

Voting in Clientelistic Social Networks: Evidence from the Philippines*

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Abstract

In clientelistic environments, voters want to know which politicians are most likely to deliver on targeted benefits. We argue that in these contexts, voters use their social proximity with candidates as heuristics to inform vote choice. To test our theory, we rely on local naming conventions to reconstruct family networks spanning one whole city in the Philippines and assess blood and marriage links between voters and local candidates. We then collect survey data on pre-election candidate leanings and actual voting behavior of 894 randomly drawn voters. We show that the degrees of separation between voters and candidates explain not only aggregate electoral outcomes, as previous studies have found, but also individual vote choice, controlling for pre-election leanings. We demonstrate that this is because private inducements are channeled through family networks. These findings highlight the electoral importance of social proximity with politicians as an information shortcut when voters are choosing whom to support at the polls.

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1 Introduction

In recent years social networks have become central to the study of clientelism, building on a broader literature concerned with how social networks influence voter behavior.¹ In particular, scholars have explored how, in many clientelistic contexts, social ties outside of formal political networks, (particularly ethnic, religious, or regional ties), can shape vote choices and candidate strategies (Adida, 2015; Carlson, 2015; Aspinall, Dettman and Warburton, 2011; Stithorn, 2012; Carlin, Singer and Zechmeister, 2015). However, the measure of social ties among voters and candidates within such networks has typically been based on some attribute common to nodes in the networks. By and large, scholars have overlooked the importance of the social *distance* between voters and politicians within the relevant social network in explaining individual vote choice. In this article, we show that the kinship ties between voters and political candidates – the familial distance between them – help voters decide whom to support at the polls. Consistent with recent scholarship on social networks and clientelism², we demonstrate that this is because family networks serve as channels for targeting private inducements for votes.

Why might social proximity with politicians *per se* matter for voters? A good starting point is to think about this question from the perspective of political campaigns. In many of these clientelistic contexts, the very nature of the political exchange necessitates reliance on preexisting social networks. The distribution of private inducements for votes is typically achieved by employing brokers that are deeply embedded in social networks (Stokes, 2005). Consequently, these social networks – be they of families, clans, tribes, or ethnic groups – inform not only which politicians run for office (Cruz, Labonne and Querubin, 2017), but also the targeting strategies that their political machines employ (Cruz, 2019; Ravanilla,

¹For instance, social networks shape how voters receive and interpret political information (Huckfeldt and Sprague, 1987, 1991; McClurg, Wade and Wright-Phillips, 2012; Mutz, 2002). Social networks also influence voter turnout (Gerber, Green and Larimer, 2008; Nickerson, 2008).

²Recent studies have focused on the ways in which social networks undergird clientelist politics (Auyero, 2000; Szwarcberg, 2009), affecting who stands for office (Cruz, Labonne and Querubin, 2017), who campaigns target (Cruz, 2019; Ravanilla, Haim and Hicken, 2021), the capacity of campaigns to gather information about voters (Schneider, 2019), and the likelihood of compliance (Stokes et al., 2013; Aspinall, 2014), among others.

Haim and Hicken, 2021).

Building on these existing studies, we argue that voter social ties with politicians can provide cues as to who is most likely to deliver on promises of clientelistic benefits, much in the same way that formal political networks (e.g. political parties) in developed democracies tell voters something about candidates' policy preferences and the credibility of their promises. The more socially proximate voters are to political campaigns, the stronger the mechanisms for sustaining the clientelistic exchange of targeted inducements for votes, therefore, the more likely voters will support vote-buying candidates. Yet although we have empirical evidence on the importance of social networks for politicians and brokers, we have little systematic evidence on the importance of social networks for voters.

Of particular relevance for the purpose of our study is the work by Cruz, Labonne, and Querubin (2017) about the impact of family networks on candidate performance in the Philippines. Using data on family networks across the Philippines they are able to demonstrate that a) political candidates are disproportionately drawn from more central families, and b) family network centrality is associated with higher vote shares for candidates. Like our study, the logic of their argument rests on the distance between candidates and voters—voters with closer ties to a candidate rely on fewer intermediaries to access that candidate, and hence, have an increased likelihood of receiving goods and services (p. 3007). Their empirical strategy makes use of data about candidate centrality in family networks, and the relative centrality of a candidate's family network in a given village. However, while their results are consistent with their theory, due to the lack of requisite data Cruz et al. are unable to directly estimate the effect of social distance on *voter* behavior. Using a unique dataset, our study is able draw on individual-level measures of voting intentions and behavior to establish the micro-foundations of some of Cruz et al.'s findings.

At least two obstacles make it difficult for scholars to provide convincing empirical evidence that voters use social proximity with politicians as heuristics, and this difficulty is best understood from a networks analysis perspective. The first difficulty, common to research

on social networks and political outcomes generally, is in accurately mapping the network. Incomplete social networks can bias findings in a variety of important ways and make it more difficult to rule out alternative explanations, including random clustering, homophily (selection), and contextual (or environmental) effects (Fowler et al., 2011). The second hurdle is more specific to the outcome of interest: vote choice. Scholars tend to observe vote choice at a single moment in time, that is, after the election. Without controlling for baseline candidate leanings, correlating this static outcome with network characteristics leads to all sorts of problems endemic to observational studies, which we describe in the theory section below.

To overcome these empirical challenges and explore the effect of family connections on voter behavior, we measure voter affinities toward candidates before and after the period of active campaigning and vote-buying. This allows us to separate the impacts of vote-buying from initial leanings, both of which might be a function of connectivity. A naming convention in the Philippines allows us to fully map local family networks from publicly available voter rolls, providing a close approximation of actual blood and marriage ties between voters. We then identify candidates and randomly sample voters within these networks to examine whether voter-candidate familial ties are important for individual vote choice.

We start by demonstrating the importance of voter family networks on aggregate electoral outcomes. To do so, we simulate a hypothetical election where family relations is the only basis for choosing a particular candidate. In this hypothetical scenario, every voter chooses the candidate to whom they are most closely related. We tally the number of individuals who would vote for each candidate in this hypothetical election and compare these predictions to the actual election results. We find that predicted vote shares correspond closely with actual vote shares.

Why are candidates who are socially proximate to voters doing so much better electorally? We then explore how voter-candidate social proximity affects voters' favorability ratings prior to the campaign period. As expected, we find that voters are more likely to favor candidates

to whom they are more proximate. However, voters’ pre-campaign leanings could be driven by personal affinity with a candidate, policy alignment with the candidate’s platform, or simply name recall. What then is the role of clientelism? Does it have an impact when we account for pre-campaign affinities?

To test our central claim that clientelism is a key mechanism underpinning the impact of family networks on voter behavior, we resurveyed our respondents to ask about actual voting behavior. We then created a variable called *switching*, which captures the change in voter response in the time between the pre- and post-election surveys. We find that voters are not only more likely to actually vote for candidates closest to them, but that they are also more likely to switch their vote in order to support these same candidates, controlling for their initial leanings.

We then present evidence that vote-buying mediates these observed effects of family networks on actual voting and vote-switching. In particular, we show that the closer the social distance between a voter and a candidate, the greater the effect of experiencing vote-buying on their likelihood of switching their vote in favor of the candidate, and away from some other candidate they initially preferred. A different way of saying this is that the more socially proximate a voter is to a candidate, the greater the effect of receiving a handout on their likelihood of remaining loyal to that candidate.

Our paper makes a number of contributions to the literature. First, while we build on previous work on family ties in the Philippines (Cruz, Labonne and Querubin, 2017; Ravanilla, Haim and Hicken, 2021), we leverage rich voter-level data to investigate the influence of family ties on *individual* vote choice. Second, by specifying a detailed empirical voting model, we are able to better assess the relative influence of different drivers of vote choice, and isolate the independent effect of family ties. Finally, by analyzing data on the pre-election candidate preferences of voters, family ties, and vote buying, we are able to test some of the mechanisms of clientelism from the voters’ perspective – specifically the ways in which social networks help lower the costs and uncertainty associated with clientelist exchange.

More broadly, our findings highlight the electoral importance of social network-based voter heuristics. Such heuristics can be a double-edged sword. Voters use social network-based heuristics to make choices consistent with their interests in the face of uncertainty. Such heuristics are necessary to make democracy work (Lupia and McCubbins, 1998). However, where these heuristics are combined with clientelism, they can amplify the effectiveness and resilience of clientelist modes of mobilization. The heuristic happens to be family ties in the Philippines, but it could also be other types of network-based information shortcuts in other places.

2 Social Networks, Clientelism, and Voter Behavior

Social networks feature prominently in many recent studies of clientelism – the contingent exchange of money for votes (Kitschelt and Wilkinson, 2007). Politicians must make difficult decisions about which voters to target with patronage appeals or vote-buying, and whether/how to go about monitoring the compliance of those who are targeted (Stokes et al., 2013). Stokes (2005) contends that candidates with networks of deeply embedded brokers can monitor voters and ensure that they vote how they should, even without physically observing who they support at the ballot box. Another solution to the “problem” of the secret ballot is that these same networks between candidates, their brokers, and voters facilitate the targeting of reciprocal voters depending on the social network architecture (Ravanilla, Haim and Hicken, 2021). The problem of untrustworthy brokers (Aspinall and Sukjamati, 2016; Stokes et al., 2013), is also somewhat mitigated when they are better connected to the candidates they serve.

We build off of these theories and consider how social networks affect the calculus of voting and decisions about whom to support. We argue that influence of social networks, particularly social distance, operates through two distinct channels: a) better monitoring and enforcement for candidates, and b) stronger claims on assistance for voters. First,

family networks, with their repeated relationships and heightened sense of moral reciprocity among family members, are obvious instruments for strengthening a candidates' political brokerage machine. Easier monitoring among family networks likely decreases shirking by both voters and brokers. It is for this reason that candidates prefer to employ brokers with close personal ties, and brokers choose to target voters who are close friends or family with electoral handouts, particularly in polities where party organizations and partisan ties are weak.³

Thus, the candidate and broker targeting strategy helps drive subsequent voter behavior. Voters with family ties to a candidate are more likely to be targeted, more likely to feel they are monitored and can be sanctioned, and therefore more likely to support that candidate. One implication of this argument is that, from the voters' perspective, the distance from the candidate should matter: shorter distances make it more likely that candidates can credibly monitor and sanction voter behavior. Voter proximity to candidates can therefore provide cues to voters about their likelihood of being targeted with private inducement—voters anticipate they are more likely to receive inducements from candidates they are close to, and thus are predisposed to favor such candidates. Close family ties also generate stronger expectations of monitoring and enforcement, and thus when electoral handouts are distributed, voters are more likely to reciprocate with their vote.

