Social Networks and the Targeting of Illegal Electoral Strategies

Cesi Cruz[*]
Ph.D. Candidate
Department of Political Science
University of California, San Diego

22 October 2012

Abstract. This paper explores the targeting of illegal electoral strategies and identifies the voters most vulnerable to vote buying and coercion. The literature on social networks shows social ties and connectedness to have positive effects on a number of metrics related to politics, especially political participation. At the same time, politicians can take advantage of such network ties to engage in electoral strategies that subvert democratic processes. The same types of network structures that facilitate political participation and cooperation in established democracies may also make it easier for politicians in consolidating democracies to identify and monitor voters, facilitating illegal electoral strategies. Using a survey of 864 households conducted in Isabela Province, Philippines, I find that individuals with more social ties are disproportionately targeted for vote buying, while individuals who discuss politics with their network are targeted for electoral violence or intimidation. Understanding these mechanisms can help policymakers and local NGOs design more effective voter education initiatives and better address the needs of groups that are vulnerable to these practices.

---

[*] Draft dissertation chapter, please do not cite without permission.

Introduction

Illegal electoral strategies are unfortunately prevalent in many consolidating democracies. One factor contributing to the emphasis on such electoral strategies is the fact that politics in consolidating democracies is complicated by the inability of politicians to make credible policy commitments to voters. As a result, elections in these countries are dominated by non-programmatic appeals. Among these appeals are several strategies, including vote buying and coercion, that are common in many areas. I argue that the costs of monitoring and enforcement are the key determinants of the politician's choice of electoral strategies, and that social networks are important indicators of such costs, and determines who gets targeted.

Although the literature on social networks and social capital tend to show that such ties have largely positive implications for democracy, there is relatively little research on the implications of these ties in consolidating democracies. I argue that politicians can take advantage of network ties to facilitate illegal electoral strategies. The same types of network structures that encourage political participation and cooperation in established democracies may also make it easier for politicians in consolidating democracies to identify and monitor voters as part of vote buying and other illegal electoral strategies. To explore these issues, I designed and implemented a survey of 864 households in Isabela Province, Philippines[1] to collect data on individual social ties and experiences with the 2010 elections. Results indicate that individuals with more friends and family ties are disproportionately targeted for vote buying, while individuals who discuss politics with their social network are targeted for electoral violence and intimidation.

One potential problem with studying social ties is that they can encompass a number of different but related concepts: social standing, access to information/resources, and even community level attributes such as social capital or community collective action. In order to test which aspect of social ties is driving the results, I compare cases that vary in terms of the need for information for monitoring and enforcement. To do this, I use a novel approach separating the sample by vote secrecy, based on the rationale that monitoring and enforcement will only be necessary where the vote is in fact secret. Violations of vote secrecy can vary, but typically take the form of lists of voters and vote choice that politicians publicize to voters to encourage compliance.

The first section of this chapter presents a review of the literature on electoral strategies. The second section presents a framework for understanding the incentives of politicians to target voters for electoral strategies. I explain how social networks can affect targeting strategies because of the effects on the costs of monitoring and enforcement. The third section discusses the research design and describes the survey data used for the study. The fourth section presents and discusses the empirical results.

---

[1] The survey was funded by a National Science Foundation Dissertation Research Improvement Grant.

Electoral Strategies

There is a longstanding debate about how politicians target areas for re-election efforts. Under Cox and McCubbins's (1986) "core voter" model, politicians target their supporting constituencies. Diaz-Cayeros, Magaloni and Weingast's (2003) also find that dominant parties sustain their position using the strategic disbursement of central government funds to supporting municipalities. Similarly, Barkan and Chege (1989) show that during the 1980s, funding for road construction in Kenya was targeted to areas that supported President Daniel Arap Moi.

By contrast, Lindbeck and Weibull (1987) argue that parties target "swing" voters, which rewards undecided or unmobilized voters. In India, for example, Khemani (2003) finds that central government resources are strategically targeted to areas where the party can potentially win additional seats rather than to their core bases of support. Schady (2000) also finds that allocations from the Peruvian Social Fund FONCODES were targeted to provinces where the increased funds were expected to have the greatest electoral effect.

A good starting point for understanding political strategies as a whole is the role of information for fostering credible political commitment. Information is important for understanding the individual level implications of politician strategies in both well-established and consolidating democracies. Both Cox and McCubbins's (1986) "core voter" model and Lindbeck and Weibull's (1987) "swing voter" model are premised on the ability of politicians to identify "core" vs. "swing" groups of voters. In this context, Dixit and Londregan (1996) find that the presence of informational advantages affects the strategies parties use when targeting groups for redistribution. In other words, parties target moderates for redistribution only when there are no informational advantages within their group; otherwise, parties target their core constituency. Information is also implicit in models that focus on individual voter characteristics for targeting. For example, Grossman and Helpman (2005) suggest that politicians choose voters who are comparatively better informed, while Dixit and Londregan (1996) identify poverty as a factor that makes voters attractive targets. In a new paper on vote buying, Finan and Schechter (2012) claim that politicians specifically target voters that are known to follow norms of reciprocity. All of these models presuppose that politicians and political operatives have sufficient information to use these criteria for targeting.

However, in political environments without meaningful differences between parties and programs, the "core" vs. "swing" distinction is less helpful. Campaign promises are not credible and there are no ideological divides between parties that politicians can use to stake out positions. In addition, at the most basic level, for electoral institutions to function as mechanisms for accountability, voters need to be sufficiently informed to be able to attribute political outcomes to the actions of the government and their representatives (Popkin, 2007). The need to assume that voters have sufficient information about politics may make these theories less applicable for developing countries, where the mechanisms for transmitting political information may differ (Platteau and Abraham, 2002). In fact, Keefer (2005) identifies a lack of information about the performance of politicians as one of three broad types of "political market imperfections" that hamper accountability in developing countries.

One way to understand the role of information for the targeting of political strategies is through social network analysis, because of the importance of networks for providing information. Social networks are defined as "finite sets of actors and the relation or relations defined on them" (Wasserman and Faust, 1994). Social networks are often included in broader definitions of social capital, and a social network approach can be used to understand how individual relationships and ties can inform political behavior (Granovetter, 1973; Putnam, 2000). For example, Claibourn and Martin (2007) find that membership in voluntary associations improves accountability by providing a venue for transmitting and receiving political information that enables citizens to evaluate politicians based on policies.

This research also builds on the existing literature on social networks field experiments in Africa. Collier and Vicente (2008) find that the effects of an anti-violence campaign spread through social networks. In a similar study, Fafchamps and Vicente (2009) confirm that this spread of information is due to both a diffusion and reinforcement effect.

I use a social network approach to analyze how village-level social structures and individual relationships correlate with politician strategies for winning elections. Social networks transmit political information and political cues, and different configurations of social networks are associated with changes in the costs for monitoring and enforcement of political exchange and coercion. Social networks are particularly important in consolidating democracies like the Philippines. In the Philippines, the media (newspapers, radio, and television) is the primary source of political information for national politics, but not necessarily for local politics. According to Campos and Hellman (2005), 98 percent of survey respondents list the media as a source of political information about national politics, but that number drops to 58 percent for information about local politics. In fact, 42 percent of respondents cite community leaders, personal and social networks as a source of information about local politics (Campos and Hellman, 2005). Furthermore, survey data collected on 1,800 households in 4 provinces 2 months prior to the May 2010 elections indicate that about a third of respondents indicated that preferences of family and friends would influence who they vote for.

