The Determinants of Vote Buying in Brazil: Taking Contextual Factors into Account[1]

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Abstract

Most studies on vote buying in Latin America and abroad have been mainly interested in uncovering vote buying's enforcement, different uses to it (i.e., as a mobilization tool or as a persuasion tool) and its main determinants, to name just a few. However, there has been a scarcity of theoretical and empirical studies that try to understand how the context in which people live and candidates compete affects the propensity of vote buyers to engage in the exchange of goods for votes. Such lack of consideration for context is surprising, given that clientelism is strongly characterized and viewed as a local practice. Therefore, I develop a simple theoretical argument with the goal of integrating individual and contextual level factors into a single analysis to understand the determinants of vote buying. Hence, I argue that vote buying is a function of monitoring capacity and electoral uncertainty. Vote buying tends to be more prevalent where monitoring capacity is facilitated and where electoral uncertainty is lower. I test the theory by running a multilevel analysis on survey data in the Brazilian case, complemented by a case study. The results obtained in the paper mainly confirm the theoretical expectations and suggest that context matters to explain vote buying, especially the electoral environment.

Clientelism and corruption have been identified as a pervasive problem and important feature of developing democracies, especially in Latin America (Hemke and Levitsky 2006). Following such understanding of the politics in the region, some scholars also recognize that studies of new democracies have failed for not taking into account several factors that explain variation in "citizen–politician linkages", being clientelism one of these linkages (Kitschelt and Wilkinsom 2007, p.3). One of such clientelistic practices, vote buying, has spawned a new wave of studies with focus on Latin America and abroad (e.g., Brusco et al 2004, Stokes 2005, Nichter 2008, Wantchekon 2003, Vicente 2007, among others).

Even though other clientelistic "tools" such as pork and patronage have been subject of more scrutiny, the recent studies aforementioned show that vote buying is still practiced in several developing countries. There are disagreements though with respect to the degree of incidence of vote buying, to its usage (i.e., as a mobilizing or persuasive tool), to the appropriate methodology to be applied in studying the phenomenon, among others. Nevertheless, there are some commonalities among such studies. One of them is the focus on individual-level units (i.e., voters). The role of context is seldom considered and theorized, particularly the electoral context.

The present paper aims to change that by offering an explanation for vote buying that takes into account individual and contextual factors into a single empirical analysis. By making use of the multilevel statistical method, vote buying is understood as a function of individual and contextual-level factors that shape the degree to which candidates are able to monitor voters and the degree of uncertainty about the final electoral outcome. Both monitoring capacity and uncertainty are expected to affect vote buyers' assessments with respect to the feasibility of buying votes. The study uses Brazil as a case study for such analysis, with a focus on the municipal level and mayoral elections. First of all, clientelism and corruption have been important factors in explaining or at least affecting politics in the

country, either in the executive as well as in legislative level (Ames 2002, Desposato 2002, Nichter 2009, Montero 2010). Second, even though vote buying does not seem to be widely practiced, as it seems to be in other countries (such as Argentina, Stokes 2005, Nichter 2008; Nicaragua, Ocantos et al 2012; Kenya, Kramon 2008, etc), there are studies showing that vote buying is practiced in Brazil, although the degree of its incidence and effectiveness is uncertain (Speck 2003, Figueiredo 2004). Moreover, Brazil presents a high degree of variance in the measure of the predictors used in this study. Municipalities in Brazil are extremely diverse with respect to their population, number of voters, degree of economic inequality, and size, just to enumerate a few.

The paper contributes to the literature on vote buying and clientelism in Latin America by showing that contextual factors at the local level and the electoral environment affect the degree to which vote buying is applied as a strategy to obtain votes by studying it at the level of voters and municipalities. Not only do buyers take into account the capacity to monitor voters, but also the degree of uncertainty regarding the final electoral result. Vote buying tends to decrease where electoral competition is higher and where the incumbent does not run for mayor.

The paper is organized as follows. First I analyze the literature on vote buying and its main questions, findings, and methodological approaches. Such review is not comprehensive but encompasses most of the more recent and relevant studies on the subject. Next the paper presents the theoretical argument by explaining vote buying as a function of the individual and contextual-level factors at the municipal level and how such context affects vote buyers' calculus on the feasibility and cost of pursuing it, as well as the main hypotheses. The third part of the paper describes the methodology, mainly the data, the dependent variable, and the independent variables. Fourth, the study shows the results obtained from the multilevel model. The paper then moves to a discussion of the main findings. Subsequently I conclude.

Studying vote buying: approaches and findings

Studies on vote buying have studied the phenomenon through different angles. A central feature in most studies is the attempt to understand how vote buying can occur when voting is secret. Once voting is secret (particularly with the adoption of the Australian ballot), voters are able to accept the offer and later vote as they please. In such context voting contracts are unenforceable and markets for votes become inefficient (Gingerich 2012, p.5). Nonetheless, studies have found that parties in new and established democracies still spend considerable amounts on vote buying before elections (Schaffer 2007). Hence, part of the literature tries to understand how vote buying is possible with secret ballot. The succeeding literature investigates how vote buying is carried out under the secret ballot and to what purposes. Besides, studies on vote buying also concentrate on its determinants and on its effectiveness. First I review studies that concentrate specifically on more theoretical aspects of vote buying, and then proceed to empirical studies outside and inside Latin America.

In a study of vote buying mechanisms in the US, Heckelman (1998) studies who obtains bribery from political parties to turn out to vote. Assuming that if voting is secret, a buyer will pay opposition voters not to vote and recognizing the difficulties that the secret ballot imposes in the ability of parties to monitor voters, he asserts that voting benefit is dependent upon the election outcome (1998, p.441). In theorizing about party strategies to mobilize voters under democratic competition, Mustillo (2012) asserts that vote buying is one among other mobilization strategies to be used to solve the voter's collective action problem of turnout. Vote buying is conceived as a simple commercial transaction not conditional on victory on which parties have a high degree of discretion (2012, p.23).