Second, for voters family ties not only generate expectations about monitoring, but also expectations about assistance. Family ties increase the chance candidates will respond positively to a voter's request for assistance. In short, family networks can serve as credible signals of preference alignment between voters and candidates. In developed democracies, voters can generally rely on well-structured political networks (e.g. political parties) to tell them something about candidates' policy preferences and the credibility of their promises. However, in many new democracies, party affiliation conveys little or no meaningful information to voters. Being a member of a given party carries with it no expectations of future

³Recent empirical evidence also shows that winning candidates are likely to target vote-buying to voters with larger social networks (Cruz, 2019).

behavior. In these low information environments voters often turn to informal networks (e.g. tribe or ethnicity) to provide cues about who is most likely to deliver on promises of service provision and redistribution *after* winning office (Blaydes, 2010; Ferree, 2006; Kitschelt, 2000; Wantchekon, 2003). One such informal network is a family network.⁴ In the absence of meaningful parties voters can use family networks as an information shortcut. Proximity in these networks signals which candidates can credibly deliver programmatic and distributive “quid” in exchange for the voters’ “quo”. Familial ties between voters and a candidate mean that the candidate is more accessible or subject to sanctions by the voter if she reneges on her policy platforms, and hence her promises are more credible.

Once again, an implication of this argument is that from the voter’s perspective the distance from the candidate should matter: shorter distances make it more likely that politicians will respond to voter demands. And since it is typically politicians, not their brokers, who control access to resources, the links with candidates trump broker links in voter calculations.

Evidence for this post-electoral, distributive benefit of connectivity to candidates is abundant in the Philippines, which has a tradition of patrimonial politics (Hutchcroft and Rocamora, 2003). Using a regression discontinuity design, Fafchamps and Labonne (2017), for example, find that the relatives of close winners are awarded more jobs while the relatives of close losers are punished by the winners. Those few candidates who manage to get elected without a well-connected family to support them still end up targeting this patronage to central families who are critical for their re-election.

Given these considerations, we derive the following hypotheses:

1. [**Hypothesis 1**]: *Voter-candidate familial ties influence voter behavior.*
 - a) Voter-candidate familial ties explain aggregate election outcomes.
 - b) Voter-candidate familial ties explain voters’ pre-election candidate favorability

⁴Of course a focus on family networks does not preclude politicians from also relying on other networks as well. These could include networks of political allies across levels of governments (Arulampalam et al., 2009; Brolo and Nannicini, 2012; Sole-Olle and Sorribas-Navarro, 2008), co-ethnics (Chandra, 2004), media (Larreguy and Monteiro, 2014), and non-family brokers (Larreguy, 2013), among other politically relevant networks.

ratings.

- c) Voter-candidate familial ties individual explain vote choice, controlling for pre-election candidate favorability ratings.

2. **[Hypothesis 2]:** *The effect of voter-politician family ties increases in the prevalence of electoral clientelism.*

While the logic of this argument is appealing, two other explanations can also plausibly account for the relationship between voter-candidate family ties and behavior at the polls. The first focuses on the name recognition family networks convey to voters. The second considers family networks as a proxy for wealth or social status.

Let's start by looking at how family networks might bestow an advantage on certain candidates via family names simply serving as a recall shortcut for uninformed voters. Larger family networks also enjoy higher name recognition. Voters are more likely to recognize the name Kennedy, or Bush, or Gandhi on the ballot, and for those voters who lack other information or cues on which to draw, name recognition might be enough to decide their vote. The power of a family name in the Philippines, whether it be Aquino, Marcos, or Poe, is often credited with aiding the fortunes of national level politicians, and it seems reasonable to expect that similar dynamics might be at work at the local level.

In addition, family networks may simply be a proxy for wealth or social status. Large family networks containing lots of close ties may also have more resources at their disposal (both material and social), and it is those resources that drives mobilization and voter behavior, rather than the network, *per se*.

Both of these explanations offers a plausible mechanism linking family networks to candidate success. Our goal, then, is to test our key hypotheses' relative explanatory power against these competing mechanisms. While looking at politician selection and broker strategies may provide evidence of the importance of family networks for political machines (Cruz, Labonne and Querubin, 2017; Ravanilla, Haim and Hicken, 2021), on their own these approaches cannot get directly at the mechanisms—why such ties are important for the voters. To do so we

focus on the incentives and behavior of individual voters.

3 Local Politics & Family Networks in the Philippines

3.1 Keeping it in the Family

Elections in the Philippines are a family affair. Family dynasties control the political landscape, fielding candidates at all levels of government. During the time we conducted our study, the makeup of the Philippine Senate illustrates this: twenty-five percent of current Filipino Senators are related to one of the last six Presidents. At the local level, of the country's 81 provinces, 73 have at least two political families with members holding elected offices simultaneously. How do political families do it? Why do voters continue to support the same political families?

Historically, most national political elites trace their political origins to the local level in the Philippines (Hutchcroft and Rocamora, 2003), and this is where we focus our analysis as well. Politics in the Philippines has always been a decidedly local affair. Even national political elite typically have their roots in local politics and the relationship between local and national politicians drives much of the political economy in the Philippines (Atkinson, Hicken and Ravanilla, 2015). The importance of local politics has its origins in the colonial and early independence periods of the Philippines' political development. A weak central state has been the historical norm in the Philippines. The lack of large pre-existing political units allowed the Spanish colonizers to quickly conquer most of the Philippines, but due to chronic shortages of men and money the Spanish established no more than an anemic central government (Andaya, 1993). Real power rested in hands of large provincial landowning elite that, in the vacuum of Spanish authority, gradually came to dominate much of provincial life. This land-owning elite, known as *caciques* or *oligarchs*, became the patrons atop numerous local patron-client networks spread throughout the Philippines (Anderson, 1988; Tancangco, 1992). When the U.S. seized control of the Philippines the actions it took had the unin-

tended consequence of further entrenching these local economic elite while also transforming them into local and then national political elite. Specifically, the colonial government did very little to build up a strong central government which could counter the economic power of the local land-owning elite. It then ensured that the locally-oriented nature of political life was reproduced at the national level via the early introduction of elections in the Philippines (Hutchcroft and Rocamora, 2003). The first elections to be organized under colonial auspices were for local political posts and those in the best position to compete for elected office were the oligarchs. As a consequence, the oligarchs were able to use elections as a means of acquiring and strengthening their economic and political power, first locally, then nationally as congressional elections were organized (Lande, 1965; Wurfel, 1991; Hutchcroft and Rocamora, 2003).

This pattern continues to a large extent in the Philippines today. A chain of patron-broker relationships connects local politicians to their provincial and national counterparts (Hutchcroft and Rocamora, 2003; Lande, 1965). National level politicians (except, recently, for celebrity candidates) rely on provincial (governors) and local politicians (mayors) to mobilize the voters necessary to win election to national office. Local and provincial politicians, in turn, rely on national politicians to provide the resources necessary to help build and maintain their local bases of political support and to mobilize voters during election campaigns. These links are often organized along clan lines but at the national and provincial level they can be difficult to distinguish from formal political/partisan networks.⁵ This is because allied politicians from same families typically run under the same party or coalition of parties (except in a few instances where there is intra-family factionalism). Fortunately, at the local level the challenge of distinguishing between partisan and family effects diminishes since party affiliation is rarely a salient feature of municipal and city campaigns. Local candidates switch parties regularly and often run as independents, voters frequently split their votes between parties, producing divided executives (e.g. a mayor from one party and

⁵See Atkinson, Hicken and Ravanilla (2015) for an attempt to distinguish between partisan and clan effects empirically.

a vice-mayor from a different party), and candidates individually organize political machines independent of any broader party machinery (e.g. local campaign posters rarely list party affiliation and local campaigns rarely refer to party ideologies or platforms).

The *modus operandi* for local politicians is relying on their dense network of brokers at the grassroots level, mainly, leaders from the *barangays* (ward or village) and *puroks* (neighborhood) (Schmidt et al., 1977; Sidel, 1999). Note that while barangay leaders are elected, by law they are not allowed to declare party affiliations, thus reducing the possibility that formal political networks can fully explain voter mobilization and support at the grassroots level. These barangay and purok leaders, in turn, rely on extended families and friends in closely knit communities within puroks and the barangay. The oft-heard term for these local network is *baluarte/baluarte*. Originally from the *Bisaya/Visayan* language, the word literally means “fort/bulwark/bastion” but today carries the connotation of political strongholds based on extended families.

3.2 Elections in the Philippines

The Philippines is a unitary presidential democracy with a multiparty system. It is currently divided into 81 provinces, which are further subdivided into cities and municipalities that elect a Mayor, a Vice-Mayor and a council. There are currently 135 cities and 1,496 municipalities in total. Apart from their generally larger populations, cities are unique in that they are subdivided into districts for the purpose of electing council members. For example, the city used in this study, Sorsogon City, is divided into three districts—East, West, and Bacon. Each of these districts elects four City Councilors. In municipalities, the top seven vote getters from an at-large district win seats on the council.

Each city and municipality is further subdivided into barangay, or villages, which elect their own councils (council members are known as *Barangay Kagawad*) and a chief executive known as the barangay captain (*Punong Barangay*). With the exception of the barangay offices, elections for all local offices (mayor, vice-mayor and councilor) are held every three

years, concurrent with competitions for provincial and national offices.⁶

Separate elections for mayor and vice-mayor, the block vote system for city and barangay council seats, and the fact that village candidates are prohibited from running under any political party all tend to undermine the value of the party (or running on a coordinated single ticket) and encourage individual candidates to develop personalized networks of support (Ravanilla, 2019; Hicken, 2019). This is reflected in the partisan promiscuity of local political groups. These groups regularly switch between different national parties or stand as their own locally-based party or team.