Theory and Hypotheses

Illegal electoral strategies thrive in political environments where politicians cannot credibly commit to campaign promises and party platforms. Where elections do not function as accountability mechanisms, political operatives and goons become a necessary intermediary between politicians and citizens, by monitoring and enforcing political commitments. In contrast to well-established democracies, where voters hold politicians accountable for campaign promises, accountability works the other way in the Philippines, where intermediaries are needed to be able to ensure that voters are keeping their end of the bargain for either vote buying or coercion. For vote buying, the main concern for politicians is that voters might accept the money, but then vote for a different candidate. For violence and intimidation, politicians need to verify that the targeted voters comply with voting instructions (usually they are asked to stay home) and that they do not report the acts to the authorities.

In terms of the theory, one important characteristic of illegal electoral strategies is the fact that there are no institutional or government means of enforcing agreements between politicians and voters. In other words, politicians cannot go to the authorities to complain about voters accepting money and then reneging on the promise to vote, for example. As a result, for illegal electoral strategies to succeed as alternative ways of political organization, these strategies must be self-enforcing. Self-enforcing solutions are established when the costs of reneging or benefits of compliance are high enough to provide actors with sufficient incentives to comply with the agreement regardless of the time consistency of their preferences (Morrow, 1994). This implies endogenous mechanisms for enforcement(Calvert, 1986). As a result, self-enforcing agreements are particularly appropriate for situations in which monitoring is difficult (as in vote buying) or enforcement costs are prohibitively high (as in coercion). These features make the logic of self-enforcing agreements particularly applicable to the informational and dynamic commitment problems inherent in illegal electoral strategies.

According to Morrow (1999), there are two main mechanisms that contribute to self-enforcing agreements: 1) increasing the costs of reneging; or 2) increasing the benefits associated with compliance. Although politicians may use a mix of strategies in maintaining their political position, electoral violence primarily uses the first of these mechanisms and vote buying uses the second. Another way to think about the difference is through the analogy of “carrots and sticks”: rewarding compliance (vote buying) vs. punishing non-compliance (coercion).

Vote Buying

Vote buying is most commonly understood as a form of political exchange in which politicians give gifts or money to individuals in exchange for electoral support. At the same time, it has a variety of forms all with different implications for politics. There are varying levels of verification and compliance, which means that vote buying can comprise everything from advance payments in the context of a clientelistic relationship, wages for election monitoring and other services, and gifts with no explicit agreement regarding vote obligations (Schaffer and Schedler, 2007). Nichter (2008) also identifies an alternative called "turnout buying," which rewards unmobilized supporters for going to the polls, but does not require monitoring of vote choice. In most rural centers in the Philippines, vote buying is prevalent, and journalists working closely with the Philippines Elections Commission report that the going rate for votes in the 2007 elections ranged from P50 to P1500, approximately \$1.11-\$33.42. According to politicians and journalists, at least in the national capital region, vote buying in the 2010 elections increased to P500 to an astonishing P5000 per household, approximately \$11.14-\$111.40.[2].

Vote buying involves an ex ante exchange of targeted benefits for political support–a transaction fraught with uncertainty. According to Nichter (2008), how this occurs in the context of a secret ballot is a puzzle, because once voters accept the money or gifts, there is nothing preventing them from voting against the candidate once they're in the voting booth. Because the transaction is illegal, there are no formal mechanisms for enforcement or recourse. Candidates can hardly complain to the authorities that they've been cheated, for example. As a result, vote buying is associated with monitoring and verification costs. Monitoring costs can include monitoring turnout, monitoring vote choice directly, or doing both (Nichter, 2008). Because turnout is observable, the cost of monitoring turnout is less than the cost of monitoring vote choice directly (Nichter, 2008; Stokes, 2005).

As a result, creating incentives for compliance with vote buying necessarily involves improvements in monitoring. This is because if everyone was able to receive money for vote buying regardless of whether they went on to vote for the politician, then there are no incentives to comply. These improvements in monitoring can either come from improvements in the technology of monitoring, such as developing techniques either for individuals to prove to politicians that they voted accordingly or for removing the discretion of voters entirely. For example, before the 2010 elections, when ballots were cast and counted by hand, carbon paper was a popular method of allowing voters to record their vote choice and present it as proof to the politician. By contrast, when electronic voting machines were used in the 2010 elections, removing voter choice in the matter by issuing pre-filled ballots was the preferred method of guaranteeing vote buying.

---

[2] Author interviews, May 2010

But as you can imagine, these methods can be very costly and difficult to implement. According to interviews with both politicians and political operatives, these types of methods are not the preferred means of conducting vote buying. In their view, vote buying works best when taking advantage of norms of reciprocity or builds on existing relationships between the politicians and citizens. This is consistent with the findings of Finan and Schecter (2012) in which citizens who exhibit norms of reciprocity are more targeted for vote buying. As one mayor told me in the interviews, using carbon paper or other methods of direct verification of the vote are "for amateurs and politicians with more money than sense."[3]. For these politicians who do not rely on direct verification for vote buying, the key is in group monitoring. Like Nichter's (2010) concept of turnout buying, group monitoring is less costly for politicians because they only have to observe the behavior of large groups and not individual vote choice.

Social ties can reduce the costs of monitoring through two related mechanisms. First, social ties facilitate group monitoring by enabling politicians to identify networks of voters for vote buying. Second, social ties create incentives for individuals to comply with vote buying arrangements because connectedness makes it more likely that others will know how you voted. For example, one of the respondents in the pilot surveys explained to us that he didn't think that politicians could necessarily find out how people voted individually by hacking into Comelec's databases or bribing officials for a list, but rather because his family and friends in the barangay are all very close knit and tend to vote together, politicians would know how they voted as a whole (i.e., group-based monitoring). Similarly, Brusco, Nazareno and Stokes (2004) suggest that party operatives in Argentina are able to make a reasonable assessment about the vote choices of individuals based on group monitoring.

The fact that connectedness makes it more likely that others will know how you voted means that one implication of having a larger social network is that the cost for using indirect methods for monitoring decrease. Because the most successful exercises of vote buying involve indirect monitoring, I hypothesize that the more socially connected individuals will be disproportionately targeted for vote buying than the less connected.

Hypothesis 1: For individuals, more social ties increases the likelihood of being targeted for vote buying.

Electoral Violence and Intimidation

Electoral violence and intimidation refer to acts of coercion that are intended to influence or interfere with the electoral process. This definition encompasses both acts of violence and intimidation, and acts committed by both the incumbents and the opposition candidates.[4] According to Comelec, there was an increase in elections-related violence in the 2010 Philippine elections (Comelec 2010). The Philippine National Police reports that 567 out of the 1600 municipalities in the Philippines experienced some form of elections-related violence.

---

[3] Author interviews, Isabela Province, April 2010

In the Philippines, electoral violence and intimidation tend to be associated with what Sidel (2004) terms "bossism," and refers to the phenomenon of local strongmen dominating electoral politics absent the traditional patterns of clientelist political exchange. This also explains why the politicians that act as bosses engage in different political strategies to consolidate power than those that rely on patron-client relations. Because bosses lack the long-standing ties to the community and the reputational mechanisms for credible commitment, they require direct means of enforcing exchange agreements, such as coercion and intimidation. One example of bossism from the 2007 elections in the Philippines was an incident in Barangay Tanza in Negros Occidental. Armed men entered four farms to put indelible ink on the fingers of all the farm workers so they were unable to vote.