Vote buying has also been understood as a tool that can be used to attain the opposite of turnout, which would be to pay some voters to abstain. Morgan and Vardy (2010) advance the concept of negative vote buying and state that a combination of "positive" and "negative"

vote buying is optimal under the secret ballot. By making use of formal modeling, they arrive to a counterintuitive conclusion; that the secret ballot may reduce the costs of buying an election. Following the contrary assumption found in Morgan and Vardy, Casas (2010) considers vote buying as turnout buying and investigates the optimal allocation of budget resources across groups of citizens. Through a formal model the author concludes that mobilization occurs mainly across weak supporters of the incumbent, while persuasion occurs across the weak opposers of the incumbent party.

In another attempt to understand how vote buying is possible under the secret ballot, Rueda (2012) develops a formal model and argues that compliance is achieved by conditioning future bribes on whether the parties vote reach an "optimally threshold". Voters' commitment problem is recognized as a collective action problem. In sum, he finds that bribed voters comply when other voters also comply, and that compliance is herder to obtain in large populations.

Although there exists an unequivocal interest in how vote buying occurs under secret voting, most of the published literature is interested in evaluating the determinants of vote buying, its effectiveness, and its possible purpose, i.e., to mobilize or persuade voters, to buy voters preferences or to buy their turnout (e.g., Calvo and Murillo 2004).

Outside Latin America there has been a great degree of interest in understanding how effective vote buying is and who are those targeted by vote buyers. In the context of African countries, Wantchekon (2003) conducted a field experiment in Benin and evaluates the effectiveness of clientelistic messages on voters. He shows that clientelism is electorally effective for all types of candidates, particularly for incumbents. Results also show that women tend to value more public goods than men. Therefore, demographic factors such as gender at explaining clientelism's appeal (2003, p.403). Additionally, voting behavior is found to be far from being entirely determined by ethnic affiliation. Vicente (2007)

investigated vote buying in Sao Tome and Principe and found that vote buying induces higher voter turnout. Besides, vote buying is found to favor the challenger over the incumbent. Concerning demographic variables, those targeted by vote buyers are identified to be less schooled and poorer voters. Also relevant is the discovery that voter information campaigns can be effective in reducing vote buying. In another study on West African countries, Vicente and Wantchekon (2009) intended to evaluate the consequences of vote buying for economic development. Among the main findings are that voter education campaigns can undermine the effectiveness of vote buying on voting behavior. Also important, vote buying seems to be more effective for challengers rather than for incumbents (2009, p.293).

Studying vote buying in Kenya, Kramon (2010) concludes that vote buying in the country is an important driver of turnout. Voters targeted by vote buyers are usually poor, swing voters in the country's most competitive districts, young, male, and living in rural areas. Lastly, in analyzing vote buying in Nigerian 2007 elections, Bratton (2008) centers his attention on the frequency and distribution of vote buying and the role of violence in it. He discovered that vote buying enhances partisan loyalty and that defection from threats and agreements is more common than compliance, which suggests that such practice is inefficient in the Nigerian context. Besides, the preferential targets of vote buying follow the same pattern as in Kramon and other researchers: the poor, with low education living in rural areas, and males.

Studies on vote buying in Latin America present similar interests to those verified in other regions, with a particular interest in the explanations for vote buying and the pervasiveness of its practice. The electoral uses of vote buying are also considered.

For instance, by conducting a survey among Mexicans in 2000, Aparicio (2002) found that one-seventh of citizens received an offer of some sort (including or not excludable

goods) for their vote, especially those living in rural areas, with lower incomes, lower levels of education, and men.

Considering the Argentine case, Brusco et al (2004) analyze how widespread is vote buying in Argentina. Studying the Argentine 2002 presidential and gubernatorial elections and using survey data in conjunction with interviews and fieldwork, they found that vote buying is an effective strategy for mobilizing electoral support among individuals with lower income and able to make accurate inferences about how individuals voted. Vote buying is also found as being targeted at people with low levels of education, lower ages, and also toward men. Stokes (2005) applies formal model and survey research and aims to explain how machine politics work in Argentina. Vote buying is formalized as an infinite game in which the party plays with trigger strategies. The ballot is cast secretly but there is an imperfect monitoring technology. Her model predicts that parties target "weak opposers" and "indifferent" voters even though Stokes' findings suggest that parties are more likely to target their own supporters. With respect to monitoring the exchange of goods for votes, Stokes argues that such goal is achieved through a deep insertion of the party in the voters' social networks.

Still using Argentina as case study for vote buying, Nichter (2008) uses the same data used by Stokes in Argentina and reproduces her model but through a different perspective. For Nichter, vote buying is better understood as turnout buying. By considering "vote" buying as a means to boost turnout and assuming perfect monitoring, he diverges from Stokes' conclusion and finds that weak supporters are easier to buy.

With a particular interest in the measurement of vote buying, Ocantos et al (2012) argue that survey measures commonly used in the assessment of vote buying are plagued by problems of social desirability bias. As an alternative measure, they suggest a survey-list experiment to minimize such type of bias in the context of the 2008 Nicaraguan municipal

elections but making use of a national representative sample. As a result, .24 percent of individuals admitted having received an offer for their votes, which would be considerably higher because of the list experiment. As usual, the targets of offers for votes are found to be poor individuals with low levels of education living in rural areas, and males.

Finally, with respect to Brazil some scholars consider vote buying to be a practice in extinction, or at least as a practice in disuse and that it is inefficient (Speck 2003, Figueiredo 2004, p.108). Nonetheless, surveys conducted during the 2000s show that vote buying is still present in Brazilian politics as a recurrent practice (Speck 2003, p.156-157). Vote buying is more prevalent among young people, women, and those living in rural areas and in cities with less than 5,000 voters (Speck 2003, p.160-165). Desposato (2002) finds that voters' preferences for private or public goods are correlated with party strength. Isolated areas that few candidates can reach are found to have lower private good prices (Desposato 2002, p.16). Moreover, the price of the vote is expected to rise with competition. More recently Nichter (2009) theorized about clientelistic strategies in Brazil and analyzed the extent to which voters (and not only the elites) act strategically. The authors develops a typology in which vote buying is considered as a retrospective clientelistic strategy vis-à-vis post-electoral benefits (i.e., prospective clientelistic strategies), which suggests that voters are not passive agents before vote buyers, but active agents as well. Villela and Marques (2006) develop a similar idea by considering the role that "prestige" plays at making voters more susceptible to engage in voting exchange with politicians and at solving electoral commitment problems (2006, p.30-33).