4 Data

To create networks of familial connections between voters and politicians, we obtained the Certified Voters List (CVL) for Sorsogon City (as of May 2013) from the Philippine Commission on Elections (COMELEC). The CVL lists the complete name, birthday, gender, and barangay (village) of residence of 80,904 registered voters.⁷

Table 1 presents descriptive statistics for Sorsogon City. 48.7% of registered voters are male and the mean age of voters is 41 (Panel A). There are 14,491 unique family names (middle and last names combined) among voters in Sorsogon City and the average recurrence of a family name is 11 (Panel B), which suggest that the average family network is small and thus, might not matter much for local politics. However, simple tabulation of family name recurrences provide suggestive evidence of the importance of family relationships for local politics. Panel C, for example, presents the top 20 recurring family names in Sorsogon City as well as the number of incumbent city officials bearing these names. The incumbent mayor bears the 2nd most popular name in the city; the incumbent vice-mayor the 3rd. Six out of the twelve incumbent city councilors bear one of these most popular family names.

⁶Barangay elections are held roughly 7 months after the national and local elections.

⁷We do not have the CVL for Barangay Gimaloto which has an estimated 550 registered voters.

Table 1: Descriptive Statistics of Registered Voters of Sorsogon City

Panel A: Demographics					
Variable	<i>n</i>	Mean	SD	Min	Max
Male = 1	81,202	0.49	0.50	0	1
Years of age	81,202	41	16	18	117

Panel B: Family name descriptive statistics	
Number of unique family names:	14,491
Mean recurrence of family name:	11 (SD: 50 / Min: 1 / Max: 1751)
Herfindahl index:	99.85%

Panel C: Top 20 recurring family names		
Family name	Frequency of voters bearing this name	Incumbent city official bearing this name*
DIAZ	1751	1 Councilor
DIONEDA	1569	Mayor / 1 Councilor
DICHOSO	1116	Vice-Mayor
DIVINA	1069	1 Councilor
DETERA	932	—
DELLOSA	888	—
JEBULAN	866	1 Councilor
DOCTOR	840	—
DIESTA	830	—
JERESANO	798	—
JASARENO	774	—
JALMASCO	730	—
DEOCAREZA	718	—
JANORAS	702	—
DIMAANO	688	—
DIOQUINO	686	—
JANABAN	673	—
DOMETITA	666	—
LASALA	631	—
JAMISOLA	620	2 Councilors

Notes: Election term 2013–2016. Elected city officials are composed of a mayor, a vice-mayor and 12 city councilors. All the other family names appearing in the top 20 are borne by as few as 14 and as many as 40 city or barangay candidates.

4.1 Familial Ties Between Voters and Politicians

We exploit characteristics of Philippine naming conventions and the original assignment of surnames by Spanish colonial authorities to identify candidates' familial ties within localities with a high degree of accuracy. We construct three separate networks by connecting individuals in progressively larger areas. We start at the barangay (village) level. Barangays are the smallest administrative area in the Philippines where politicians are elected. The average barangay in our study area had 2,400 residents as of the 2010 National Census. Additionally, a considerable amount of Philippine associational life takes place within the barangay.

We then construct networks at the council district and city-level. Council districts are a unique administrative unit of cities. Increasing the area within which individuals can be linked makes it more likely that we capture the entirety of one's family network, but also increases the likelihood of falsely linking two unrelated people sharing similar family names. However, as we explain below, false familial linkages are less of a problem in the Philippines than elsewhere.

Naming conventions in the Philippines are a product of the Spanish colonizers. To facilitate more efficient tax collection and as a part of conversion to Roman Catholicism, Filipinos were given Iberian surnames by colonial authorities or the Catholic Church. The process by which names were assigned is critical for avoiding the possibility of inaccurately identifying individuals as relatives. The colonial leadership of each province assigned a set of family names, drawn from the 'Catalogo Alfabetico de Apellidos' (the Alphabetical Catalogue of Surnames), to each barangay priest. The barangay priest then allowed the oldest male of each family to choose a surname. This process has resulted in an even distribution of surnames within each province.

While the Spanish method for assigning surnames in the Philippines makes it possible to identify many relatives from our list of names based on shared surnames, it is insufficient for identifying many ties to women, who adopt the surname of their husband. However, an added feature of Filipino naming convention makes it possible to overcome this limitation.

Rather than receiving two given names (first and middle), Filipinos generally have one given name and two surnames, one from their mother (her maiden surname) and one from their father.

We construct a network of family relationships between people on the CVL who share last names, middle names or who have a common middle-last name. Table 2 summarizes the types of relationships that are captured by these networks.

Table 2: Family relationship captured in our networks.

<i>Common Last Names</i>	Male Sibling Unmarried Female Sibling Spouses Parents to male or unmarried female children
<i>Common Middle Name</i>	Married female siblings Maternal male cousins or unmarried female cousins
<i>Common Middle-Last Name</i>	Married female to unmarried female or male sibling

The resulting graphs are unweighted and undirected, meaning that ties do not originate with one node and point towards another, but rather are bidirectional. The graphs are also large and dense relative to many social networks where ties are elicited orally. The barangay networks have a total of 1,957,294 edges (ties) between the 80,904 nodes (registered voters). The median number of ties is 29, with an average of 48. It is common for the distribution of ties (the degree distribution) in social networks to exhibit this strong right skew. Figure 1 visualizes the degree distribution, or the connectivity of individuals, in the barangay networks.

By expanding the area within which individuals maybe connected from the barangay to the municipality, the number of ties grows significantly to 18,862,542. While this makes it slightly more likely that we inaccurately link non-relatives in our network, constructing the network at this level captures a larger portion of an individual’s true family tree. We use both the barangay and city-level networks in our analysis depending on the level of the

electoral contest in question.

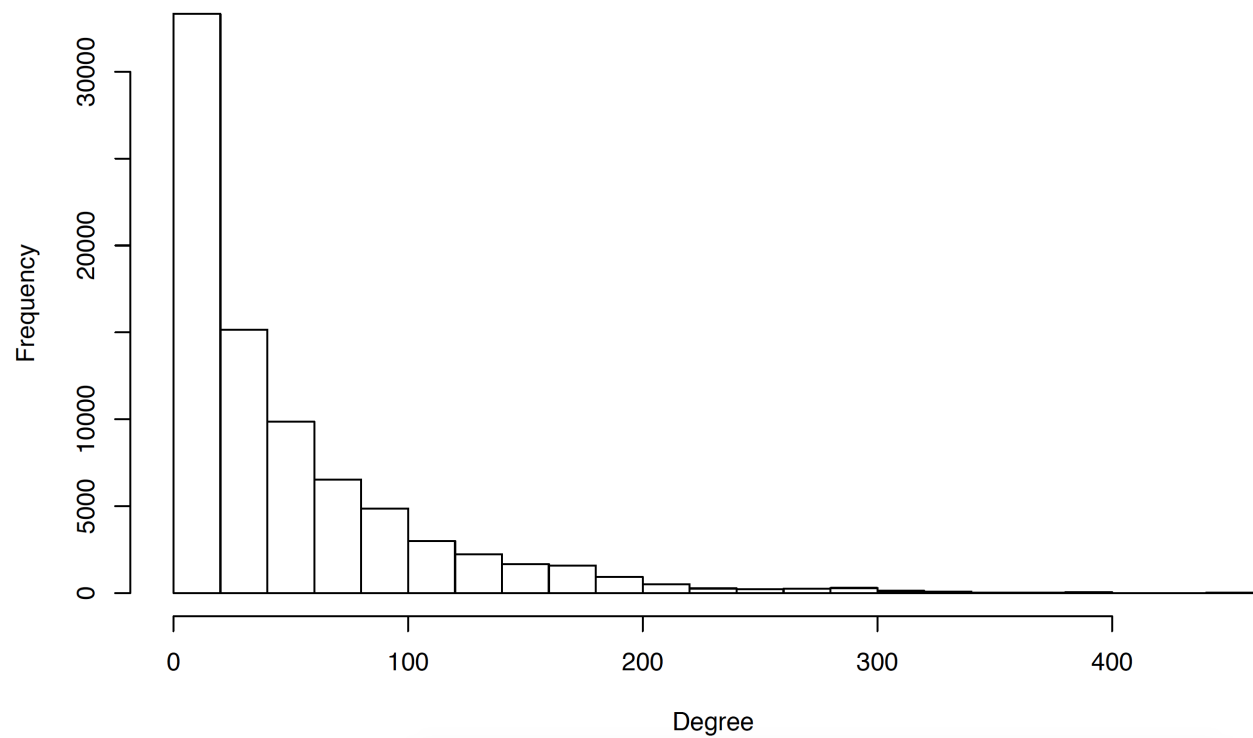


Figure 1: Degree distribution of individuals in the barangay-level networks.

4.2 Individual Voter Behavior

As part of a broader experimental field study on individual voting behavior in the Philippines, we surveyed 894 individuals randomly selected from the CVL of Sorsogon City at two time periods. We asked how each voter rated their favorability of candidates on a Likert scale in weeks leading up to the election. Immediately after the election we surveyed them again and asked who they supported at the polls. We also gathered data on voter-responder demographics. Table 3 describes sample demographics.