In contrast to vote buying, monitoring is less of an issue for electoral violence and intimidation. Coercion typically doesn't require knowing the individual's vote choice (as in vote buying) nor a long-standing relationship (as in clientelism). Electoral violence and intimidation are generally used as strategies to induce voters to stay home (negative inducement). As Nichter (2008) and Stokes (2005) assert, turnout is much easier to monitor than vote choice. As a result, the main issue for coercive strategies is the cost of enforcement, which makes coercion an inherently expensive strategy. Not only are guns and goons expensive to obtain and maintain, but any outright exercise of coercion runs the risk of prosecution by the authorities or retaliation by rival groups. This dynamic leads to the seemingly paradoxical result that the most effective uses of coercion as a strategy are in areas that are completely peaceful. As a result, coercion relies on the logic of deterrence, in the sense that the most effective coercive strategies are those that are so convincing that they do not need to be enforced in the first place. In terms of strategies for the politicians, this involves sending credible signals to the populace that any acts of defiance against the politician will be met with the harshest measures. This means that proper assessment of coercive strategies requires considering both electoral violence and intimidation, because the areas where coercive strategies are the most effective are also the areas that are completely devoid of electoral violence. According to one political operative, the most coercive strongmen are the ones that never have to resort to violence in the first place.[5] Another political operative put it in these terms: the best arrangement for coercion is "having a lot of guns, but using very few bullets."[6] The references to firearms are hardly metaphorical: hundreds of people are killed as a result of elections-related violence every election.

---

[4] Some studies differentiate between the specific types of acts or between the actors committing the violence. For example, Hafner-Burton et. al. (2012) focus specifically on government-sponsored violence.

[5] Author interviews. May 2010

The conventional wisdom tends to point to a positive effect of social ties in reducing violence, and the possibility that social network ties might decrease the likelihood of being targeted for electoral violence or intimidation. This is because strong social networks can serve a protective function, with neighbors, friends, and family members looking out for one another. Survey respondents often refer to safety in numbers and social cohesiveness as strategies to combat electoral violence and intimidation–going to the polls with friends and family, or volunteering to serve as elections observers with the community.[7]

However, social networks can also facilitate coercive strategies in two ways. First, because coercive strategies are inherently costly, politicians need to find cost-effective ways of identifying the best targets for coercion. As a result, we would expect that politicians engaging in coercion would focus their efforts on the individuals and groups that pose the greatest threat to their candidacy. Social network structures can help politicians identify targets by indicating politically influential individuals, such as rival candidates or vocal opponents. These individuals would be expected to be centrally located in social networks and to have not just many ties, but politically-relevant ties.

Hypothesis 2a: Individuals with more politically relevant social ties are more likely to be targeted for electoral violence or intimidation

Second, targeting individuals that are prominent in the social network has two positive side-effects for the coercive politician: 1) it sends a strong signal of the intent and ability to coerce; and 2) targeting a central individual is more likely to spread the effects of intimidation. Signaling resolve involves making it clear that the politician is both willing and able to effectively coerce. Therefore, understanding the position of individuals in the social network is important for politicians to be able to maximize the signaling potential of acts of coercion. For example, Collier and Vicente (2008) have shown that the effect of anti-violence campaigns can spread through social networks. In this model, just as the positive anti-violence message can spread through social networks, so can the negative message of intimidation. In fact, a full 20% of respondents (168) reported that fear of reprisal by politicians was one of the top three determining factors for their vote choice.

Hypothesis 2b: Individuals that are more central in social networks will be more likely to be targeted for electoral violence or intimidation

---

[6] Author interviews. May 2010

[7] Author interviews. Isabela Province, May 2010

Research Design

This study uses a two-pronged approach to explore the link between social networks and electoral strategies–testing the hypotheses on targeting and testing the mechanism behind the relationships.

This study addresses the issue of targeting political strategies by exploring the link between social networks and electoral strategies at the individual level. Although network variables are often understood in terms of groups, individuals can also have network attributes. Individuals can be differentiated by their position in the social network or the number and quality of ties that they have to other individuals. The data collected in the surveys will be used to calculate two types of social networks measures: size of social network and centrality. In-degree is the simplest measure of social ties and refers to the number of people who are connected to the respondent. Centrality in this context can be used to identify influential actors by accounting for the relative importance of an actor for connecting people and groups. Betweenness centrality (Freeman 1977) is the number of shortest paths in the network that pass through the actor, while eigenvector centrality (Bonacich 1972, 1987) calculates the prestige of an actor weighted by whether the other actors connected to the actor are themselves influential.

To test the mechanisms behind the relationship between social networks and electoral strategies, I exploit differences in vote secrecy. This is based on the rationale that the monitoring and enforcement costs associated with vote buying and coercion will only be relevant in areas where the vote is secret. One common way that politicians are able to violate vote secrecy is through obtaining lists of voters and vote choice that they then publicize to voters. These lists are typically obtained by bribing elections officials, although in some cases, political operatives report that the lists are fakes: merely lists of voters by precinct that the politicians claim allows them to see how everyone voted. But whether the lists are fake or not, as long as voters have the perception that the secrecy of the ballot can be violated, the need for monitoring and enforcement of illegal political strategies is diminished.

Case Selection and Sampling

The Philippines provides an excellent laboratory for studying political strategies. Local politicians use the entire menu of political strategies: buying votes, intimidating and harassing voters, stealing ballot boxes and bribing elections officials. There are even a few politicians that are known for good performance and improving service delivery. As part of this project, I conducted a set of household and politician surveys in Isabela Province, the second largest province in the Philippines. Isabela province is primarily agricultural and considered to be the rice and corn granary of Luzon. The province has a total land area of 10,665 square kilometers, representing almost 40 percent of the regional territory. It is the largest province in Luzon and second largest province in the country in terms of land area. One of the considerations in selecting the province of Isabela was the availability of a large number of municipalities (35 in total) and barangays that would likely have interesting sources of local variation. Comparing local government units within a single province removes much of the concern with institutional and regional/cultural differences and allows for a focus on the factors that make vote buying and coercion attractive electoral strategies.

The surveys I designed for this project build on data from from a 1200 household survey of local service delivery and policy environment in Isabela that I helped design and implement. This survey was funded by the World Bank and administered with the assistance of the University of the Philippines, Los Baños (covering 30 municipalities out of the total 35 in Isabela province, 2 barangays per municipality and 20 households per barangay). The advantage of using data from this existing survey is that it provides a baseline of relevant political and social network variables before the 2010 election, including data on vote buying, clientelism, and electoral violence.

The survey for this project is a more in-depth analysis of 4 municipalities in the province (one sixth of the municipalities covered in the original survey), covering 36 households per barangay, 6 barangays per municipality, and a total household sample of 864. The municipalities are randomly selected from the 30 municipalities from the baseline World Bank survey. Within each municipality, the survey covered the two barangays from the baseline World Bank survey, and four additional barangays chosen using sampling with probability proportional to size (PPS). PPS sampling means that the probability of selecting a barangay (the sampling unit) is proportional to the size of its population. This ensures that households in populous barangays have an equal probability of being included in the sample as households in smaller barangays. This sampling method is well-suited to situations in which the administrative units relevant for the study vary in size.[8]

Dependent Variables

The main issue with all of the dependent variables in this study is the fact that they are difficult to measure for a number of reasons. The most daunting are sensitivity and social desirability issues. Vote buying, electoral violence, and intimidation are all illegal, even if the laws that forbid them are not always consistently enforced in the Philippines. As a result, I designed the survey to use a variety of techniques in an attempt to mitigate these problems, including shielded response techniques and list experiments to address sensitivity issues and multiple measures of the same concept (including measures at different levels) to partially address the problem of insufficient information.

---

[8] By contrast, the World Bank survey uses an unusual sampling strategy of selecting only from the poorest barangays, on the rationale that the survey results were intended to design projects for the poorest villages. For this project, however, a more conventional sampling design was chosen.