Overall most part of the studies aforementioned take into account the problems regarding the coordination of the exchange of votes for goods between voters and citizens (Schaffer 2007). Furthermore, these studies point to similar determinants of vote buying. In other words, the poor, younger, less educated, women, and living in small cities and in rural

areas appear as preferential targets of vote buying attempts. However, there are notable differences among the studies with respect to the operationalization of vote buying and the use that buyers make of it (e.g., as a mobilization or persuasion instrument). More significantly, these studies present some theoretical and empirical gaps. Most of the previously cited studies focus on demographic variables at the individual level and do not consider the context (spatial and electoral) more broadly. Some of them take context into account (e.g., Vicente 2007, Vicente and Wantchekon 2009, Desposato 2002), but do not develop a theory that explains how the electoral context impacts vote buyers. Finally, all studies operate at the individual level. Studies that explain how local context influence vote buyers are still lacking. This study aims at filling such void.

Vote buying and context: theory and hypotheses

This study champions that in order to understand vote buyers' attempts to buy votes it is fundamental to include contextual factors into the explanation. Such argument is far from being unreasonable or new. More than that, the importance of context is at least implied (although mostly not theorized) in most studies on vote buying. In this section I develop a theory that explain how the local context may affect vote buyers' propensity to engage in vote buying activities.

Context matters for vote buying because it affects how voters and candidates or campaigns are able to establish links to each other and on how both sides can solve collective action problems that arise when an exchange of goods for votes take place. Space is also related to the costs of organization. As Montero (2010) shows in his study in Brazil, such costs are lower for conservative *incumbents* in the Northeast who can rely on extant decentralized clientele networks that have been in place for a long time. As a result, these

politicians tend to dominate such bailiwicks (*grotões* or *currais*) and where managing clientelistic networks is facilitated by *smaller* and *more dispersed* populations. A similar argument is developed by Ames (2002), who clearly considers electoral politics in Brazil as a "fight for space"[2].

Context is also expected to affect the capacity to monitor voters. As some studies suggest, some spatial conditions appear to be more propitious to vote buying (and clientelistic) practices than others. For instance, rural and small cities appear to vote buying attempts (e.g., Speck 2003, Desposato 2002, Aparicio 2002, Montero 2010, Ames 2002, Stokes 2005, Bratton 2008, Weitz-Shapiro 2012). Following the same logic, low population density seems more conducive to vote buying attempts (e.g., Desposato 2002, Brusco, et al. 2004, Stokes 2005; Nichter 2008). Finally, different localities are expected to differ in terms of electoral uncertainty by presenting different patterns of political competition. More specifically, localities differ in terms of electoral competition and the presence (or absence) of incumbents running for office[3]. My theory aims at incorporating these considerations into the present study.

In this paper I study vote buying by considering individual and contextual factors at once. The contextual factors affect the monitoring capacity of campaigns and the degree of uncertainty regarding the final electoral result. Vote buyers will try to buy the voters' votes where local conditions favor the monitoring activity of the exchange of votes for goods and when there is more uncertainty about the final result of the election. Put differently, vote buying is a function of individual and contextual-level variables (municipalities). Such variables affect vote buyers' capabilities to monitor voters and the electoral uncertainty about the final result of the election. The two main hypotheses are:

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[2] Although the author considers in his analysis federal deputies instead of mayors.

[3] In Brazil candidates running for office (including mayors) are allowed to run for reelection only once. After that they need to wait at least one term in order to be able to run again for the same previous office.

H$_1$) vote buying increases in municipalities where uncertainty with respect to the electoral result is high.

H$_2$) vote buying increases in municipalities that present better conditions to monitor voters.

Concerning the first hypothesis, level of uncertainty is captured by two variables: electoral competition for mayor in 2008 and incumbency. Electoral uncertainty tends to be higher in municipalities in which there is no clear favorite running for office. When the election is expected to be close the value of each vote increases. Therefore, the chance that each additional vote may affect the final outcome also increases. In this case buying votes becomes an optimal strategy. The other variable measuring uncertainty, incumbency, exerts a different effect on vote buyers' strategies. The presence of an incumbent running for office is expected to lower the level of uncertainty surrounding the election (which does not mean, necessarily, that the incumbent is the favorite to win). After one term in office incumbents acquire name recognition and a core group of supporters that are benefited by policies (or clientelistic practices) implemented by the incumbent. Challengers, on the other hand, are probably less well-known and have to run against the incumbent's electoral machine. When the incumbent does not run for reelection, all candidates tend to be less well-known (or at least less well-known than the previous incumbent). Besides, all voters are potentially up for grabs. The result is an electoral context in which uncertainty about the final result is probably higher.

With regard to the conditions that favor monitoring activity by campaigns, context is expected to favor vote buyers where municipalities are smaller in size, with small number of voters, with low population density, and where there is a higher degree of economic

inequality. These factors, though not completely, are expected to affect the degree to which campaigns can monitor voters and exert influence upon them.

Both hypotheses find some degree of corroboration in the literature. Regarding electoral uncertainty, Lindberg and Morrison (2008) found in the Ghanaian context that "political clientelism is more prevalent in contested constituencies" (2008, p.118). In a study of clientelism in Montevideo, Alvarez Rivadulla (2012) concluded that regarding opportunistic relationships between squatter leaders and politicians to obtain state goods, "…opportunities were high between 1989 and 2004, years of great competition for the votes of the urban poor" (2012, p.38). In a broader analysis of vote fraud, Lehoucq (2003) stated that accusations of fraud tend to be more common in "competitive, typically urban, districts" (2003, p.250). In Mexico, Aparicio noted that while in non-competitive districts the probabilities of receiving an offer is .045 percent, such percentages increase threefold (.135 percent) in competitive precincts (2002, p.94)[4]. The suggested relationship between incumbency and lower levels of uncertainty also finds support in some studies aforementioned. For example, Vicente and Wantchekon found that "…while clientelism works particularly well for incumbents, vote buying seems to be more effective for challengers" (2009, p.293)[5]. Contextual factors in the second hypothesis find support in a broad array of the studies previously mentioned.

Data description

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[4] Ortega and Becerra (2008), Kramon (2008) and Gingerich and Medina (2011, p.4) found the same pattern relating higher electoral competition with more clientelism and /or vote buying. In the Indian case, Sadanandan (2012) affirms that "local politicians who win by narrow margins are likely to distribute particularistic benefits more widely to enhance their electoral support and reduce electoral uncertainty than local politicians who win with broader support" (2012, p.214).