Table 3: Descriptive statistics of sampled voters of Sorsogon City

Variable	<i>n</i>	Mean	SD	Min	Max
Male = 1	894	0.45	0.50	0	1
Years of age	894	42	16	18	95
Religion is Catholic = 1	894	0.92	0.27	0	1
Number of voting household members	894	3.55	1.94	1	20
<u>Marital status</u>					
Single	894	0.26	0.44	0	1
Married	894	0.53	0.50	0	1
Widowed	894	0.07	0.26	0	1
Domestic partnership	894	0.12	0.33	0	1
Separated	894	0.02	0.14	0	1
<u>Employment status</u>					
Choose not to work	894	0.24	0.43	0	1
Retired	894	0.05	0.21	0	1
Student	894	0.05	0.21	0	1
Unemployed and looking for a job	894	0.10	0.30	0	1
Working full time	894	0.32	0.47	0	1
Working part time	894	0.25	0.43	0	1
<u>Education</u>					
Some elementary to no schooling	894	0.12	0.32	0	1
Elementary	894	0.18	0.39	0	1
Some high school	894	0.19	0.39	0	1
High school	894	0.17	0.37	0	1
Some college	894	0.13	0.34	0	1
College up	894	0.15	0.36	0	1
Vocational	894	0.04	0.19	0	1
<u>Migrant status</u>					
Born here	894	0.73	0.45	0	1
Migrated as a child	894	0.11	0.31	0	1
Migrated as an adult	894	0.16	0.37	0	1

4.3 Aggregate Election Outcomes

Lastly, we obtained from COMELEC the names of all the candidates for the positions of Mayors, Vice-Mayors, City Councilors, Punong Barangays (Village Chairs), and Barangay Kagawads (Village Councilors) in the May 2013 City Elections and and October 2013 Barangay Elections in Sorsogon City. There are a combined total of 1,852 candidates for these offices; 41 are city-level candidates. We have collected information on basic demographics for all of these candidates: age, gender, incumbency status (or relation to incumbents), and position. We also have information on the number of votes and the outcomes of the 2013 elections for all elected local offices, disaggregated at the barangay-level.

5 Results

Our main goal is to demonstrate that voter-candidate familial ties influence voter behavior. Further, we aim to show that this is because politicians exploit family ties to target electoral clientelistic efforts, and that such targeting influences socially proximate individuals the most.

5.1 Do family networks explain voter behavior in the aggregate?

Before exploring how connectivity affects individual voting behavior, we first explore whether candidate connectivity correlates with candidate vote-shares in the aggregate. To do so, we consider what the world would look like if individuals followed a ‘crude’ voting rule when choosing candidates. That is, if they simply voted for the candidate who is closest to them in the familial network, what would the results of the elections look like? For the purposes of this exercise we split the vote equally among multiple candidates if the voter is equally close to them. After calculating the shortest distance in the network from every voter to every candidate, we tally the number of votes each candidate would receive if voters only voted according to this simple rule. Of course, in reality voters follow a much more complex voting rule when choosing which candidates to support even if they do use family ties as a heuristic. Nevertheless, if we can show that the tally of votes from this hypothetical election correlates with actual election outcomes, then this exercise would demonstrate the plausible importance of family ties in explaining voter behavior in the aggregate.

More formally, we estimate the following model:

$$\begin{aligned} \ln_Voteshare_{kj} = & \alpha \ln_Closest_Voteshare_{kj} \\ & + \gamma \ln_BCent_{kj} + \delta \ln_DCent_{kj} + \beta X_{kj} + v_j + u_{kj} \end{aligned} \tag{1}$$

where $\ln_Voteshare_{kj}$ is the natural log of actual vote-share of village-candidate k in village j (city-candidate k in district j), $\ln_Closest_Voteshare_{kj}$ is the natural log of predicted

vote-share based on the tallied number of voters closest to candidate k as a share of total registered voters in village j . Ln_BCent_{kj} is the natural log of the betweenness centrality of candidate k and Ln_DCent_{kj} is the natural log of the degree centrality of candidate k .

X_{kj} is a vector of observable candidate characteristics, v_j is an unobservable affecting all candidates in village j and u_{kj} is an idiosyncratic error term. Vote-shares might be correlated within villages, hence, we cluster standard errors at the village level.

The coefficient of interest is α , which is interpreted as the percentage change in actual vote-shares for every percentage change in predicted vote-shares based on the hypothetical election we described above. We expect α to be positive and statistically different from zero.

5.1.1 Results

Figure 2 illustrates how this simple voting rule would play out in the election for Punong Barangay (Village Chair) in Barangay Mahangin (not the real name of the barangay), one of the smaller barangays in Sorsogon City. Voters in this network are colored according to the candidate, denoted by colored squares, to whom they are closest. In this example, the blue candidate is closest to 238 voters; the green candidate to 25 voters; the purple candidate to 39 voters; and the red candidate to 16 voters. These numbers account for “white” voters that split votes equally between at least two closest candidates. In this particular case, the blue candidate won the actual election.

Figure 3 shows that there is systematic relationship between the predicted number of votes and the actual number of votes received by candidates running for barangay (left) and municipal office (right). The blue line is the observed relationship and the red is a perfect 1:1 prediction. Although not perfect, the correlation is strongly positive.

Table 4 shows the results of the OLS estimates of Eq. 1. The candidates’ hypothetical vote-shares (if voters simply voted for candidates closest to them in the familial network) predict actual vote-shares. Column 1 indicates that a 1% increase in the share of voters closest to a candidate is, on average, associated with a 0.27% increase in that candidate’s

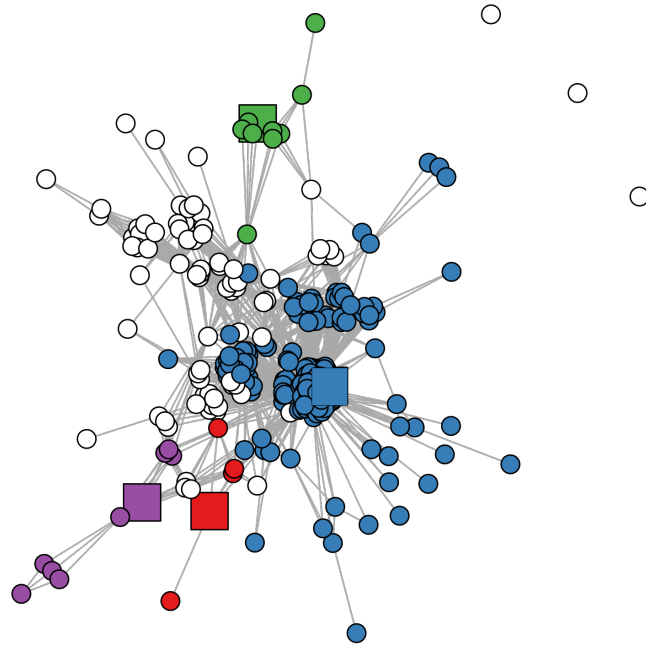


Figure 2: Barangay Mahangin Family Network. Candidates for Punong Barangay (Village Captain) are represented as squares of different colors; voters as small circles color-coded according to the candidate for Punong Barangay to whom they are closest. White nodes are voters who are equally close to two or more candidates. Note that the blue candidate is so central to the barangay network that he/she is hard to see amidst the other nodes.

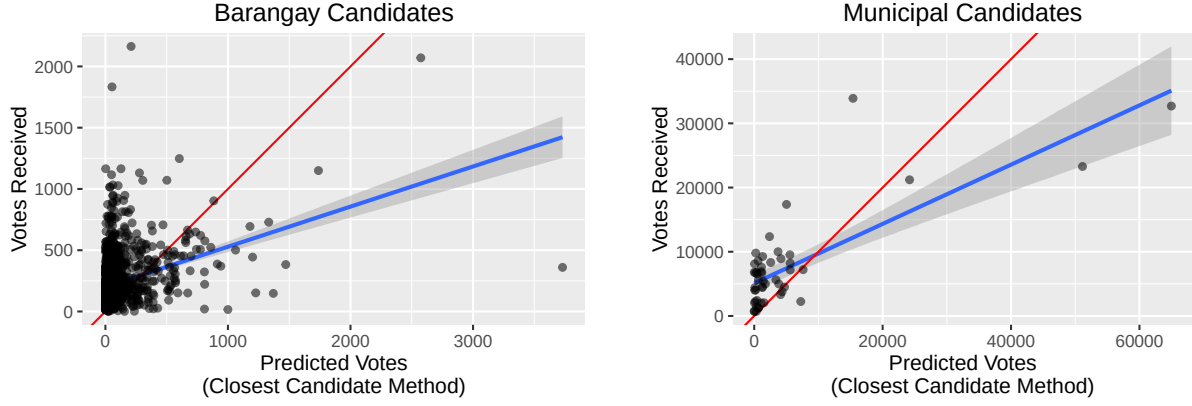


Figure 3: The relationship between the predicted number of votes and the actual number candidates running for barangay (left) and municipal office (right) received. The blue line is the observed relationship and the red is a perfect 1:1 prediction.

actual vote-share. The inclusion of barangay (village) fixed effects reduces the point estimate to 0.17% (column 2). Once unobservable village characteristics affecting all candidates are accounted for, adding controls for observable candidate characteristics (namely, betweenness centrality, degree centrality, gender, age, incumbency status, relation to incumbent, and elective position) has only a marginal effect on the point estimate (columns 3–6). Column 7 indicates that a 1% increase in the share of voters closest to a candidate is, on average, associated with a 0.16% increase in that candidate’s actual vote-share.

Table 4: Actual candidate vote-shares as predicted by the share of voters closest to candidate.

	Dependent Variable: Log Actual Vote-shares						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Share of Voters Closest to Candidate	0.27*** (0.028)	0.17*** (0.023)	0.17*** (0.023)	0.17*** (0.024)	0.16*** (0.024)	0.16*** (0.023)	0.16*** (0.023)
Male = 1				0.0078* (0.0045)	0.0078* (0.0040)	0.0081** (0.0040)	0.0079* (0.0040)
Log Age				-0.00057*** (0.00019)	-0.00058*** (0.00018)	-0.00057*** (0.00018)	-0.00057*** (0.00018)
Incumbent = 1					0.074*** (0.0056)	0.076*** (0.0056)	0.076*** (0.0056)
Relative of Incumbent = 1						0.022*** (0.0070)	0.022*** (0.0070)
City-level Candidate = 1							0.034 (0.022)
Constant	0.14*** (0.0080)	0.15*** (0.0015)	0.14*** (0.0023)	0.17*** (0.0095)	0.16*** (0.0088)	0.15*** (0.0087)	0.15*** (0.0087)
Log Betweenness Centrality	NO	NO	YES	YES	YES	YES	YES
Log Degree Centrality	NO	NO	YES	YES	YES	YES	YES
Barangay Fixed Effects	NO	YES	YES	YES	YES	YES	YES
No. of Barangays (j)	63	63	63	63	63	63	63
No. of Candidates (k)	1,812	1,812	1,812	1,812	1,812	1,812	1,812
R ²	0.068	0.450	0.451	0.455	0.526	0.529	0.529

Notes: Actual vote-shares are based on election returns from the May 2013 Municipal Elections for city-level candidates (41 of them), and from the October 2013 Barangay Elections for barangay-level candidates (1,771 of them). Predicted vote-share of a candidate is the total number of individuals voting for the candidate in a hypothetical election in which each voter chooses the candidate to whom they are most closely related, divided by the total number of voters. Huber/White robust standard errors clustered at the barangay (village) level in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

This estimated effect is large given that the voting rule in our hypothetical election only accounts for which candidate is closest to a voter and ignores *how* close, the true effect of familial distance on electoral performance is likely much larger. Consider, for example, two voters, one who is immediately connected to a candidate and one who is distantly connected to that same candidate, but for whom the candidate in question is still the closest. Each voter would be tallied as one vote for the candidate according to our simple rule. While it is possible that voters conduct their own ‘shortest-path’ calculation, it is more likely that the effect of connectivity to a candidate diminishes with distance. Diminishing effects like this have been documented in regards to numerous types of behavioral contagion: smoking (Christakis and Fowler, 2008), obesity (Christakis and Fowler, 2007), happiness (Fowler et al., 2009), depression (Cacioppo, Fowler and Christakis, 2009) and more relatedly, the decision to vote (Bond et al., 2013; Nickerson, 2008).