The vote buying variable at the individual level is a dummy variable that takes the value of 1 if the respondent was offered money for his/her vote and 0 otherwise. All in all, 277 (32%) of the total 864 respondents reported being offered money for their vote. Again, although vote buying is a sensitive question, the structure of the question reduces the sensitivity (i.e. asking whether they were offered money for their vote vs. asking if they sold their vote). In addition, I used an unmatched count technique to estimate the rate of under-reporting of vote buying at the barangay level. The unmatched count method presents respondents with a set of statements that could have potentially happened to them in the most recent 2007 municipal elections and respondents are asked only to report the number of items that happened to them, and not which items happened to them. Treatment and control groups are assigned randomly, and the control group receive a set of control statements that are largely neutral and infrequent, while the treatment group receives the same set of control statements, plus the additional statement: "Someone offered me money or gifts for my vote." Because the groups are randomly assigned, I can estimate the prevalence of vote buying in the barangay by merely comparing the means of the treatment and control groups, on the rationale that any additional increase in the average number of items reported can be attributed to vote buying. The results from the unmatched count technique indicate no significant under-reporting of vote buying at the barangay level.

For electoral violence, respondents were asked whether they were targeted or witnessed an act of electoral violence or intimidation. As can be expected, there are very small numbers of people reporting being targeted or witnessing electoral violence or intimidation: only 30 (3.5%) out of a total sample of 864. There are also important caveats with regards to these results for electoral violence. Pilot studies in Laguna Province show that there is under-reporting of both phenomena, especially intimidation, even using shielded response survey methods. This is partly because the act of intimidating or threatening violence in itself makes people more reluctant to report it. As a result, for the actual surveys in Isabela province, I used media reports and key informant interviews at the barangay level to check and confirm the numbers. At the same time, even these methods of cross-checking are limited because there are no available sources for verifying the individual level responses (even lists of victims and witnesses are often unavailable from official sources).

Independent Variables

The social network variables used in this analysis focus on the size and characteristics of the individual's social network, particularly the number of close friends, friends that discuss politics, and the number of family ties in the village. Close friends are defined as friends that see each other at least 2-3 times a month. The module on networks also asks respondents to indicate which of their friends they discuss politics with, while family ties refer to family living in the barangay but not in the same household (in other words, even if the family living in the household were extended family, they would not count as additional family ties). Respondents were asked to name all of their family and friends living in the village. For each person that the respondent named, they were asked follow-up questions about the strength of the social ties, including how often they interacted with the person and whether they discussed politics with the person.[9]

This detailed module on social networks is used to generate two types of measures: out-degree and centrality. Out-degree is intended to approximate the size of the individual's social network, while centrality is a measure of the individual's position in the social network. The out-degree measure is generated simply by summing the number of social ties reported by the respondent, and is intended to capture the size of the respondent's social network. Centrality is more complicated, and is measured in two different ways: betweenness centrality and eigenvector centrality. Betweenness centrality refers to the number of shortest paths in the network that pass through the actor, while eigenvector centrality scores are proportional to the sum of the centralities of actors to whom the actor is connected.[10] Conceptually, betweenness centrality assesses the extent to which the actor serves as an important link between other individuals and groups, while eigenvector centrality assesses the prestige of the actor, based on whether the other actors connected to the actor are themselves influential.

The two different measures are necessary because of the different implications for illegal electoral strategies. For vote buying, because the theory focuses on the role of social networks for facilitating group monitoring, the main consideration is the number of social ties, measured simply by the number of friends that the respondent reports having. For violence, the theory focuses on the role of social networks for effective targeting to signal politician type and maximize the effect of potential intimidation, which means that the relevant aspect of social networks for understanding violence and intimidation is prestige and centrality, and not merely the number of social ties. As a result, what matters is not the number of friends, but the number of friends with whom the respondent discusses politics. Similarly, the following factors also matter: 1) centrality, or being centrally located in the social network or serving as links between different groups (betweenness centrality); and 2) prestige, in the sense that they are connected to other actors who are also well-connected (eigenvector centrality).

---

[9] These indicators are important because in some smaller villages, people are either related to or friends with all the other residents.

[10] Centrality measures are calculated using the betweenness and evcent routines for the iGraph package in R.

The main control variables identified in the literature on vote buying are income and level of education. These factors are important because poorer and less-educated voters may be more inclined to exchange their vote for money or gifts. For example, when describing the targets for vote buying, one mayor mentioned that the municipality where the university was located was one area where neither side would buy votes, because the people there are wealthier, more educated and "can't be bought."[11] Poverty is measured using the responses to the household survey question on whether the household experienced hunger at any point in the past three months but was unable to purchase food to eat. Results are robust to using alternative measures of poverty, including the proportion of malnourished children in the household (both self-reported and using data from Operation Timbang, a nationwide child weighing initiative in which all villagers are required to participate). The education control variable measures the highest level of education completed by the respondent.

Electoral competitiveness can be measured by the margin of victory in the previous 2007 elections, taken from data on electoral results by municipality.[12] Electoral competitiveness is expected to affect politician strategies. At the same time, it is possible that electoral competitiveness primarily affects the intensity of politician efforts, but not necessarily their political strategy. For example, in terms of vote buying, it is reasonable to expect that competitive elections will lead to a higher price per vote compared to districts with less competitive elections, but will not determine which individuals politicians will choose to target.

Two more control variables are included to get at the logistical costs associated with the different electoral strategies. The first is access, measured using the travel time to the urban center, using the most common mode of transportation available to the household. This variable is expected to have a negative effect on electoral strategies requiring on-the-ground presence, such as vote buying. This is because in order to buy votes, politicians need to have people in the villages to distribute the cash, and politicians may concentrate their efforts on more easily accessible areas. The other variable that can affect the logistics of different electoral strategies is the time lived in the area, reported by household during the surveys and aggregated as a barangay average. This is important for electoral strategies because it can indicate the need for short-term strategies such as buying votes directly or engaging in violence or intimidation, instead of more long-term strategies such as building clientelist relationships. For example, a mayor in Laguna province interviewed for the pilot surveys cited vote buying by his opponent as his biggest electoral challenge for the 2010 elections because there have been more migrants to his municipality in recent years and these new arrivals do not know of him or the services that he has provided to the people in the municipality over the years.[13] The length of residence of voters is measured using the average number of years that respondents reported living in the barangay.

---

[11] Author interviews, Laguna, Philippines (November 2009)

[12] Results are also robust to using an average of the previous three elections.

Because I am interested in how social networks affect monitoring and enforcement for political strategies, I use a control for volunteer community activities (bayanihan), in an attempt to distinguish the effect of collective action and cooperation that are commonly associated with social networks in the literature. The concept of bayanihan began with the tradition of helping families move; in this case, the entire village would literally carry the house (typically on bamboo poles) to its new location. Bayanihan is strongly engrained in Philippine culture and predates the colonial period. These days, bayanihan refers to community-driven volunteer efforts. Examples include community efforts to build an irrigation system, clearing brush, sprucing up the public school or cleaning up trash around the barangay.

Last, I control for religion, using a dummy variable that takes the value of 1 if the respondent attends some form of religious service or activity at least once a month. Being part of a church is expected to affect the number of social ties an individual has, and as a result, it is important to understand whether the ties themselves are important or whether its participation in the religious activity. This is especially important in the Philippines because of the prominent role that religion has traditionally played in politics, from helping orchestrate the "People Power" revolution that ousted then-dictator Ferdinand Marcos from power to participating in "People Power II" to force then-President Estrada from power. More recently, the Catholic Church has used its considerable influence to block government-led efforts to provide contraceptives as part of women's health services.