[5] Also findings a negative relationship between incumbency and clientelism/vote buying are Wantchekon (2003, p.403) and Scwarcberg (2010).

The paper uses survey data from AmericasBarometer[6] 2010, carried out between March and April of 2010. It uses a national probability sample design of voting-age adults (N=2,482), involving face-to-face interviews. It takes into account stratification and clustering, clustering, and weighting. The sample consists of five strata, which one representing the five main geographical regions in Brazil[7]. In order to be nationally representative the sample must be weighted. The sampling units include 17 of the 27 Brazilian states[8]. A total of 2,135 respondents were surveyed in urban areas while 347 were surveyed in rural areas. The margin of error for the survey is ± 1.79.

Conceptualizing and operationalizing vote buying

The definition of vote buying is straightforward: "*Vote buying, in its barest sense, involves the exchange of money, goods, or services for votes*" (Schaffer 2007, p.1)[9]. It's a tool for electoral mobilization and/or manipulation, targeting either electoral choices or electoral participation. Its basic goal is to influence the electoral choices made by voters. Considering the possibilities of devising the distributing of goods[10] in a continuum[11] (unidimensional), in which the left side presents distributions that are more universalistic versus more particularistic ones on the right side, vote buying would be an extreme case of particularism, being characterized by a high degree of control over who receives the rewards.

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[6] LAPOP, Vanderbilt University.

[7] North, Northeast, Midwest, Southeast and South.

[8] The survey includes the Federal District (DF) among the 27 states. However, the current paper does not include the Federal District in the statistical analysis because it does not hold municipal elections.

[9] The list of material inducements that can be used are manifold: soap, tires, chairs, sarongs, watches, chickens, cement, whisky, coffins, haircuts, vasectomies, television sets, bags of rice, cooking oil, and so forth.

[10] Allocation policies: the enactment of policies that distribute material rewards to entire, geographically dispersed classes of voters. Pork-barrel: the channeling of material benefits to the local districts of elected officials. Patronage: the provision of material support, at any given time during the electoral cycle, to individuals, families, or communities within the context of enduring asymmetric, but reciprocal, relationships.

[11] The definitions in the continuum were extracted from Schaffer 2007.

[Figure 1 about here]

Regarding the timing of its distribution, vote buying is a last minute effort to influence electoral outcomes, taking place days or hours before an election. The other forms, on the other hand, are distributed in a longer time spam (further to the left, higher the timing). With respect to its legality, vote buying runs counter to legal norms, while the other forms present unclear or undefined norms to forms of questionable (moral, political, or economical) legality – pork-barrel – to completely legal forms – allocation policies. Finally, it alters the outcome of an election one vote at a time, while the other forms affect the choices or votes of a larger number of citizens at the same time (further to the left, the higher the number of people affected at the same time). Thus, vote buying is the most particularistic, it occurs closest to the time of voting, it is unambiguously illegal, and it affects one vote at a time.

The dependent variable measuring vote buying comes from the following question in the survey:

CLIEN1. *In recent years and thinking about election campaigns, has a candidate or someone from a political party offered you something like a favor, food, or any other benefit or thing in return for your vote?* **[1]** Frequently **[2]** Sometimes **[3]** Never

As it can be seen the question asks subjects about vote buying in a holistic way by considering it not only as an exchange of "money" for votes but also as any kind of "favor" or "benefit" in exchange for votes. Because the concept possibly captures the full domain of content that is relevant for the measurement of vote buying and in a way that makes the concept testable it does not present problems of content validity (Carmines and Zeller 1979). Furthermore, subjects were not asked about whether they accepted offers for their votes but whether campaigns or candidates offered something to voters. Only after this question subjects were asked about whether they accepted the offer and whether such offer changed

their votes. By framing the question in such a way and by asking subjects only with they received an offer for their votes (and not if they received *and* accepted the offer), it is possible that the first question on vote buying became less obtrusive than it is usually the case (Ocantos et al 2012). For instance, the overall level of vote buying in the survey is .158 percent (much higher than the .07 percent of Argentine respondents reported receiving goods for their votes in Stokes 2005) and substantially higher than other surveys on vote buying in carried out in Brazil[12].

Multilevel model and independent variables

With the purpose of assessing the impact of independent variables at the individual and at the municipal level, I use a multilevel model for parameter estimation. Multilevel modeling is particularly suitable for the statistical analysis in this paper. There are theoretical and statistical reasons for the adoption of such model. First, there are theoretical reasons to believe that vote buying operates in different ways across contexts (i.e., municipalities). It is reasonable to expect that characteristics of the municipality may influence vote buyers opportunities to offer goods for votes. The data structure of the model is clearly hierarchical (i.e., individuals nested within contextual units – municipalities). Multilevel Models incorporate such structure into the analysis. In other words, multilevel models allow the simultaneous examination of the effects of group level and individual level variables on individual level outcomes while accounting for the non-independence of observations within groups (Diez Roux 2002, p.591). Second, there are also statistical reasons to adopt a multilevel model. Because survey respondents are nested within counties, random errors are not independent, violating OLS assumptions. Hierarchical estimators are more appropriate for

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[12] Surveys on vote buying carried out by Brazil Transparency have shown very dissimilar levels of vote buying, ranging from 3 to 9% (Figueiredo 2004). In addition, the questions changed from survey to survey.

this multilevel analysis because they account for the non-independence of observations. Multilevel modeling relaxes the independence assumption and allows for correlated error structures (Luke 2004, .22). If the model ignores the multilevel character of data carries significant statistical costs in the form of possibly incorrect standard errors and inflated Type I error rates (Steenbergen and Jones 2002, p.219; Hox and Kreft 1994, p.288). Last but not least, the multilevel approach adds to the generalizability of the results for it allows researchers to explore causal heterogeneity. When contextual units are randomly sampled (as it is assumed by multilevel methods), multilevel analysis may help overcome the case selection problems that often plague comparative research (Steenbergen and Jones 2002, p.219).