5.2 Do family networks influence individual voter behavior?

Having shown evidence that family networks matter for voter behavior in the aggregate, we now explore whether the relationship holds at the individual level. We begin by checking the reliability of our survey-based favorability ratings and reported votes. Table 5 compares the official vote-shares of each candidate with the survey-based average reported vote shares and average candidate favorability ratings. Reported vote shares in our endline survey does indeed predict the actual winners in each race (the correlation coefficient between actual and sample-reported vote shares in columns 1 and 2 is 0.957). Likewise, the average favorability ratings across candidates also highly correlate with vote shares (the correlation coefficient between the average favorability rating (column 3) and reported vote share in the sample (column 2) is 0.838. Although not perfect, these very high correlations help affirm the reliability of our survey-based outcomes.

Examining individual-level outcomes allows us to examine how clientelism might affect individual voter decisions within the family networks. Focusing on our individual voter sur-

Table 5: Vote shares and candidate favorability ratings, by electoral race.

Candidate	Actual vote share in election	Reported vote share (endline survey)	Sample average favorability rating
Mayor race			
A*	46.3	44.8	0.5
B	48	55.2	0.6
Vice-mayor race			
C	30	30.2	0.3
D	24.6	23.4	0
E	32.9	46.5	0.4
City council race, Bacon District			
F	30.4	31	0.1
G	24.5	24.5	-0.2
H*	37.8	46	1
I	10.2	11.1	-0.3
J	32.7	44.4	0.6
K	32.5	39.9	0.4
L*	37.3	54	0.7
M	15.8	17.6	-0.1
N	17.1	18.8	0
O*	25.5	24.9	0.2
P	20.1	14.6	-0.2
City council race, East District			
Q*	31.3	28.7	0.3
R*	20.4	23	0.6
S	6.6	4.6	-0.6
T*	29.7	33	0.8
U	3.2	1.5	-0.8
V	5.5	1.2	-0.6
W	40.5	60.2	0.6
X	45.4	60.2	0.8
Y	44.4	54	0.3
Z	34.5	39.5	0.1
AA	15.1	13.8	0
AB	9.2	4.2	-0.5
AC	18.2	11.9	0.5
City council race, West District			
AD	5	4.2	-0.1
AE	20.1	13.4	0.2
AF*	49.8	60.8	1.1
AG	32.7	43.8	0.4
AH	18.2	19.1	0.3
AI	37.3	50.9	0.9
AJ*	38.4	59	0.7
AK	27.4	23.7	0.5
AL*	34.6	50.9	0.7
AM	3.1	4.2	-0.5
AN	9.7	7.4	-0.3
AO	8.3	4.6	-0.3

Notes: Data on actual vote share in election are from Philippine Commission on Elections (COMELEC). Reported vote share is from our endline survey. Sample average favorability ratings are from our baseline survey. Starred (*) candidates are incumbents (but not all incumbents ran again in this election). Bold candidates are winners of their respective races. In city council races, top four candidates are elected.

vey, we estimate the following general model with different voter behavior-related outcomes:

$$Y_{ikd} = \alpha \textit{Familial_Distance}_{ikd} + \xi \textit{Familial_Distance}_{ikd}^2 + \gamma \textit{Ln_BCent}_{kd} + \delta \textit{Ln_DCent}_{kd} + \beta X_{ikd} + v_d + w_i + y_k + u_{ikd} \quad (2)$$

$\textit{Familial_Distance}_{ikd}$ is the shortest distance between voter-respondent i and city-candidate k in district d . Higher values mean greater degrees of voter-candidate separation. We control for the square of $\textit{Familial_Distance}_{ikd}$ to account for potential nonlinearities. An alternative specification would be to run a regression using a step function to explore the nonlinearity of familial distance. We use this alternative specification to generate Figures 4 and 5.

Where applicable, we control for $\textit{Ln_BCent}_{kd}$, which is the natural log of the betweenness centrality of candidate k , and $\textit{Ln_DCent}_{kd}$, which is the natural log of the degree centrality of candidate k . Degree centrality, or the number of individuals someone is connected to, captures the extent of a candidate's local connectedness. Note that degree centrality is different from the familial distance or the *degrees of separation* between any two nodes. In their portion of the network, individuals with greater degree centrality are better connected because they have more immediate ties. In contrast, betweenness centrality captures the global connectedness of candidates. It is measured by dividing the number of shortest paths between people in the network that run through the candidate.

X_{ikd} is a vector of observable voter-respondent and candidate characteristics, v_d is an unobservable affecting all candidates in district j , w_i controls for voter-respondent fixed effects, y_k controls for candidate fixed effects, and u_{ikd} is an idiosyncratic error term.

Y_{ikd} is the outcome of interest, and we examine two outcome variables: (1) $\textit{Favor}_{ikd}$, and (2) $\textit{Vote}_{ikd}$. The former is voter-respondent i 's pre-election favorability rating of candidate k , and the latter is self-reported vote in the actual elections.

5.2.1 Results

Ordinary Least Squares (OLS) estimates of Eq. 2 with voter-respondent favorability ratings and reported vote as outcomes of interest are shown in Tables 6 and 7, respectively.⁸

5.2.2 Family Networks and Favorability Ratings

Table 6 shows how voter-candidate familial distance relates to voters' pre-election favorability ratings. The association is negative and nonlinear. That is, voters are likely to favor the closer candidate. The statistically significant nonlinearity implies that the more socially distant the candidate is, the less family ties matter to voters' favorability ratings. Figure 4, which is based on an alternative step function specification to Equation 2, illustrates this nonlinearity.

Column 1 in Table 6 indicates that a change in voter-candidate familial distance from one degree of separation to two degrees is associated with a 0.67 percentage point reduction in the voter's favorability rating of the candidate (Favorability ratings are on a Likert scale on the interval $[-3; +3]$). This negative relationship is robust to controlling for voter demographics, candidate observable characteristics, district fixed effects, as well as voter and candidate fixed effects (columns 2–6).

⁸Summary statistics for the main variables used in these set of results are presented in Table A.2 in the Supplementary Information (SI).

Table 6: The effect of familial distance on candidate favorability ratings.

	Dependent Variable: Favorability Rating of a Candidate					
	(1)	(2)	(3)	(4)	(5)	(6)
Familial Distance	-0.67*** (0.14)	-0.62*** (0.14)	-0.69*** (0.14)	-0.54*** (0.14)	-0.58*** (0.14)	-0.69*** (0.15)
Familial Distance ²	0.088*** (0.024)	0.078*** (0.023)	0.087*** (0.024)	0.077*** (0.024)	0.083*** (0.025)	0.10*** (0.026)
Log Betweenness Centrality (of candidate)				-0.0032 (0.0059)		
Log Degree Centrality (of candidate)				0.015 (0.015)		
Constant	1.36*** (0.20)	1.63*** (0.24)	1.68*** (0.24)	1.20*** (0.27)	0.94*** (0.27)	0.82*** (0.23)
Voter-respondent Controls	NO	YES	YES	YES	YES	.
District Fixed Effects	NO	NO	YES	YES	YES	YES
Candidate Controls	NO	NO	NO	YES	.	.
Candidate Fixed Effects	NO	NO	NO	NO	YES	YES
Voter-respondent Fixed Effects	NO	NO	NO	NO	NO	YES
No. of Observations	14,156	14,156	14,156	14,156	14,156	14,156
No. of Voter-respondents (i)	894	894	894	894	894	894
No. of Candidates (k)	41	41	41	41	41	41
R-squared	0.006	0.016	0.018	0.045	0.088	0.249

Notes: Voter-respondents' favorability ratings of candidates are on a Likert scale $[-3, +3]$. Familial distance is the number of degrees between voter-respondent and candidate in the familial network. Voter-respondent controls are listed in Table 3. Candidate controls are age, gender, incumbency status (relation to incumbent), and position. Huber/White robust standard errors clustered at the respondent level in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