Model Specification

For vote buying and electoral violence, I estimate the following equation using logistic regression with standard errors clustered by barangay:

$$Pr(Strategies_{ij} = 1|X_{ij}) = P(\beta_1(SocialTies_{ij}) + \beta_2(Controls_{ij}) + \gamma_j + \epsilon_{ij})$$

where $Strategies_{ij}$ refers to the set of dependent variables for political strategies: vote buying and electoral violence for household i in district j during the 2010 elections. $SocialNetworks_{ij}$ is a set of variables indicating social ties: number of friends and the number of friends with whom the respondent discusses politics.[14] $Controls_{ij}$ represents a vector of household-level control variables that are expected

---

[13] Author interviews, Laguna, Philippines (November 2009)

[14] Additional specifications also use prestige and other measures of the individual's position in the

Table 1: Summary Statistics

	Mean	Standard Deviation
Offered Money for Vote	.3228438	.4678363
Electoral Violence or Intimidation	.0347222	.1831814
Number of Friends	3.043981	1.930522
Number of Friends that Discuss Politics	1.085648	1.811404
Bayanihan	.512761	.5001273
Attends Religious Services	.4861111	.5000966
Years lived in the barangay	20.34587	13.18756
Travel Time to Urban Center	43.28588	40.78381
Experienced Hunger	.1377315	.3448175
Education	3.388889	1.652742
Margin of Victory 2007	.1376848	.0738379
Observations	864	

to affect the targeting of electoral strategies, namely poverty, education, travel time to the urban center, length of residence, and religious activity. District fixed effects are represented by γ_j and captures district-level characteristics that are shared across households in the same district, and ϵ_{ij} is the error term.

All of the results are robust to alternative estimation methods, including OLS and rare events logit (King and Zeng, 2001). Results are also robust to using a multi-level (hierarchical) model with variables corresponding to municipal and barangay-level effects (results not reported).

Empirical Results and Discussion

Vote Buying

This section presents the findings of the empirical analysis on the effects of social networks on vote buying. Table 1 presents the results for the two social network measures and vote buying. As expected, the number of friends is positively associated with vote buying. These are the odds ratios reported, which implies that a one unit change in the number of social ties increases the odds of being offered money for your vote by a factor of 1.1. In terms of probabilities, going from having no friends to having ten friends increases the likelihood of being offered money for your vote from 26% to 43% (marginal effects graphs are available in the appendix). This result lends support to the hypothesis that being part of a social network makes it easier for politicians and political operatives to use group monitoring to ensure turnout and vote choice. This result is robust to

---

social network. But because results were robust to alternative operationalizations of the social ties variables, I chose to use the simplest measures.

alternative ways of specifying social ties, such as counting both family and friend ties (Table 1, Model 2).

A number of control variables are also found to be important determinants of vote buying. Bayanihan, or community-based volunteer work, is positively associated with vote buying, indicating that politicians may disproportionately target those that are more involved in the community. As expected, the margin of victory is negatively related to vote buying. Large margins of victory indicate uncompetitive elections, which gives candidates less incentives to engage in vote buying to begin with. Last, access is an important factor for vote buying, as indicated by the negative coefficient for travel time to the urban center. Vote buying requires resources on the ground–political operatives are needed to reach the households to distribute the cash.

Table 2: Social Network Ties and Vote Buying

	Offered Money for Vote	
Friend Ties	1.096**	
	(0.0461)	
Friend and Family Ties		1.082***
		(0.0256)
Bayanihan	1.691***	1.639***
	(0.253)	(0.248)
Attends Religious Services	0.940	0.928
	(0.171)	(0.170)
Years lived in the barangay	0.995	0.994
	(0.00636)	(0.00646)
Travel Time to Urban Center	0.991***	0.992***
	(0.00327)	(0.00328)
Experienced Hunger	0.711	0.706
	(0.180)	(0.179)
Education	0.984	0.990
	(0.0687)	(0.0697)
Margin of Victory 2007	0.00114***	0.00117***
	(0.00208)	(0.00214)
District Fixed Effects	Yes	Yes
Observations	856	856

Logistic regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

Violence and Intimidation

Table 2 presents the results for the social network measures and electoral violence and intimidation. Here, the number of friends with whom the respondent discusses politics is positively and significantly related to being targeted or witnessing electoral violence. Each friend that the respondent discusses politics with is associated with an increase in likelihood of being targeted or witnessing violence or intimidation by a factor of 1.16. In terms of probabilities, going from no friends that you discuss politics with to ten friends increases the probability of witnessing or being targeted with violence or intimidation from almost 2% to just under 10% (marginal effects graphs are available in the appendix)[15].

Centrality in the social network is also found to be positively and significantly related to electoral violence or intimidation (results for betweenness centrality are reported, but results are similar for eigenvector centrality as well). Compared to vote buying and clientelism, which are both forms of political exchange, violence and intimidation do not involve a transaction that requires monitoring and verifying. But because these actions are costly, politicians engaging in violence and intimidation focus their efforts on the individuals and groups that pose the greatest threat to their candidacy: politically influential individuals, rival candidates, etc.

In addition, focusing on politically prominent and central individuals in the networks also benefits the politicians in other ways. First, it sends a signal that the politician is willing and able to coerce. Second, targeting individuals that are prominent and central is more likely to spread the effects of intimidation. The following figure (Fig. 1) illustrates the importance of centrality for violence. The red dots indicate witnessing or suffering violence, and as can be seen in the figure, the red dots tend to be more centrally located in the network and serve as the links between different parts of the network. By contrast, although green dots are also found in central positions, for the most part, green dots are in the periphery of the network.[16]

As for the control variables, one consistent result is education: level of education is positively related to being targeted or witnessing violence or intimidation across all specifications. This suggests that the vulnerable and marginalized individuals are not the ones that are targeted for violence and intimidation. Margin of victory is also negatively related to violence and intimidation. Much like vote buying, electoral violence and intimidation increase when the elections are more competitive.

---

[15] Note that the relatively smaller number of incidents of violence and intimidation gives us much larger confidence intervals, and affects our ability to make accurate forecasts at each progressive level of social ties.

[16] This figure is for illustrative purposes only; the spread of intimidation and other outcomes is discussed and analyzed in the next chapter.

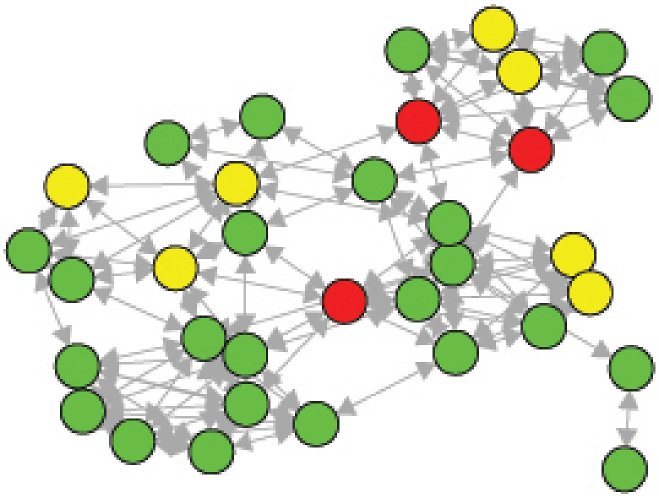

Figure 1: Networks in a village in Burgos, Isabela, 2010. Red dots indicate witnessing or suffering violence, yellow dots indicate intimidation, and green dots are respondents that did not report any form of coercion.