The second-level or group level units in the model are 54 Brazilian municipalities. I chose the municipality as the second level because it is usually at this level that clientelistic linkages between clients and patrons are forged and maintained. Secondly, municipalities are not so broad contexts as to overlap with other contexts (e.g., the state level), but also not narrow enough to the degree that may lead to problems of self-selection[13] (Blabock 1984, p.362).

The independent variables to be analyzed at the individual level (voters) are the size of the municipality, education, gender, age, and income. All these variables have been consistently applied in empirical research on vote buying. Based on the literature, we must expect to verify higher levels of vote buying among people with low levels of formal education, the young people, women, and among those living in cities of smaller magnitude (Brusco et al 2004, Stokes 2005, Nitcher 2008, Vicente and Wantchekon 2009, Aparicio 2002, Ocantos et al 2012, Bratton 2008, Kramon 2010).

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[13] "As a general rule, we anticipate that the more microlevel the contextual unit and the greater the permeability of its membership, the greater the proportion of persons who will self-select themselves into such contexts and therefore the more problematic the direction of causation between Xj and Xj" (Blabock 1984, p.369).

The independent variables located at the municipal level include competition for mayor in 2008 (i.e., the difference in vote shares of the two leading candidates running for mayor in 2008, with smaller values denoting more electoral competition), incumbency (i.e., whether the mayor in the previous term ran for reelection), size of the municipality in Km^2, the natural log of the municipality's constituency size, and population density. Summary statistics on the variables under consideration can be found on Table 1.

[Table 1 around here]

Results

Before proceeding to the multilevel analysis it is important to know whether the data supports the argument that vote buying attempts are a function of both individual characteristics and the nature of the electoral and socio-demographic context that varies across municipalities. With the goal of determining whether there is a significant variation in vote buying at the individual and municipal levels, I estimated a multilevel regression model that decomposes the variance in the dependent variable.

[Table 2 about here]

Table 2 shows estimates of the variance components at the individual and municipal level. All variance components are statistically significant, suggesting that there is a significant amount of variance in vote buying attempts at both levels of analysis. Notably, individual level variance comprises .73 percent of the total variance in vote buying attempts, while municipal-level variables account for approximately .27 percent of the variance.

Another important statistic to analyze is the intraclass correlation coefficient (ICC)[14], which measures the proportion of variance in the dependent variable that is accounted for by groups, in this case municipalities (Luke 2004, p.19). The ICC for the multilevel model is approximately .17 percent[15]. This means that even though the second level of analysis is important at explaining variance in the dependent variable, most of this variance is explained by the individual level. The previous analyses show that the incorporation of the contextual level is nor irrelevant to the analysis and strongly suggests that the multilevel model is appropriate.

Proceeding to the empirical part, I ran a multilevel model with random intercepts[16]. Because the dependent variable is ordinal I used an ordinal logit link function with binomial distribution. The model includes weights in order to make it representative of the Brazilian population.

[Table 3 about here]

Results from Table 3 show that the majority of the variables in the model follow the theoretical expectations (nine out of twelve). From the twelve variables in the model, seven achieve at least the standard level of statistical significance (p<.10).

With respect to the individual level variables, age appears as the most statistically significant and in conformity with previous findings in the literature (Brusco et al 2004, Stokes 2005, Nichter 2008, Aparicio 2002, etc). In sum, younger voters tend to be targeted more. Gender presents a negative coefficient, as expected, but it is not statistically significant, as well as urban-rural. The sign of the coefficient for city sign follows in the opposite direction, but does not achieve statistical levels of significance. Among the variables at the

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[14] $\rho = \sigma^2_{u0} / (\sigma^2_{u0} + \sigma^2_{r})$

[15] Calculated manually based on Rabe-Hesketh and Skrondal 2008, p.304.

[16] Estimates were obtained with the command Gllamm in Stata.

voter level, two variables call attention, education and income. Both were expected to present negative coefficients, but they did not. However, the positive sign for education may not necessarily be an anomaly. Ocantos et al (2012) also found education as being positively associated with vote buying. In Brazil, Speck (2003) shows that in surveys administered in the 2000s individuals with intermediary levels education were also targeted by vote buyers (2003, p.160-165).

Results from estimates at the municipal level presented impressive results. All the variables' coefficients present the hypothesized sign and five out of six variables achieve statistical significance. With respect to the variables assessing uncertainty, both electoral competition and incumbency present highly statistically significant results ($p<0.001$). As a result, these findings strongly suggest that higher levels of uncertainty surrounding the results of elections induce vote buyers to take more risks and offer excludable goods for votes. Individuals living in municipalities with higher levels of economic inequality are expected to receive more offers for their votes than individuals living in less unequal communities. Local asymmetry in economic conditions seems to favor buyers' efforts (e.g., Ortega and Becerra 2008, Lehoucq 2003). As for the other socio-demographic variables, the output corroborates the theoretical argument that vote buying tends to be more prevalent in more extensive and less populated municipalities. As previously mentioned, monitoring becomes more feasible in areas with low population density. Voters are more easily targeted and identifiable in less densely populated areas than in densely populated areas. Municipality's size is also highly associated with vote buying offers. Larger localities correlate negatively with population density and force voters to stay more isolated from each other, which makes monitoring easier (Desposato 2002, p.16). Finally, constituency size is negatively associated with vote buying, although does not present statistical significance at $p<.10$. The result is in accord with previous findings (Speck 2003, p.165, Gingerich and Medina 2011).

Notwithstanding the fact that the multilevel analysis corroborates the theory, some may raise questions with respect to some results obtained in the paper. One of them is related with electoral competition. It is possible to conceive the possibility that vote buying may increase electoral competition rather than being affected by it, which would result in a problem of reverse causality. Although this study considers such possibility, I consider it not so feasible. In order for vote buying to increase electoral competition the amount of resources spent on it would have to be in a scale that far surpasses the possibilities of many campaigns at the local level.

With the intent of testing the theory developed here more thoroughly the next section presents a case study that has the goal of analyzing, through a different perspective, the extent to which uncertainty and socio-demographic variables affect vote buying.