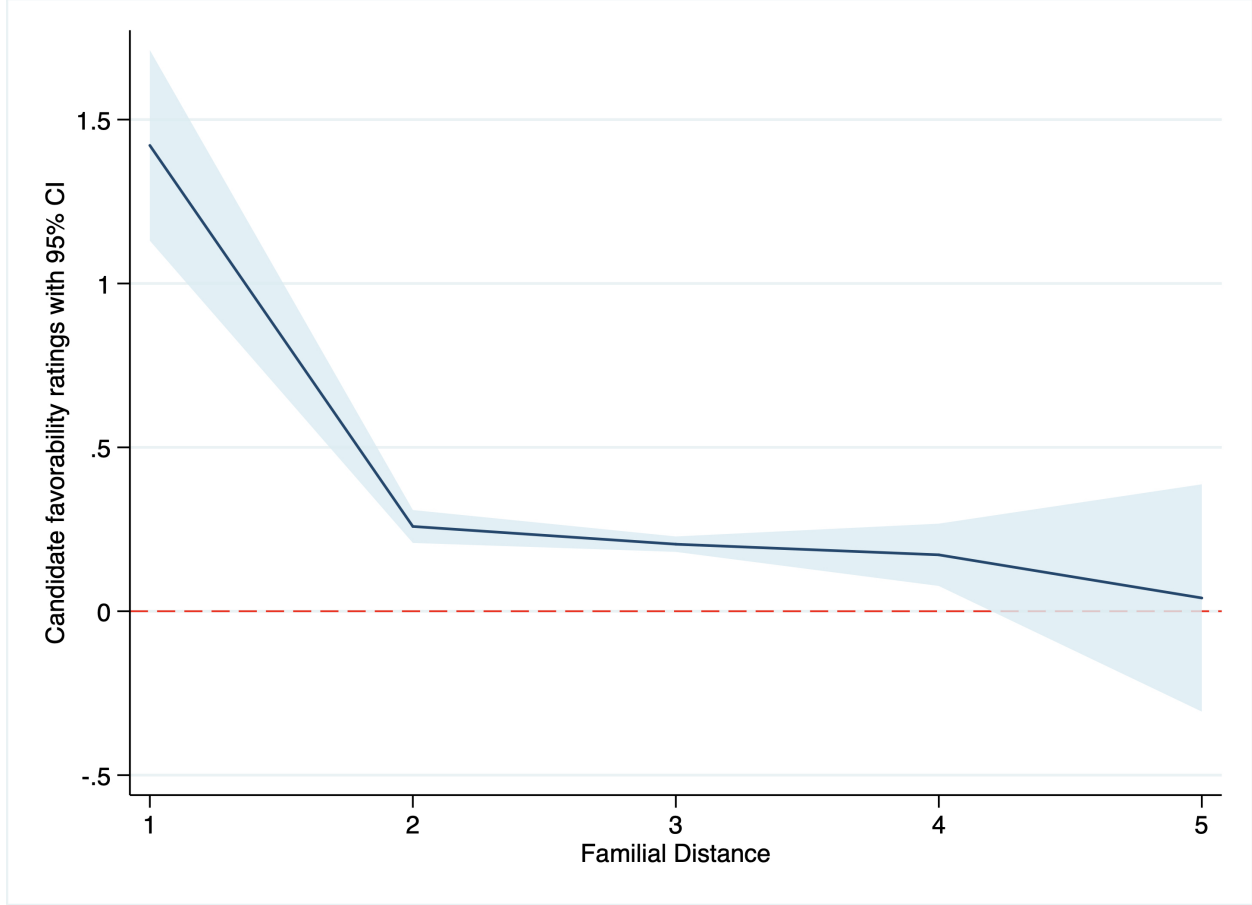


Figure 4: **The effect of familial distance on candidate favorability ratings.** Voter-respondents’ favorability ratings of candidates are on a Likert scale $[-3, +3]$. Familial distance is the number of degrees between voter-respondent and candidate in the familial network.

5.2.3 Alternative Explanations

The above set of results provides evidence of the strong correlation between voter-candidate family ties and voter behavior, and is consistent with our clientelism hypothesis. However, such a correlation may be easily attributable to a variety of potential alternative explanations, including reverse-causation, name recognition, and voters’ personal affinity with candidates. Below, we explain why, at least in this specific context, we can safely rule-out these competing explanations.

Are the results driven by reverse-causation? One potential alternative explanation is that

familial networks do not explain political preferences such as vote choice; rather political preferences *cause* the formation of familial networks via assortative matching. This account is potentially threatening given that scholars have previously documented how marriages are arranged in some social contexts to perpetuate political power (Padgett and Powell, 1993). If true, our observed effects may simply be artifacts of this dynamic of reverse-causation.

In our study context, the version of this account would be that politicians and voters decide marriages and familial relations on the basis of whether such familial network formations are politically advantageous or not. While certainly plausible, we think this unlikely to drive our main results. One may choose one’s spouse for political reasons, but one generally cannot choose one’s relatives and their spouses, and certainly not the *social distance* between oneself as a political candidate and one’s voters. In short, one key advantage of focusing on familial networks over many other types of networks is that it reduces the endogeneity problem inherent in much of social network analysis (Fowler et al., 2011).

Are the results driven by name recognition? In this second alternative explanation, “name recognition” or candidate popularity and wealth and social status may be the drivers of the relationship between familial distance and favorability ratings of and votes received by candidates. Even after controlling for candidate’s degree centrality (i.e. number of people with a family connection to a candidate) and betweenness centrality (i.e. how well-positioned the candidate is to connect voters from disparate parts of the network), the effect of familial distance still holds (column 4). Importantly, in our most restrictive specification where we control both for candidate and voter fixed effects (column 6) - that is, we are accounting for the fact that some voters are particularly prone to “name recall” and some politicians are easily recognized because of their wealth, popularity, celebrity status, incumbency, etc. - the results continue to hold.

5.2.4 Family Networks and Voter Behavior

That said, the results do accommodate other substantive explanations besides our clientelism hypothesis. Familial distance might simply capture voter’s personal affinity with a candidate. It might also proxy for policy alignment with the candidate’s platform. It is also possible that voters have better information about the policy preferences of close relatives than they do about other candidates, or that voters are more confident that candidates who are close relatives can commit to such policies.

The panel nature of our data gives us leverage to test the importance of our clientelist mechanism in explaining the observed effect of family distance on voter behavior. To do this, we regress $Vote_{ikd}$, individual i ’s vote choice, on their distance from the candidate while controlling for initial leanings, as captured by the variable $Favor_{ikd}$. If we believe that voters’ pre-election favorability ratings capture personality affinity, policy alignment or platform identification, and that this is what drives vote choice, then the coefficient for family distance should no longer be significant once we control for pre-election favorability.⁹ By contrast, if we find that voters who are proximate to a candidate are more likely to support them even after controlling for such initial leanings, then this is consistent with clientelist targeting along family networks in the run up to elections.

Table 7 shows the results. Voter-candidate familial distance is negatively correlated with voter support and the association is nonlinear. Figure 5, which is based on a step function alternative specification to Equation 2, illustrates this nonlinearity.¹⁰

Column 1 of Table 7 indicates that a change in voter-candidate familial distance from one degree of separation to two degrees is associated with a 0.20 percentage point reduction in the probability that the voter will vote for the candidate. As above, this negative relationship

⁹In Table A.2 in the Supplementary Information (SI), we show results without controlling for favorability ratings and the results are even stronger.

¹⁰It is possible that the results are driven by the fact that candidates often run on tickets and some voters close to a candidate might end up voting for some his/her party-mates in the elections. We tested the robustness of our findings to this possibility by looking only at the most important races in terms of tickets—mayoral and vice-mayoral—and dropping the council races (see Figure A.1 in the Supplementary Information). The results hold.

is robust to controlling for voter demographics, candidate betweenness centrality and degree centrality, candidate observable characteristics, district fixed effects, as well as voter and candidate fixed effects (columns 2–6).

Table 7: The effect of familial distance on the probability of supporting a candidate at the polls.

Dependent Variable: Vote = 1 if voter-respondent reported voting for a candidate.						
	(1)	(2)	(3)	(4)	(5)	(6)
Familial Distance	-0.20*** (0.036)	-0.20*** (0.036)	-0.20*** (0.038)	-0.16*** (0.038)	-0.20*** (0.039)	-0.20*** (0.048)
Familial Distance ²	0.027*** (0.0062)	0.027*** (0.0062)	0.027*** (0.0063)	0.026*** (0.0063)	0.031*** (0.0065)	0.032*** (0.0083)
Favorability Rating	0.10*** (0.0027)	0.10*** (0.0028)	0.10*** (0.0028)	0.095*** (0.0028)	0.085*** (0.0029)	0.10*** (0.0035)
Log Betweenness Centrality (of candidate)				-0.0054*** (0.0019)		
Log Degree Centrality (of candidate)				0.015*** (0.0049)		
Constant	0.64*** (0.052)	0.62*** (0.057)	0.62*** (0.057)	0.66*** (0.071)	0.35*** (0.061)	0.37*** (0.071)
Voter-respondent Controls	NO	YES	YES	YES	YES	.
District Fixed Effects	NO	NO	YES	YES	YES	YES
Candidate Controls	NO	NO	NO	YES	.	.
Candidate Fixed Effects	NO	NO	NO	NO	YES	YES
Voter-respondent Fixed Effects	NO	NO	NO	NO	NO	YES
No. of Observations	12,494	12,494	12,494	12,494	12,494	12,494
No. of Voter-respondents (i)	894	894	894	894	894	894
No. of Candidates (k)	41	41	41	41	41	41
R-squared	0.137	0.138	0.139	0.183	0.236	0.264

Notes: Familial distance is the number of degrees between voter-respondent and candidate in the familial network. Voter-respondent controls are listed in Table 3. Candidate controls are age, gender, incumbency status (relation to incumbent), and position. Huber/White robust standard errors clustered at the respondent level in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

