and back)

The main slogan is 'Do not let your conscience have a 'banho' - Your vote should be free and in good conscience'. The front page features three passages of the STP law (Constitution and Campaign Financing Law). The figure below presents a voter saying: 'Vote Buying… No way!!!'.

A.2 Regression Tables

Table A2: Are Treated Respondents/Locations Different from their Control Counterparts?

		Control	Treatment	Difference	Number of Observations
Demographics (Individual Level)	age (years)	37.84	37.47	-0.37	1273
				1.09	
	catholic (%)	0.68	0.73	0.05	1262
				0.03	
	household size	5.2	5.27	0.07	1274
				0.19	
	married (%)	0.04	0.03	-0.01	1274
				0.01	
	education (1-7)	3.34	3.3	-0.04	1274
				0.07	
	occupation - agriculture (%)	0.09	0.1	0.01	1266
				0.02	
	occupation - public administration (%)	0.03	0.03	0	1266
				0.01	
	household expenditure (USD/day)	5.41	5.39	-0.02	1261
				0.32	
	land (% owning)	0.51	0.46	-0.05	1245
				0.04	
Electoral Behavior (Location-Level)	turnout (%)	0.62	0.65	0.03	50
				0.04	
	incumbent party (parliamentary elections) (%)	0.41	0.38	-0.03	50
				0.04	
	difference incumbent-challenger parties (parliamentary elections) (%)	0.23	0.18	-0.05	50
				0.06	

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

Table A3: Regressions of Determinants of Vote Buying

	Dependent Variable ------>		Value (t=0,1)			VB Frequency (t=1)			Incumbent VB (t=1)						Challenger VB (t=1)					
			OLS			OLS			Probit						Probit					
										ME		ME		ME		ME		ME		ME
Main Explanatory Variables	parl	coef	186.38	185.84	338.21															
		std err	44.38**	43.81**	114.38***															
	urban	coef	212.23	198.07	189.46	-0.38	-0.46	-0.38	-0.25	-0.1	-0.27	-0.11	-0.25	-0.09	-0.19	-0.08	-0.26	-0.1	-0.26	-0.1
		std err	48.52**	49.68**	50.46**	0.17**	0.18***	0.19**	0.09***		0.10***		0.11**		0.09**		0.10**		0.11**	
	tight	coef	61.34	55.01	88.07	0.48	0.57	0.62	0.21	0.08	0.32	0.12	0.34	0.13	0.13	0.05	0.23	0.09	0.2	0.08
		std err	46.41	46.4	45.82*	0.17***	0.17***	0.18***	0.09**		0.10***		0.11***		0.09		0.10**		0.10*	
	Constant	coef	-30.89	-113.1	-97.19	2.53	1.67	0.88	0.26		0.67		0.53		0.21		-0.01		-0.37	
		std err	43.69	93.42	176.63	0.12***	0.81**	1.11	0.06***		0.21***		0.45		0.06***		0.44		0.64	
Demographic & Psychological Controls			No	Yes	Yes	No	Yes	Yes	No		Yes		Yes		No		Yes		Yes	
Political Controls (inc. Interventions)			No	No	Yes	No	No	Yes	No		No		Yes		No		No		Yes	
Number of Observations			1401	1392	1225	987	906	865	988		896		862		988		952		900	
Adjusted R-squared (OLS) Lik Ratio Chi2 (P)			0.03	0.07	0.09	0.01	0.05	0.07	8.62		54.48		64.21		4.64		46.7		63.75	

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. The value regressions correspond to stacked regressions for pre and post-election data (on both Parliamentary and Presidential Elections). All other regressions concern post-election data (on the Presidential elections). ME stands for Marginal Effects.

Table A4: Regressions of Change in Vote Buying

	Dependent Variable ------>		Change in VB Frequency					Change in VB Impact				
			OLS				IV	OLS				IV
Main Explanatory Variables	treatment	coef	-0.28	-0.27	-0.2	-0.67	-0.54	-0.98	-0.99	-0.93	-1.29	-1.06
		std err	0.23	0.23	0.24	0.37*	0.39	0.18***	0.19***	0.19***	0.31***	0.34***
	urban	coef		0.2	0.03	-0.12	-0.18		0.1	0.03	-0.27	-0.39
		std err		0.21	0.22	0.31	0.32		0.17	0.18	0.27	0.28
	tight	coef		0.42	0.38	0.41	0.2		0.14	0.11	-0.22	-0.57
		std err		0.21**	0.22*	0.31	0.37		0.17	0.17	0.25	0.31*
	observer (inst by pop)	coef		-0.18	-0.13	-0.13	0.04		-0.1	-0.08	-0.06	0.27
		std err		0.05***	0.05**	0.07*	0.19		0.04***	0.04**	0.06	0.16*
	Constant	coef	-1.91	-1.85	-0.81	4.22	4.01	-0.97	-0.87	-0.8	0.24	-0.22
		std err	0.21***	0.26***	0.73	1.40***	1.42***	0.16***	0.21***	0.62	1.03	1.09
Demographic & Psychological Controls			No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Political Controls			No	No	No	Yes	Yes	No	No	No	Yes	Yes
Number of Observations			973	973	868	371	371	992	992	972	411	411
Adjusted R-squared (OLS) F-stat (IV)			0	0.02	0.04	0.17	4.85	0.03	0.03	0.05	0.09	3.28