Context and uncertainty: the case of Roraima

Based on information regarding mayors expelled from office for involvement in vote buying, I analyzed all publicly known cases of mayors removed from office in 2004, year for which ampler and more reliable data on political banning of mayors was available. As a result, I verified which state presented the highest number of mayors banned from office for accusations of involvement in vote buying. Roraima, in the North region of Brazil, was by far the state with the highest number of mayors banned from office for involvement in vote buying. Four of the fifteen mayors in the state were removed from their positions, a rate of almost .33 percent of the municipalities in the state. In the analysis that follows I will briefly analyze aspects of the political reality of the state with the goal of discovering whether uncertainty seems to be behind such high number of removals. By focusing on cities from the same state I make use of the subnational comparative method (Snyder 2001). Such approach

allows me to multiply the number of observations under study while it also allows me to hold constant all other political and socioeconomic variables affecting Brazilian states (also using the same approach is Desposato 2002).

Roraima is a former federal territory. It achieved state-level status by law with the Constitution of 1988, though it could only have its first governor in 1991. The state has faced a permanent migratory influx of people. As one of the reasons for such flux is the access to work in the public service without the need to take public exams. The state has approximately 30,000 public servants, including 12,000 from the Federal government and 20,000 from the state government[17].

In the electoral arena Roraima is found to present considerably higher levels of electoral volatility and political competition than other states. Since 1989 the state presents high levels of electoral volatility. Roraima is found to be considerably further from the national electoral volatility average (Bohn and Paiva 2009, p.199). In analyzing the number of change of mayors per party from 1996 to 2004, Avelar and Walter (2008) found that in the whole country in only .08 percent of municipalities the mayor's party was the same in three consecutive elections. In all municipalities of Acre, Amapa, and Roraima, there was total party turnover among elected mayors (Avelar and Walter 2008, p.103).

With respect to the degree of electoral competitiveness, Roraima also stands out. In a study of state politics in Brazil, Borges (2007) studies the variation in political competitiveness and the extent to which political elites are able to control electoral arenas. Based on an index of electoral dominance (i.e., set of indicators of party and electoral competitiveness at the state level) and on a typology of the degree of electoral competitiveness across the 27 Brazilian states, he concludes that state politics has become more competitive and fragmented (2007, p.108). Regarding Roraima, the state figures in the

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[17] Folha de Boa Vista. "Roraima tem mais de 30 mil servidores públicos". Web. 16 April 2012.

group of the most competitive states, closing ranks with Rondonia (2007, p.156). Such group is called "unstable pluralism".

As it was shown, Roraima presents a very unstable political environment at the state level. Does this instability hold at the municipal level? What can be said about the municipalities in which mayors were banned from office for being involved in vote buying activities? Based on information from the municipalities in Roraima that had their mayors banned for involvement in vote buying, I turn to a simple analysis of the main characteristics of the fifteen municipalities in Roraima. I obtained data for all municipalities on key socio-demographic and electoral variables, especially electoral competition and uncertainty. Based on this data I proceeded to a simple comparison of the mean values of such variable by dividing and comparing means from municipalities in which the mayor was banned from office (four municipalities) from the remaining cities with no reports of mayors involved in vote buying activities (eleven).

[Table 4 about here]

As Table 4 shows, the values of the means for electoral competition and incumbency differ markedly from the group of cities without mayors banned to the group of mayors banned from office. Electoral competition for municipalities with banned mayors present a mean of 4.9 compared to 10.8 from the other group. Incumbency's mean value (.25) is also lower for the group of cities with banned mayors in comparison to the mean of municipalities without banned mayors (.45). Except for urban population, Theil index, HDI, and illiteracy, all other variables' means differ considerably between the two groups. In general, municipalities with banned mayors have smaller populations, are less densely populated, and are smaller in area. In sum, even though this analysis is far from being conclusive, it is at

least suggestive by showing a pattern of contextual differences that resembles in many aspects those found in the multilevel model.

Conclusion

This study aimed at investigating and analyzing whether and how contextual factors can influence vote buyers' attempts to buy votes. It was argued that the local context in which individuals live and vote can exert considerable influence on the propensity of vote buyers to target some individuals rather than others. Vote buying attempts were assumed as being a function of the capacity to monitor voters involved in the exchange of goods for votes, as well as a function of the degree of uncertainty involving the electoral result. According to the theory develop in this paper, vote buying tends to be seen as an optimal strategy where monitoring capacity is high and electoral uncertainty is low. Otherwise, the market for votes becomes inefficient. Monitoring capacity decreases and incentives to defect from vote buying agreements increase.

By making use of survey data in conjunction with data from municipalities in Brazil, I developed a multilevel model with the purpose of investigating how the local context in interacts with some individuals' main factors commonly considered in empirical studies on vote buying. The empirical analysis confirmed most of the findings in the literature of vote buying, but went beyond by clearly incorporating contextual factors as part of the explanation involving vote buying activities and also by developing a theory that gives meaning to the interaction between individuals and the municipal context. In addition to the multilevel analysis, the paper also presented a case study with focus on the state of Roraima. The choice was based on the number of mayors removed from office for involvement in vote buying practices. Some main features of the case in Roraima underline the theoretical argument in

the paper. The state that saw a record number of mayors being expelled from office in 2004 is also a state in which politicians can hardly become incumbents, and where electoral volatility and electoral competition is high. An analysis of the municipalities in Roraima for some key variables and their mean values presented the same pattern found in the multilevel analysis, and therefore presented reasons to buttress the confidence in the findings obtained so far.

Nonetheless, much more remains to be studied in the field of vote buying. Monitoring mechanisms in developing democracies are not still completely understood. It is also unknown how institutional variables usually studied in the comparative politics literature, such as compulsory voting, affects vote buying. Broader comparative studies on vote buying that encompass a larger number of cases are still to be carried out.

References

Alvarez Rivadulla, María José. 2012. Clientelism or Something Else? Squatter Politics in Montevideo. *Latin American Politics and Society* 54 (1):37-63.

Ames, B. 2002. *The deadlock of democracy in Brazil*: Univ of Michigan Pr.

Aparicio, R. 2002. La magnitud de la manipulación del voto en las elecciones federales del año 2000. *Perfiles latinoamericanos: revista de la Facultad Latinoamericana de Ciencias Sociales, Sede México* (20):79-99.

Avelar, Lúcia, and Maria Inez Machado Telles Walter. 2008. Lentas mudanças: o voto e a política tradicional. *Opinião Pública* 14:96-122.

Blalock, H.M. 1984. Contextual-effects models: theoretical and methodological issues. *Annual Review of Sociology*:353-372.