Table 3: Social Network Ties and Electoral Violence and Intimidation

	Electoral Violence or Intimidation	
Friends that Discuss Politics	1.162**	
	(0.0713)	
Centrality		1.329*
		(0.214)
Bayanihan	1.435	1.399
	(0.452)	(0.426)
Attends Religious Services	0.951	0.922
	(0.333)	(0.318)
Years lived in the barangay	1.004	1.008
	(0.0147)	(0.0146)
Travel Time to Urban Center	0.984	0.984
	(0.0102)	(0.00992)
Experienced Hunger	2.002	1.962
	(1.145)	(1.146)
Education	1.283**	1.287**
	(0.137)	(0.146)
Margin of Victory 2007	0.000239*	0.000236*
	(0.00121)	(0.00119)
District Fixed Effects	Yes	Yes
Observations	862	862

Logistic regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

Testing the mechanism: vote secrecy

One issue when studying social networks is that they can be associated with a number of different concepts with implications for politics: social capital, collective action, and information, to name a few. This analysis tests the underlying mechanism behind the relationship between social networks and political strategies with a novel approach using vote secrecy. I argue that social networks affect the choice of political strategy because of the role that social networks play in making it easier for politicians to monitor voter behavior and enforce agreements.

Vote secrecy can be used a way to test the mechanism behind the relationship between social networks and illegal strategies because the very nature of illegal strategies implies that there are no external or institutional means of enforcement. Politicians can hardly complain to the authorities, for example, if they make illegal agreements with voters and the voters do not keep their end of the bargain. In other words, even if villagers swear to the armed goons that they will support the local boss at the voting booth, if the secrecy of the ballot is not violated, there is no way to ensure that the villagers kept their part of the deal. Similarly, for vote buying, in the presence of a secret ballot, there is nothing stopping voters from accepting money from politicians and voting their conscience once they're in the voting booth.

One way to test whether this is indeed what's happening is to compare cases where the vote is secret (and hence monitoring and verification are needed) with cases where the vote is not secret (which implies that monitoring and verification are unnecessary). In these specifications, the expectation is that the strategies that do not require monitoring and verification will have the same results as the pooled sample, while the strategies that do require monitoring and verification will have significant results only when the vote is secret.

Vote secrecy is measured using a module in the household surveys on whether the respondent thinks that politicians or political parties can find out how he/she voted. If the respondent answers "yes," a follow-up question asks how they think the politicians can find out. By far the most common response given by respondents to this follow up question is that politicians have access to a list of all the registered voters by name and how they voted. An advantage to using surveys to measure vote secrecy is that politicians have strong incentives to disclose violations of vote secrecy, because they want voters to know that the vote is not secret.[17]

One respondent described how allies of one mayor went around to all of the barangays before the election to show that they had access to such a list.[18].

---

[17] This is in contrast to fraud, which politicians actively try to hide.

[18] Author interviews, May 2010

Although voters might not necessarily be right (i.e., the lists may be fake or the assertions that politicians know how they voted may be untrue), the important part of this dynamic is whether the voters believe that the vote is secret. As one mayor in the pilot surveys explained to us, "it doesn't really matter" whether he can find out how people voted or not: "what matters is that my constituents believe that I can."[19] In other words, once voters believe that he can find out how they voted, he no longer needs to resort to costly means of monitoring vote choice for vote buying or costly means of enforcement for coercion.

My theory of social networks as mechanisms of verification and monitoring is similarly confirmed by examining the results for vote buying. In contrast to clientelism, table 5 below shows that social networks only matter for vote buying when the vote is secret. This is because the monitoring and verification requirements of vote buying are the highest among the political strategies. When politicians have access to direct information about vote choice, it removes the need to use social networks as shortcuts for information for group monitoring and verification.

Table 4: Table 3: Social Networks and Vote Buying, Split Sample by Vote Secrecy

	Offered Money for Vote	
	Secret Vote	Vote Not Secret
Friend Ties	1.149***	0.922
	(0.0560)	(0.0893)
Bayanihan	1.434*	2.575**
	(0.267)	(1.051)
Attends Religious Services	0.897	0.866
	(0.169)	(0.286)
Years lived in the barangay	0.999	0.976**
	(0.00721)	(0.0102)
Travel Time to Urban Center	0.991**	0.992
	(0.00355)	(0.00607)
Experienced Hunger	0.588**	1.208
	(0.135)	(0.645)
Education	1.029	0.862
	(0.0767)	(0.128)
Margin of Victory 2007	0.00173**	0.000310**
	(0.00484)	(0.00103)
District Fixed Effects	Yes	Yes
Observations	674	182

Logistic regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

Table 6 below presents the results for electoral violence and intimidation. Again, although monitoring is not the primary concern with violence, vote secrecy is still important for understanding the effectiveness of coercion because threats and acts of violence are much more effective if the vote is not secret. In environments where the vote is not secret, politicians don't need to be as mindful about targeting and maximizing the intimidation effects of coercion. The results for the vote secrecy split sample indicate that the relationship between coercion and position in the social network is driven by areas where the vote is secret. This makes sense in the context that violence and intimidation are vastly more effective when the vote is not secret. Politicians can threaten much more effectively when they can credibly claim to have knowledge of vote choice.

---

[19] Author interviews, April 2010

Table 5: Table 4: Social Networks and Violence/Intimidation, Split Sample by Vote Secrecy

	Electoral Violence or Intimidation	
	Secret Vote	Vote Not Secret
Friends that Discuss Politics	1.169*	1.120
	(0.0994)	(0.183)
Bayanihan	0.996	3.886*
	(0.511)	(2.813)
Attends Religious Services	0.818	1.023
	(0.413)	(0.747)
Years lived in the barangay	0.998	1.013
	(0.0216)	(0.0204)
Travel Time to Urban Center	0.978	0.990
	(0.0136)	(0.0117)
Experienced Hunger	2.153	2.371
	(1.425)	(2.391)
Education	1.107	1.953***
	(0.165)	(0.462)
Margin of Victory 2007	0.000119	0.0000377*
	(0.000825)	(0.000200)
District Fixed Effects	Yes	Yes
Observations	678	184

Logistic regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

Robustness and Identification

One potential problem with logistic regression is the tendency to underestimate the probability of rare events.[20] As a result, I re-ran all of the specifications using rare events logit, using software developed by King and Zeng (2001). This method produces bias-corrected coefficients instead of logit coefficients, and generates relative risks instead of probabilities. I find that the results are largely the same

---

[20] KingZeng2001

(reported in the appendix), which, according to King and Zeng (2001) suggest that the original specifications were already appropriate. This is because rare events logit produces better estimates only when the estimates from logistic regression are biased; otherwise, the results are the same (King and Zeng, 2001).

For an additional robustness check, I re-ran similar specifications at the barangay-level, to demonstrate that the individual-level findings also hold at the barangay level. The social network variable used at the barangay level is the density of social ties, which is the number of social ties as a share of the total potential social ties in the barangay. The barangay-level specifications confirmed the results for vote buying, but were inconclusive for violence, likely because of the much smaller sample. Because the study was limited to 24 barangays, precluding more in-depth analysis, the barangay-level results are intended only as a robustness check (results are available in the appendix).

For identification, I used a comparison with the 2007 data from the World Bank survey that I designed and implemented to show that social network variables are largely the same, even when there was significant variation in the electoral strategies. While this is certainly not the last word on identification, it suggests that: 1) it is unlikely that underlying factors are driving both social ties and illegal electoral strategies; and 2) social network ties are not responsive to changes in electoral strategies. There are two caveats here. First, although the 2007 data covered more villages, we were not allowed to keep contact information from our respondents, which precluded a true panel. Second, the available social network measures for the 2007 study were limited, and so I had to use proxies for the social network variables (using variables on social capital, community involvement, and social safety nets).