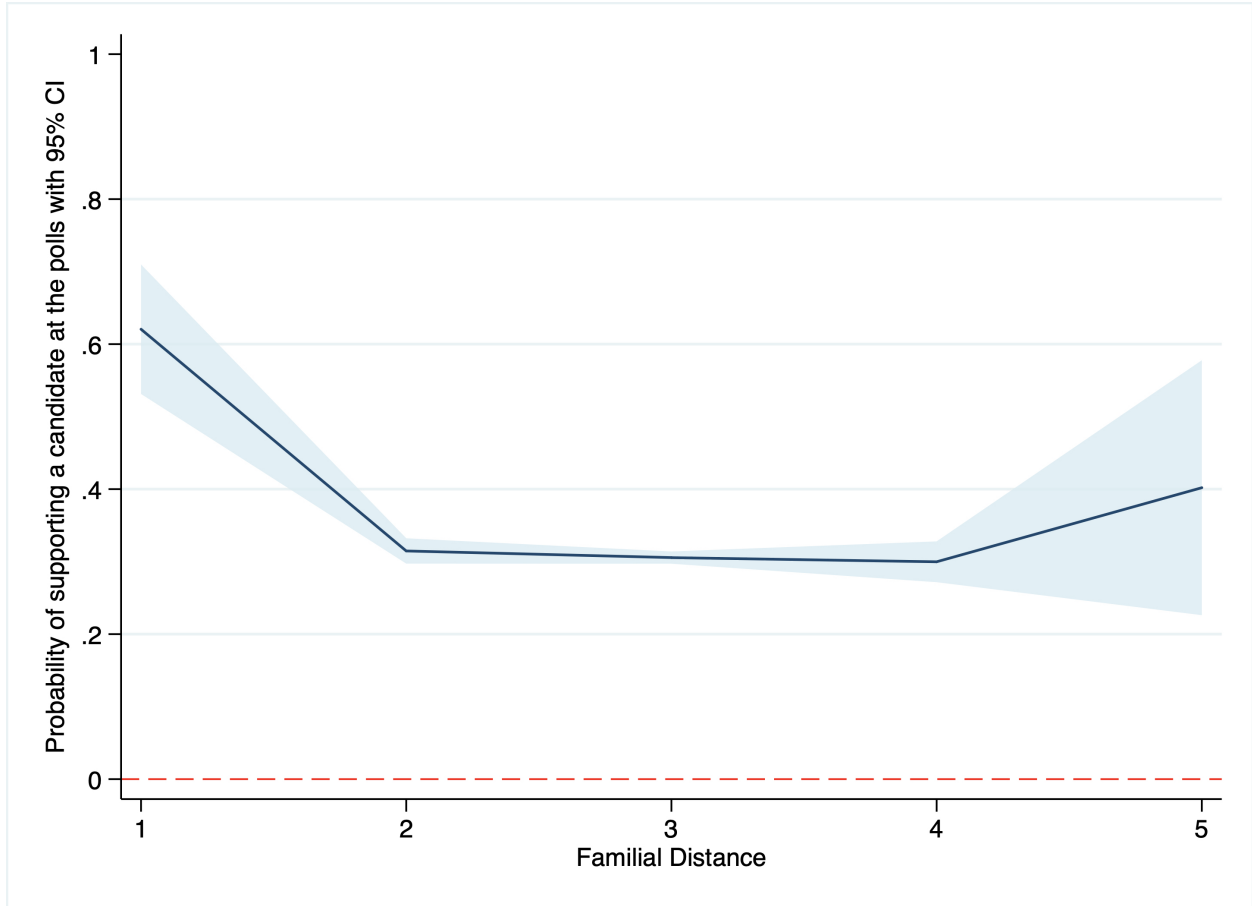


Figure 5: **The effect of familial distance on the probability of supporting a candidate at the polls.** Familial distance is the number of degrees between voter-respondent and candidate in the familial network.

5.3 Does clientelism explain why family networks influence voter behavior?

The set of results presented in Table 7 above, although compelling, is still only suggestive that clientelism is the driver of the observed relationship between voter-candidate family ties and vote choice. Even if pre-election candidate leanings are controlled for, the observed relationship would still accommodate alternative explanations. For example, in the run-up to elections, voters might tend to seek more information about candidates closest to them, subsequently learn more about these candidates, and thus end up voting for the same

candidates.

We now explore the data for more direct evidence that family ties influence voter behavior because vote-buying efforts are targeted to socially proximate individuals in their family networks. Our goal is to show that the closer the voter is to a vote-buying candidate, the more the experience of vote-buying is effective in *keeping* the support of the same voter if he favors the candidate to begin with, and in *winning* the support of the same voter if he does not initially favor the candidate. Put differently, the closer the voter is to the candidate, the more likely vote-buying will result in *vote-switching* towards that candidate and, conversely, and the less likely vote-buying will result in vote-switching *away* from the same candidate.

Given concerns about social desirability bias in reporting personal experiences of vote-buying, we opted to simply ask voters about their perception of the extent of vote-buying in their village. Specifically, we asked them, “In your own perception, approximately what fraction of the voting population of your barangay was offered money by politicians this last election?”¹¹ We argue, however, that perceptions capture not only what voters observe around them but also their own personal exposure to vote-buying.¹² If perceptions of vote-buying only captured the vote-buying that other voters experienced but that the respondents only observed, then such perceptions should not vary with incidence of respondents’ vote-switching. If, however, perceptions of vote-buying *does* capture respondents’ exposure to vote-buying, and such exposure causes voters to change their initial leanings, then perceptions of vote-buying should explain vote-switching in the run-up to elections, in ways hypothesized above.

¹¹The possible answers are 0, 0.2, 0.4, 0.6, 0.8, or 1.

¹²See Hicken et al. (2018) for more on the validity of this measure.

To formally test our argument, we estimate the following model:

$$\begin{aligned}
Switched_{ikd} = & \\
& \phi Perceived_Vote-Buying_{id} + \alpha_0 Familial_Distance_{ikd} + \xi_0 Familial_Distance_{ikd}^2 + \\
& \alpha_1 Perceived_Vote-Buying_{id} * Familial_Distance_{ikd} + \\
& \xi_1 Perceived_Vote-Buying_{id} * Familial_Distance_{ikd}^2 + v_d + y_k + u_{ikd}
\end{aligned} \tag{3}$$

where *Perceived_Vote-Buying_{id}* is the response to the survey question stated above. As before, *Familial_Distance_{ikd}* is the shortest distance in the network between voter-respondent *i* and city-candidate *k* in district *d*. Higher values mean greater degrees of separation between the voter and the candidate. We again control for the square of *Familial_Distance_{ikd}* to account for potential nonlinearities. *v_d* is an unobservable affecting all candidates in district *j*, *y_k* controls for candidate fixed effects, and *u_{ikd}* is an idiosyncratic error term.

We look at two types of switching, and hence two outcomes: *Switched_Away_{ikd}*, which is a binary indicator that takes the value of 1 if voter *i* did not support candidate *k* given that candidate *k* was the initial favorite, and 0 otherwise, and *Switched_To_{ikd}*, which is a binary variable that takes the value of 1 if voter *i* did support candidate *k* even if candidate *k* was not the initial favorite, and 0 otherwise.¹³

5.3.1 Results

Figure 6 and Table A.1 in the Supplementary Information (SI) show the results of the OLS estimates of Eq. 3. The first take-away from the figure is that voters who report higher incidence of vote-buying are much less likely to switch away from an initially favored candidate (in the figure, this is reflected in the negative marginal effects across familial distance). In short, experience with vote-buying makes voters more likely to stick with their initial favorites. This is consistent with our argument—electoral handouts flow through

¹³When there are only 2 candidates for an elective position, *Switched_Away_{ikd}* and *Switched_To_{ikd}* is the converse of each other. The same is not true for more than 2 candidates. See Hicken et al. (2018) for a discussion of the validity of this measure.

family networks to voters who are closely connected to the candidate, and thus they tend to reinforce the tendency for voters to support candidates with whom they are close.

Importantly, family ties and perceived vote buying interact in ways we expect it would. Specifically, the interaction between perceived vote buying and social distance is positive as it relates to switching away from a given candidate. So, the more socially proximate a voter is to a candidate, the more the experience of vote-buying will make them stick to the same candidate. Put differently, the less filially connected a voter is to a candidate, the more likely vote-buying results in switching away from the same candidate. This suggests to us that being targeted *and* being close to the candidate is what makes proximity such a strong predictor of electoral support. Put differently, vote-buying is most effective in influencing the behavior of voters with close ties to candidates.

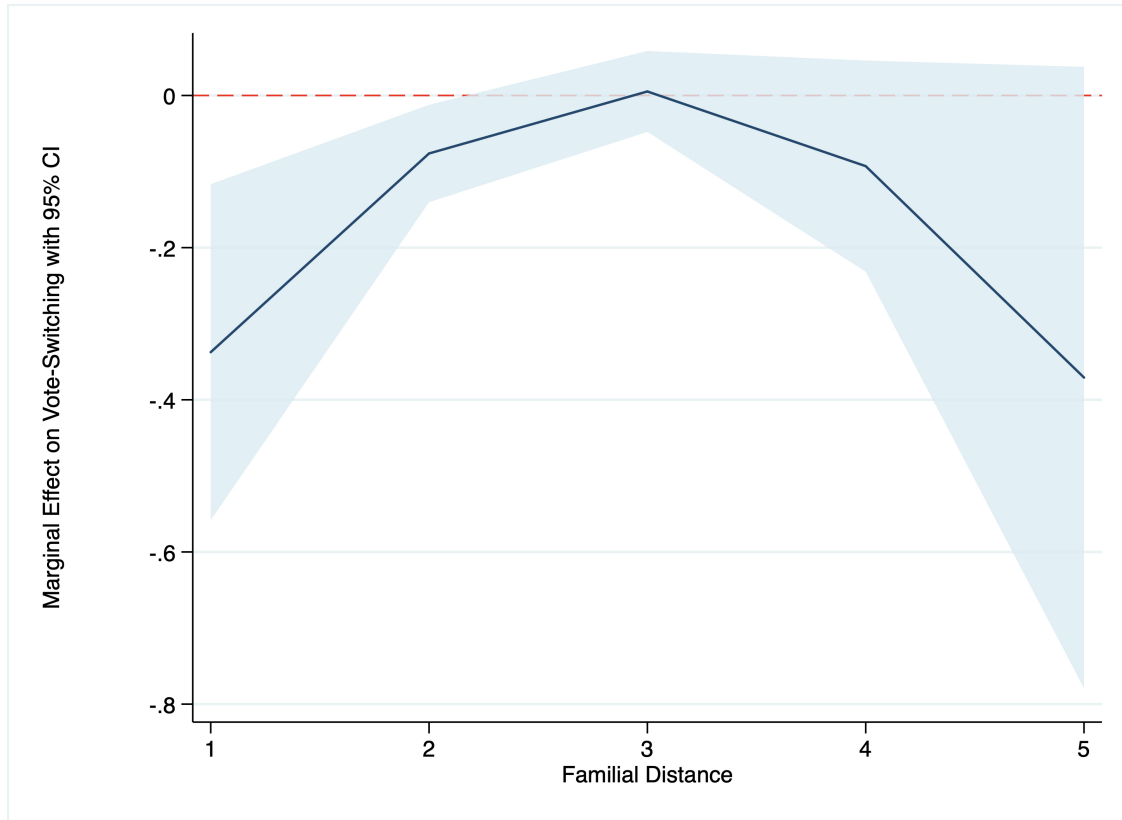


Figure 6: **How the effect of vote-buying perceptions on vote-switching varies by familial distance.** Familial distance is the number of degrees between voter-respondent and candidate in the familial network. *Switched Away*=1 voter-respondent reported *not* voting for an initially favored candidate. Perceived vote-buying in the village is a value between 0 and 1, and is the respondents' answer to the question, "In your own perception, approximately what fraction of the voting population of your barangay was offered money by politicians this last election?" and the possible answers are 0, 0.2, 0.4, 0.6, 0.8 or 1.