Bohn, Simone R., and Denise Paiva. 2009. Avolatilidade eleitoral nos estados sistema partidário e democracia no Brasil. *Revista de Sociologia e Política* 17:187-208.

Borges, A. 2007. Rethinking state politics: the withering of state dominant machines in Brazil. *Brazilian Political Science Review (Online)* 2 (SE):0-0.

Bratton, M. 2008. Vote buying and violence in Nigerian election campaigns. *Electoral Studies* 27 (4):621-632.

Brusco, V., M. Nazareno, and S.C. Stokes. 2004. Vote buying in Argentina. *Latin American Research Review*:66-88.

Callander, S., and C. Wilson. 2006. Context-dependent voting. *Quarterly Journal of Political Science* 1 (3):227-254.

Calvo, E., and M.V. Murillo. 2004. Who delivers? Partisan clients in the Argentine electoral market. *American Journal of Political Science* 48 (4):742-757.

Carmines, E.G., and R.A. Zeller. 1979. *Reliability and validity assessment*: Sage Publications, Inc.

Casas, A. 2010. A Note on Optimal Vote and Turnout Buying.

Desposato, S.W. 2002. How Vote Buying Shapes the Political Arena. In *Comparative Politics of Vote Buying Conference*. Cambridge, MA.

Diez, R. 2002. A glossary for multilevel analysis. *Journal of epidemiology and community health* 56 (8):588.

Dunning, T., and S. Stokes. 2009. Clientelism as Persuasion and as Mobilization. *Manuscript, Department of Political Science, Yale University*.

Fuks, Mario. 2011. Atitudes, cognição e participação política: Padrões de influência dos ambientes de socialização sobre o perfil político dos jovens. In *IV Congresso Latino Americano de Opinião Pública da WAPOR*. Belo Horizonte.

Gingerich, Daniel W. 2012. Can Institutions Cure Clientelism? Assessing the Impact of the Australian Ballot in Brazil. In *MPSA Conference*.

Gonzalez-Ocantos, E., C.K. de Jonge, C. Meléndez, J. Osorio, and D.W. Nickerson. 2010. Vote buying and social desirability bias: Experimental evidence from Nicaragua.

Hagopian, F., C. Gervasoni, and J.A. Moraes. 2009. From Patronage to Program. *Comparative Political Studies* 42 (3):360-391.

Heckelman, J.C. 1998. Bribing voters without verification. *The Social Science Journal* 35 (3):435-443.

Helmke, G., and S. Levitsky. 2006. *Informal institutions and democracy: Lessons from Latin America*: Johns Hopkins Univ Pr.

Hox, J.J., and I.G.G. Kreft. 1994. Multilevel analysis methods. *Sociological Methods & Research* 22 (3):283-299.

Kitschelt, H., and A. Rozenas. 2011. Contingent Exchange and Contractual Opportunism: Making Clientelistic Relationships Work.

Kitschelt, H., and S. Wilkinson. 2007. *Patrons, clients, and policies: patterns of democratic accountability and political competition*: Cambridge Univ Pr.

Kramon, Eric. 2010. Vote-Buying and Turnout in Kenya's 2002 Elections.

Lehoucq, F. 2002. When do parties buy votes? Theoretical and empirical perspectives on electoral corruption. *The Comparative Politics of Vote Buying*:26-27.

Lehoucq, F. 2003. Electoral fraud: Causes, types, and consequences. *Annual Review of Political Science* 6 (1):233-256.

Lindberg, Staffan I., and Minion K. Morrison. Are African Voters Really Ethnic or Clientelistic? Survey Evidence from Ghana. *Political Science Quarterly, Vol. 123, Spring 2008*.

Luke, D.A. 2004. *Multilevel modeling*: Sage Publications, Inc.

MCCE. 2004. Base de Dados do Dossiê MCCE. Brasilia: Movimento de Combate à Corrupção Eleitoral - MCCE.

Medina, Daniel W. Gingerich and Luis Fernando. 2011. Vote Brokerage under the Secret Ballot: An Outcome Contingent Model of the Controlled Vote. In *MPSA Conference*. Chicago.

Montero, A. 2010. No Country for Leftists? Clientelist Continuity and the 2006 Vote in the Brazilian Northeast. *Journal of Politics in Latin America* 2 (2):113-153.

Morgan, John, and Felix Várdy. 2010. Negative Vote Buying and the Secret Ballot. *SSRN eLibrary*.

Mustillo, Thomas. 2012. Getting Out the Vote: Political Party Strategies Derived From the Calculus of Voting Model. In *MPSA Conference*. Chicago.

Nichter, S. 2008. Vote buying or turnout buying? Machine politics and the secret ballot. *American Political Science Review* 102 (01):19-31.

Nichter, Simeon. 2009. Declared Choice: Citizen Strategies and Dual Commitment Problems in Clientelism. *SSRN eLibrary*.

Penfold-Becerra, Daniel Ortega and Michael. 2008. Does Clientelism work? Electoral returns of excludable and non-excludable goods in Chavez's misiones programs in Venezuela. In *APSA Conference*. Boston.

Rabe-Hesketh, S., and A. Skrondal. 2008. *Multilevel and longitudinal modeling using Stata*: Stata Corp.

Rueda, Miguel R. 2012. Buying Votes with Imperfect Local Knowledge and a Secret Ballot. In *MPSA Conference*. Chicago.

Sadanandan, A. 2012. Patronage and Decentralization: The Politics of Poverty in India. *Comparative Politics* 44 (2):211-228.

Schaffer, F.C. 2008. *Elections for sale: the causes and consequences of vote buying*: Ateneo De Manila Univ Pr.

Snyder, R. 2001. Scaling down: The subnational comparative method. *Studies in Comparative International Development (SCID)* 36 (1):93-110.

Speck, B.W. 2003. A compra de votos: uma aproximação empírica. *Opinião Pública* 9 (1):148-169.

Steenbergen, M.R., and B.S. Jones. 2002. Modeling multilevel data structures. *American Journal of Political Science*:218-237.

Stokes, S.C. 2005. Perverse accountability: A formal model of machine politics with evidence from Argentina. *American Political Science Review* 99 (3):315.

Stokes, Susan. 2007. Political Clientelism. In *The Oxford handbook of comparative politics*: Oxford University Press, USA.