In addition, I used eight key informant interviews with political operatives. These interviews independently confirmed the use of group monitoring for vote buying as more cost efficient than carbon paper and other direct verification methods. Another strategy related to social networks that the political operatives described involves buying the votes of an entire family or group; essentially paying socially influential people to act as brokers to "deliver" votes. They also confirmed the targeting of prominent individuals for violence.

Last, changes to social networks tend to happen for demographic reasons: overseas contract work, in- and out-migration. Two-stage models predicting social networks with these types of demographic variables indicate that even after they are taken into consideration, the social ties themselves exercise an independent effect on electoral strategies (results not reported). At the same time, these findings require much more caution in the interpretation of the second stage results, partly because of the nature of these two-stage models, but also because there are reasons to believe that the social networks variables need not be considered endogenous in the first place. In addition to the theoretical priors for considering social networks to be largely fixed in all but the very long term, the

Wald statistic for the test of exogeneity indicates that there is insufficient information in the sample to reject the null hypothesis that social networks are exogenous. This supports the claim that the initial logistic regressions are already appropriate, and that using a two-stage model leads to a loss of efficiency with no corresponding increase in consistency.

Conclusion

There is a well-established literature on targeting voters as part of an electoral strategy. Numerous studies have attempted to explain whether the targeting of political strategies in developing countries follows Cox and McCubbins's (1986) "core voter" model or Lindbeck and Weibull's (1987) "swing voter" model, as well as explaining patterns of pork barrel allocations. But pork barrel allocations and public goods provision are hardly the only forms of electioneering available to candidates. Although limited in established democracies, politicians in many consolidating democracies use a much broader menu of political strategies, including everything from vote buying, electoral fraud, violence and intimidation, in addition to legal strategies like pork barrel funding and public goods provision. Compared to the literature on campaigning and pork barrel spending, relatively little is known about how politicians choose the targets of illegal methods of electioneering.

Electoral strategies in consolidating democracies are largely driven by the inability of politicians to make credible policy commitments to voters. This fundamental problem of political commitment precludes the use of policy-oriented strategies, such as cohesive party platforms or campaign promises. Given the importance of political commitment, I propose that the costs of monitoring and enforcement are key determinants of the politician's choice of electoral strategies, and that social networks are important indicators of such costs. An approach focusing on how social networks can change the costs of monitoring and verifying associated with political strategies can also shed light on politics in established democracies. Although vote buying and elections-related violence is rare in the U.S., for example, there are legitimate concerns about voter suppression and intimidation that suggest that politics is not completely driven solely by policy platforms and campaign promises. A social network approach can be used to identify risk factors for targeting for these types of strategies.

In the Philippines, the same tight-knit social networks that can make it easy to organize a communal irrigation system can also be used a mechanism for enabling group monitoring that allows politicians to identify and redistribute to their core constituency, in support of ex post clientelist political exchange. By contrast, areas where politicians are newer to the scene and communities have fewer social ties, will tend to be associated with ex ante mechanisms for political exchange like vote buying with verification and other forms of direct voter intervention.

Understanding these mechanisms can help policymakers and local NGOs design more effective voter education initiatives and better address the needs of groups that are vulnerable to these practices.

Appendix

Alternative Specifications

Results are not sensitive to alternative models, and in fact, the coefficients are largely stable across different specifications.

Table 6: Table 1: Social Network Ties and Vote Buying

	Offered Money for Vote		
Number of Friends	1.082*	1.084*	1.083*
	(0.0446)	(0.0452)	(0.0458)
Travel Time to Urban Center		0.986***	0.985***
		(0.00447)	(0.00457)
Experienced Hunger		0.821	0.827
		(0.194)	(0.193)
Education		0.968	0.965
		(0.0788)	(0.0838)
Margin of Victory 2007		0.516	0.419
		(0.820)	(0.646)
Bayanihan			1.644***
			(0.249)
Attends Religious Services			0.998
			(0.180)
Years lived in the barangay			0.997
			(0.00617)
Observations	858	858	856
R^2			

Logistic regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

Multi-level Model

Results are robust to using a multi-level (hierarchical) model with variables corresponding to municipal or barangay-level effects.

$$Pr(Strategies_{ijk} = 1|X_{ijk}) = P(\beta_1(SocialTies_{ijk}) + \beta_2(H_{ijk}) + \beta_3(M_{jk}) + \gamma_k + \epsilon_{ijk})$$

where $Strategies_{ij}$ refers to the set of dependent variables for political strategies: clientelism, vote buying, and electoral violence for household i in municipality j and district k during the 2010 elections, $SocialNetworks_{ijk}$ is a set of variables indicating social ties: number of friends and the number of friends with whom the

Table 7: Table 1: Social Network Ties and Vote Buying

	Electoral Violence or Intimidation		
Number of Friends that Discuss Politics	1.177**	1.192***	1.191***
	(0.0808)	(0.0769)	(0.0774)
Travel Time to Urban Center		0.980*	0.980*
		(0.0111)	(0.0103)
Experienced Hunger		2.076	2.076
		(1.193)	(1.152)
Education		1.327**	1.331***
		(0.153)	(0.144)
Margin of Victory 2007		0.0235	0.0161
		(0.0853)	(0.0612)
Bayanihan			1.539
			(0.518)
Attends Religious Services			0.947
			(0.332)
Years lived in the barangay			1.004
			(0.0155)
Observations	864	864	862
R^2			

Logistic regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

respondent discusses politics. H_{ijk} represents a vector of household-level control variables that are expected to affect the targeting of electoral strategies, namely poverty, education, travel time to the urban center, length of residence, and religious activity. M_{jk} represents a municipal-level variable for electoral competition. Other municipal level variables, such as budgetary variables, etc., are also included as an additional robustness check. District fixed effects are represented by γ_k and captures district-level characteristics that are shared across households in the same district, and ϵ_{ijk} is the error term.

Rare Events Logit

Table 8: Social Network Ties and Electoral Violence and Intimidation, Rare Events Logit Regression

	Electoral Violence and Intimidation
Number of Friends that Discuss Politics	1.163**
	(0.0753)
Bayanihan	1.389
	(0.434)
Attends Religious Services	0.980
	(0.325)
Years lived in the barangay	1.003
	(0.0147)
Travel Time to Urban Center	0.979**
	(0.00891)
Experienced Hunger	2.192
	(1.235)
Education	1.286**
	(0.137)
District Fixed Effects	Yes
Observations	862

Rare events logit regression with exponentiated coefficients (odds ratios) displayed; standard errors in parentheses.