	Dependent Variable ------>		Change in Conscience Voting					Change in VB Value				
			OLS				IV	OLS				IV
Main Explanatory Variables	treatment	coef	0.88	0.95	1.08	1.43	1.35	-35.52	-49.65	-46.93	-193.11	-193.11
		std err	0.17***	0.18***	0.18***	0.27***	0.29***	92.69	95.71	103.41	152.51	152.51
	urban	coef		0.14	0.12	0.26	0.3		-158.73	-154.15	-14.7	-14.7
		std err		0.16	0.16	0.23	0.23		86.24*	99.67	136.47	136.47
	tight	coef		0.04	0.06	0.51	0.62		-99.15	-115.77	-205.86	-205.86
		std err		0.16	0.16	0.23**	0.26**		79.43	87.83	117.78*	117.78*
	observer (inst by pop)	coef		0.04	0.04	0.03	-0.07		30.04	36.59	41.15	41.15
		std err		0.04	0.04	0.05	0.14		17.88*	19.64*	27.64	27.64
	Constant	coef	1.29	1.06	0.11	-1.82	-1.83	-90.65	-43.91	258.75	1926.63	1926.63
		std err	0.15***	0.20***	0.71	1.14	1.15	84.26	105.45	275.56	813.46**	813.46**
Demographic & Psychological Controls			No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Political Controls			No	No	No	Yes	Yes	No	No	No	Yes	Yes
Number of Observations			1003	1003	942	398	398	406	406	376	175	175
Adjusted R-squared (OLS) F-stat (IV)			0.02	0.02	0.06	0.14	4.72	0	0.01	0.02	0.12	2.29

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Table A5: Regressions of Electoral Behavior (Turnout, Turnout Change, Vote Change)

	Dependent Variable ------>		Turnout (t=0,1)							
			Probit							
				ME		ME		ME		ME
Main Explanatory Variables	vb frequency (loc. average/lagged)	coef	0.11	0.02	0.11	0.02	0.1	0.01	0.13	0.01
		std err	0.03***		0.03***		0.04**		0.04***	
	Constant	coef	0.92		1.16		-0.54		-0.84	
		std err	0.11***		0.12***		0.49		0.54	
Structural Controls			No		Yes		Yes		Yes	
Demographic & Psychological Controls			No		No		Yes		Yes	
Political Controls			No		No		No		Yes	
Number of Observations			2266		2266		1909		1838	
Lik Ratio Chi2 (P)			15.1		38.84		278.95		296.78	

	Dependent Variable ------>		Change in Turnout								Change in Vote							
			Probit								Probit							
				ME		ME		ME		ME		ME		ME		ME		ME
	treatment	coef	-0.05	-0.02	-0.07	-0.03	0.08	0.03	-0.43	-0.17	0.27	0.11	0.32	0.13	0.52	0.2	1.13	0.4
		std err	0.28		0.31		0.32		0.53		0.21		0.22		0.25**		0.40***	
	Constant	coef	-0.18		0.25		0.62		-0.43		-0.05		-0.17		-1.54		-3.97	
		std err	0.25		0.35		0.41		0.84		0.19		0.24		0.89*		1.72**	
Structural Controls			No		Yes		Yes		Yes		No		Yes		Yes		Yes	
Demographic & Psychological Controls			No		No		Yes		Yes		No		No		Yes		Yes	
Political Controls			No		No		No		Yes		No		No		No		Yes	
Number of Observations			131		131		131		59		268		268		227		118	
Lik Ratio Chi2 (P)			0.04		5.51		12.95		19.75		1.63		4.44		41.8		36.28	

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. The upper table corresponds to a stacked regressions for pre and post-election data. ME stands for Marginal Effects. Structural Controls are urban, tight, observers (in the lower table only) .

Table A6: Regressions of Actual Electoral Outcome (by Ballot Station)

	Dependent Variable ------>		Difference Incumbent-Challenger (t=1)			
			OLS			IV
Main Explanatory Variables	observer (inst by pop)	coef	**-0.04**		**-0.03**	**-0.3**
		std err	0.02*		0.02	0.11***
	treatment	coef		**0.07**	**0.06**	**0.03**
		std err		0.04*	0.04	0.05
	urban	coef			**0.03**	**-0.04**
		std err			0.04	0.06
	Constant	coef	**0.23**	**0.17**	**0.19**	**0.42**
		std err	0.02***	0.02***	0.03***	0.10***
Number of Observations			228	228	228	228
Adjusted R-squared (OLS) F-stat (IV)			0.01	0.01	0.02	3.45

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Table A7: Regressions of Outcomes on Distance to Closest Treatment Area (Control Locations Only)

Dependent Variable ------>		Change in VB Frequency	Change in VB Impact	Change in Conscience Voting	Change in VB Value	Change in Turnout		Change in Vote	
		OLS				Probit			
							ME		ME
distance to treatment	**coef**	**-0.2**	**-0.17**	**0.09**	**2.27**	**-0.14**	**-0.05**	**0.05**	**0.02**
	std err	0.10*	0.07**	0.07	26.26	0.11		0.09	
Constant	**coef**	**-1.45**	**-0.58**	**1.08**	**-95.77**	**0.14**		**-0.18**	
	std err	0.33***	0.24**	0.21***	84.78	0.36		0.29	
Number of Observations		193	195	199	70	25		42	
Adjusted R-squared (OLS) Lik Ratio Chi2 (P)		0.01	0.02	0	-0.01	1.48		0.36	

Note: * significant at 10%; ** significant at 5%; *** significant at 1%