Szwarcberg, M. 2010. Who Monitors? Clientelism and Democratic Representation in Argentine Municipalities.

Vicente, P.C., and L. Wantchekon. 2009. Clientelism and vote buying: lessons from field experiments in African elections. *Oxford Review of Economic Policy* 25 (2):292-305.

Villela, Jorge Mattar, Ana Claudia D. R. Marques, and Bruce Dean Willis. 2006. Municipal elections: favor, vote and credit in the Pernambucan sertão of Brazil. *The Latin Americanist* 49 (2):25-63.

Wantchekon, L. 2003. Clientelism and voting behavior: Evidence from a field experiment in Benin. *World Politics*:399-422.

Weitz-Shapiro, Rebecca. 1905. What Wins Votes: Why Some Politicians Opt Out of Clientelism. *SSRN eLibrary*.

Figure 1. Policy distribution: universalistic x particularistic
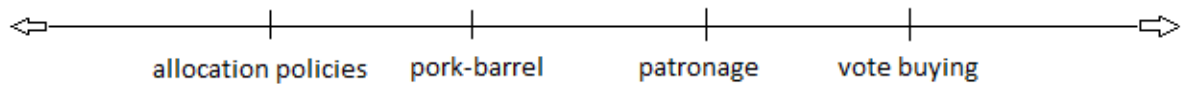
Based on Schaffer 2007.

Table 1. Summary statistics

Variable	Definition	Exp. Sign	Mean	Std. Dev.	Min	Max	Source
Vote buying	Whether a voter accepted the offer of a good (monetary or not) in exchange for her vote.		1.22	0.53	1	3	LAPOP
Urban-rural	Whether the city in which an individual lives is located in an urban or rural area.	−	1.86	0.34	1	2	LAPOP
City size	Categorical variable: small city, medium-size city, big city, or metropolitan area.	−	2.73	1.22	1	4	LAPOP
Education	Total years of study.	−	8.12	3.92	0	17	LAPOP
Gender	Coded 1 if woman, zero otherwise.	−	1.51	0.49	1	2	LAPOP
Age	in years.	−	38.8	15.65	18	89	LAPOP
Income	An individual's household income bracket.	−	2.7	1.68	0	10	LAPOP
Competition for mayor 2004	Difference in vote shares between the 1st and the 2nd place running for mayor	−	.13	.13	.0074	.8293	Ipea
Incumbency	Whether the mayor in a previous term ran for office in 2008.	−	0.64	0.47	0	1	Ipea
Ln city size (km^2)	Natural log of the size of the municipality in km^2	+	6.67	1.39	1.029619	10.43695	Ipea
Ln constituency size 2008	Natural log of the number of voters	−	11.92	2.12	7.543273	15.91944	Ipea
Population density	Number of citizens per square km	−	1176.33	1846.07	1.265969	5381.922	Ipea
Inequality (Theil Index)	It is inequality in the distribution of individuals according to household income per capita. It is null when there is no inequality and tends to ∞ when inequality reaches its maximum.	+	628.11	120.3	348	921	Ipea

Note: LAPOP (Latin American Public Opinion Project, Vanderbilt University), Ipea (Institute of Applied Economic Research).

Table 2. Variance decomposition in vote buying

Parameter	Estimate
Fixed effects (constant)	1.184***
	(91.69)
Variance components	
Individual level	-0.716***
	(-49.54)
Municipal level	0.267***
	(20.97)
N individual level	2420
N municipal level	54

Note: Entries are maximum likelihood estimates; standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 3. Multilevel model: vote buying across municipalities

Variables	β/SE	P>|z|
Urban-rural	-0.34	0.139
	(0.23)	
City size	0.01	0.941
	(0.18)	
Education	0.03*	0.012
	(0.01)	
Gender	-0.02	0.766
	(0.08)	
Age	-0.02***	0.00
	(0.00)	
Income	0.03	0.266
	(0.03)	
Competition for Mayor 2004	-4.30***	0.00
	(0.56)	
Incumbency	-0.72***	0.00
	(0.12)	
Theil index	0.003**	0.002
	(0.00)	
Ln District size	0.20**	0.003
	(0.07)	
Population density	-0.0002***	0.00
	(0.00)	
Ln Constituency size	-0.13	0.242
	(0.11)	
Constant	0.81***	
	(0.06)	
Log likelihood	-12044.378	

Note: cell entries are unstandardized coefficients from multilevel random intercept model, followed by robust standard errors in parentheses.
N individual level: 2420, N municipal level: 54
+ p<.10, * p<0.05, ** p<0.01, *** p<0.001

Table 4. Mean values of cities with and without mayors banned from office

Municipalities	Variable	Mean	Std. Err.	t	P>|t|
	Urban population	21090.27	17613.67	1.20	0.26
	Total population 2000	26640.55	17448.26	1.53	0.16
	Urban population 2000	0.4419144	0.0839799	5.26	0.00
	Population density	4.220311	3.114846	1.35	0.21
	Constituency size 2004	17732.82	12686.15	1.40	0.19
Without mayor banned	District size 2000	11442.35	2926.979	3.91	0.00
from office	Theil index 2000	0.5878182	0.0327041	17.97	0.00
N = 11	HDI 2000	0.672	0.0194123	34.62	0.00
	Illiteracy 2000	21.53673	2.055742	10.48	0.00
	Electoral competition 2004	10.80882	3.056	3.54	0.01
	Incumbency	0.4545455	0.1574592	2.89	0.02
	Urban population	3755.75	1583.378	2.37	0.10
	Total population 2000	7837.75	2200.625	3.56	0.04
	Urban population 2000	0.4493641	0.1151783	3.90	0.03
	Population density	0.4228239	0.1525923	2.77	0.07
	Constituency size 2004	4899.5	1231.489	3.98	0.03
With mayors banned	District size 2000	24563.08	8733.177	2.81	0.07
from office	Theil index 2000	0.59025	0.0429775	13.73	0.00
N = 4	HDI 2000	0.69675	0.0146366	47.60	0.00
	Illiteracy 2000	21.58925	2.866995	7.53	0.01
	Electoral competition 2004	4.916	1.630109	3.02	0.06
	Incumbency	0.25	0.25	1.00	0.39

Data source: Ipea (Institute of Applied Economic Research).