Marginal Effects Graphs

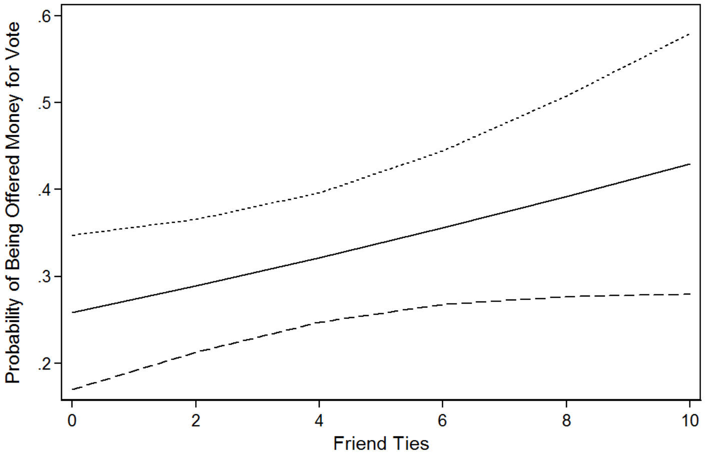

Figure 2: Clientelism and Social Ties

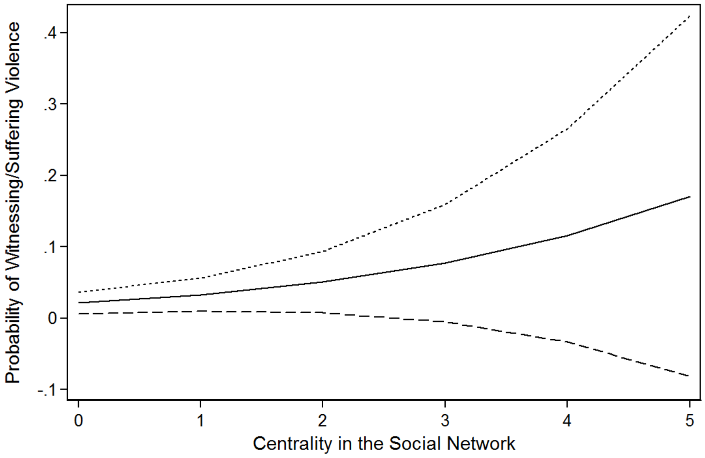

Figure 3: Electoral Violence and Politically Relevant Social Ties

Barangay-level results

As an additional robustness check, I ran similar estimations at the barangay level, using the density of social ties as the barangay-level equivalent of individual social ties.

Table 9: Village Social Network Structure and Vote buying

	Vote Buying
Network Ties	6.205**
	(0.013)
Travel Time to Urban Center	1.024*
	(0.072)
Log Experienced Hunger	0.652
	(0.393)
Margin of Victory 2007	0.266***
	(0.000)
Avg. Length of Residence	1.002
	(0.981)
Observations	24
R^2	

Logistic regression with standard errors clustered by municipality.
Exponentiated coefficients (odds ratios) displayed; p-values in parentheses.

Table 10: Village Social Network Structure and Vote Buying, Village Averages

	Offered Money for Vote	Accepted Money for Vote
Network Ties	0.0597^{***}	0.0499
	(0.010)	(0.620)
Travel Time to Urban Center	-0.00300^{***}	-0.00130
	(0.004)	(0.531)
Log Experienced Hunger	0.105	0.133^{***}
	(0.173)	(0.009)
Margin of Victory 2007	-0.00540	-0.0704^{*}
	(0.836)	(0.084)
Avg. Length of Residence	-0.0127	0.0220^{**}
	(0.130)	(0.041)
Constant	0.824^{**}	0.981^{***}
	(0.039)	(0.002)
Observations	24	23
R^2	0.360	0.406

OLS with standard errors clustered by municipality; p-values in parentheses.

References

Barkan, Joel and Michael Chege. 1989. "Decentralising the State: District Focus and the Politics of Reallocation in Kenya." *The Journal of Modern African Studies* 27:431–453.

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

Calvert, Randall L. 1986. *Models of imperfect information in politics*. Chur, Switzerland ; New York: Harwood Academic Publishers. 86014941 Randall L. Calvert. 22 cm. Fundamentals of pure and applied economics, v. 6. Political science and economics section. Includes index. Bibliography: p. 55-59.

Campos, Jose Edgardo and Joel S. Hellman. 2005. Governance Gone Local: Does Decentralization Improve Accountability? In *East Asia Decentralizes: Making local government work in East Asia*. Washington, D.C.: The International Bank for Reconstruction and Development / The World Bank.

Claibourn, Michele P. and Paul S. Martin. 2007. "The Third Face of Social Capital: How Membership in Voluntary Associations Improves Policy Accountability." *Political Research Quarterly* 60(2):192–201. ArticleType: primary article / Full publication date: Jun., 2007 / Copyright ÃĆÂľ 2007 University of Utah.

Collier, P. and Pedro Vicente. 2008. "Votes and Violence: Evidence from a Field Experiment in Nigeria." *Center for the Study of African Economies Working Paper* .

Cox, Gary W. and Mathew D. McCubbins. 1986. "Electoral Politics as a Redistributive Game." *The Journal of Politics* 48(2):370–389. Article type: Full Length Article / In Group(s): Articles / Full publication date: May, 1986 (198605). / Copyright 1986 Southern Political Science Association.

Diaz-Cayeros, Alberto, Beatriz Magaloni and Barry Weingast. 2003. "Tragic Brilliance: Equilibrium Hegemony and Democratization in Mexico.".

Dixit, Avinash and John Londregan. 1996. "The Determinants of Success of Special Interests in Redistributive Politics." *Journal of Politics* 58(4):1132–1155.

Fafchamps, M. and Pedro Vicente. 2009. "Political Violence and Social Networks: Experimental Evidence from a Nigerian Election." *Center for the Study of African Economies Working Paper* .

Finan, Frederico and Laura Schechter. 2012. "Vote Buying and Reciprocity." *Econometrica* 80(2):863–881.

Granovetter, Mark S. 1973. "The Strength of Weak Ties." *The American Journal of Sociology* 78(6):1360–1380. ArticleType: primary article / Full publication date: May, 1973 / Copyright 1973 The University of Chicago Press.

Grossman, Gene M. and Elhanan Helpman. 2005. Party Discipline and Pork Barrel Politics. NBER Working Papers 11396 National Bureau of Economic Research, Inc.
URL: *http://ideas.repec.org/p/nbr/nberwo/11396.html*

Keefer, Philip. 2005. "Democratization and Clientelism: Why are Young Democracies Badly Governed?".

Khemani, Stuti. 2003. "Partisan politics and intergovernmental transfers in India.".

King, Gary and Langche Zeng. 2001. "Logistic Regression in Rare Events Data." *Political Analysis* 9:137–163.

Lindbeck, Assar and Jorgen Weibull. 1987. "Balanced-budget Redistribution as the Outcome of Political Competition." *Public Choice* 52(3).

Morrow, James. 1994. *Game Theory for Political Scientists*. Princeton University Press.

Morrow, James. 1999. *Signaling, Commitment, and Negotiation*. Princeton University Press.

Nichter, Simeon. 2008. "Vote Buying or Turnout Buying? Machine Politics and the Secret Ballot." *American Political Science Review* 102(1):19–31.

Platteau, Jean-Philippe and Anita Abraham. 2002. "Participatory Development in the Presence of Endogenous Community Imperfections." *Journal of Development Studies* 39(2):104–136.

Popkin, Samuel. 2007. "Changing Media and Changing Political Organization: Delegation, Representation, and News." *Japanese Journal of Political Science* 8(1).

Putnam, Robert. 2000. *Bowling Alone*. New York: Simon and Schuster.

Schady, Norbert. 2000. "Picking the poor : indicators for geographic targeting in Peru.".

Schaffer, Frederic and Andreas Schedler. 2007. What is Vote Buying. In *Elections for Sale: The Causes and Consequences of Vote Buying*, ed. Frederic Schaffer. Boulder, Colorado: Lynn Rienner.

Sidel, John. 2004. Bossism and democracy in the Philippines, Thailand, and Indonesia: towards an alternative framework for the study of 'local strongmen'. In *Politicising democracy: the new local politics of democratisation*, ed. John Harriss, Kristin Stokke and Olle Tornquist. Basingstoke, UK: Palgrave Macmillan pp. 51–74.

Stokes, Susan C. 2005. "Perverse Accountability: A Formal Model of Machine Politics with Evidence from Argentina." *The American Political Science Review* 99(3):315–325. ArticleType: primary article / Full publication date: Aug., 2005 / Copyright 2005 American Political Science Association.

Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge: Cambridge University Press.