6 Conclusion

When voters use family ties as a heuristics for choosing whom to support at the polls, they may do so for a variety of reasons. It may be because in a low information election they recognize a candidate by their family name or because they trust people in their extended family to follow through on, or choose policy platforms in their interest. These and other reasons may well play a role in why voters support members of their extended family network. But what role does clientelism play, if any?

In this paper we have undertaken an in-depth investigation of the role of clientelism in explaining why voters often support members of their extended family networks. First we demonstrated that candidates who are proximate to many voters in the local family network tend to do much better than those who are not. Next we disentangled support for these candidates before the campaign period from support for them at the polls to identify and analyze changes plausible due to electoral handouts. The data support the idea that clientelism is most effective at swaying voters who are relatively close in the family network.

Our findings shed light on why relying on family ties as heuristics so effectively sustains the clientelistic exchange of money for votes during elections. From the candidates' (demand) perspective: Family networks provide logistical advantages for the distribution of private inducements, and the social norms of loyalty and reciprocity among extended relatives can substitute for more complex mechanisms of monitoring that are often necessary in other contexts. From the voters' (supply) perspective, where our paper makes the biggest contribution, the same norms of loyalty and reciprocity inherent in family networks help them commit to keep their end of the bargain. The closer voters are to candidates, the stronger these effects are, hence proximity in the social networks make voters more likely to be targeted – they are the voters for whom the bang-per-buck value of money and other private inducements is the highest.

These findings have important implications for our understanding of clientelism in the Philippines and democracies broadly. First, while our paper has focused on kinship networks,

other types of connections may operate in a similar manner. How candidates allocate and voters respond to clientelistic appeals from co-ethnics and co-religionists, for example, may follow the same pattern. Second, the findings in this paper may explain why clientelism persists in some contexts but not in others. Durable ties binding candidates and voters might weaken electoral accountability and make it harder for those without extensive family networks to oust incumbents.

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Supplemental Information for:
“Voting in Clientelistic Social Networks:
Evidence from the Philippines”

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A.1 Ethics and Permission

In this section, we outline the steps we took to identify and mitigate risks associated with the research. Our study went through an IRB review and approval process to ensure that the activities were in line with the principles of the Belmont report regarding the protection of human subjects. The project received a full IRB review process at the University of Michigan and was initially approved in February 7, 2013 (IRB No. HUM00068776). The study then received continued review and approval as amendments were made during the field implementation and throughout the entire period when the authors were analyzing data with identifying information, up till May 2019, when analyses were completed and the IRB oversight was terminated.

Following the American Political Science Association’s “Principles and Guidance for Human Subjects Research” (ratified by the APSA council in April 2020), we list below each of the 12 principles from the APSA, and describe the potential benefits and risks associated with our project, and where applicable, the set of steps we took to mitigate the risks.

A.1.1 Principle 1: “Political science researchers should respect autonomy, consider the well-being of participants and other people affected by their research, and be open about the ethical issues they face and the decisions they make when conducting their research.”

In addition to the standard IRB and informed consent procedures, the authors were careful to avoid questions or approaches that could put respondents or enumerators at risk. Interviews were conducted in private, using hand-held tablets so no-one but the respondents could view the responses. We used messaging and language that were familiar to voters, and considered a normal part of the campaign environment in the Philippines.

A.1.2 Principle 2: “Political science researchers have an individual responsibility to consider the ethics of their research related activities and cannot outsource ethical reflection to review boards, other institutional bodies, or regulatory agencies.”

One of the authors is a local, with first-hand knowledge of the social and political culture of the area. To be certain we conducted small group discussions to understand the mores surrounding the issue of vote buying and selling; our take away (which has been confirmed in subsequent interview and survey data) was that there is little stigma to vote buying and selling, even though the transaction is illicit. However, given that vote buying is formally illicit, we made sure that respondents’ anonymity was protected, and they were aware of

those protections.

A.1.3 Principle 3: “These principles describe the standards of conduct and reflexive openness that are expected of political science researchers. In some cases, researchers may have good reasons to deviate from these principles (for example, when the principles conflict with each other). In such cases, researchers should acknowledge and justify deviations in scholarly publications and presentations of their work.”

In the rest of the principles below, we identify to the best of our abilities the risks and trade-offs and justify the choices we made, in an open and transparent manner.

A.1.4 Principle 4: “When designing and conducting research, political scientists should be aware of power differentials between researcher and researched, and the ways in which such power differentials can affect the voluntariness of consent and the evaluation of risk and benefit.”

Aware of the power dynamics involved in a foreign team conducting the research, we elected to partner with a local research firm to conduct our survey, one that has a long history of research in this area, and which has built up high levels of community trust.

A.1.5 Principle 5: “Political science researchers should generally seek informed consent from individuals who are directly engaged by the research process, especially if research involves more than minimal risk of harm or if it is plausible to expect that engaged individuals would withhold consent if consent were sought.”

We sought informed consent from all respondents enrolled in the study. The consent form (see Section A.1.12) was written in the local language, and clearly explained the purpose of the study, the benefits and potential harm, and contact information of the IRB overseeing the study, among others. Our enumerators were trained to explain the contents of the consent form in rare cases when respondents are not able to read (for example, when too old and without their reading glasses, etc.).

In total, enumerators sought to locate 1,496 voters following the protocol (see Section A.1.12 for a copy of the protocol). Reasons for unsuccessful baseline surveys were as follows: failed to contact after repeated visits (170 voters), out of town (154), migrated out of town (92), refused (65), moved to unknown location (65), deceased (21), and other (27).

A.1.6 Principle 6: “Political science researchers should carefully consider any use of deception and the ways in which deception can conflict with participant autonomy.”

No deception was used in this study.

A.1.7 Principle 7: “Political science researchers should consider the harms associated with their research.”

There was extensive discussion among the PIs and local research partner about any potential risks of harm associated with this research. Great was taken to protect the anonymity of participants, including the use of tablets and keeping paper consent forms containing identifying information separate from the electronic survey data. In consultation with our local partner we also ensured that vulnerable individuals (e.g. those in areas with active insurgencies) were excluded from the survey, for their protection and the protection of our enumerators.

A.1.8 Principle 8: “Political science researchers should anticipate and protect individual participants from trauma stemming from participation in research”

We deemed the risk of trauma low given that a) vote buying and selling carry with them negligible social stigma or risk of legal punishment in the Philippines, and b) vote switching is the norm in the Philippine politics. However, sensitive to the risk that pointing out that voters had switched their vote between pre- and post-election survey might inflict psychological distress on some voters, we did not include such information in the post-election survey. We opted instead to construct a measure of vote-switching that is based on respondent answers that were not subject to stigma or social desirability bias, and were not likely to inflict psychological distress.

A.1.9 Principle 9: “Political science researchers should generally keep the identities of research participants confidential; when circumstances require, researchers should adopt the higher standard of ensuring anonymity.”

By asking respondents their pre-election favorability ratings and post-election self-reported voting, we were putting voters at risk of losing the confidentiality of their voting behavior. To protect the confidentiality of the participants’ responses, we made sure that the actual survey implemented on the tablet was free of personally identifying information. Instead, each survey form had a unique identifier attached to it, which we can then use to match with

the personally identifying information of the respondents, in case when we need them (for example, for when we had to revisit them for follow-up survey.) All data with personally identifying information were then encoded separately and stored in password-encrypted files, as we destroyed all the hard copies.

A.1.10 Principle 10: “Political science researchers conducting studies on political processes should consider the broader social impacts of the research process as well as the impact on the experience of individuals directly engaged by the research. In general, political science researchers should not compromise the integrity of political processes for research purposes without the consent of individuals that are directly engaged by the research process.”

We worked to be sure the language and content of our survey and experiments corresponded with language used by government and civil society actors as it related to elections. The experimental portion of the research did not present respondents with any information about candidates or parties that might affect their evaluations. We also sampled in such a way as to be sure that any unanticipated effects of our project could change the results of any electoral contest.

A.1.11 Principle 11: “Political science researchers should be aware of relevant laws and regulations governing their research related activities.”

We were diligent in following all laws and regulations governing this research, paying particular attention to the specific laws in place during an election period, which was the case when we implemented our baseline survey. For instance, we made sure to introduce our team as a non-partisan organization conducting research, as per requirement of the Commission on Elections. Our local research team and the Filipino PI are highly experienced in conducting survey research and experiments in the study site within the confines of the law.

A.1.12 Principle 12: “The responsibility to promote ethical research goes beyond the individual researcher or research team.”

It was important for us to work with a local team that had a firm grasp of the ethical underpinnings of the study. Before any human subject interaction took place, all local enumerators hired for the study went through the University of Michigan’s online Program for Education and Evaluation in Responsible Research and Scholarship (PEERRS) Certification. One of the PIs also oversaw the three-day enumerators’ training that included a half-day-long

module on research ethics for everyone involved in the administration of the data collection and intervention onsite.

A.1.13 Recruitment Protocol

Recruitment Protocol

1. Arrive at the meet-up location on time and with your enumerator kit.
2. After a brief debriefing from your team leader, begin visiting your assigned households.
3. At each household, introduce yourself using the script given separately.
4. If the person is available and agrees to participate, then give the participant the consent form to sign. Make sure that they sign the form, enter the date, and check the boxes at the bottom of the page.
 - a. If a respondent is not available temporarily (at work, market, visiting family, etc.):
 - Ask a family member to arrange a time for you to return.
 - Leave an appointment card with that family member.
 - Return at the designated time to administer the survey.
 - Record the visit in your survey log
 - b. If the respondent cannot be contacted at home permanently:
 - Administer the survey to an alternative family member who is of voting-age. Alternative family member should complete the consent form.
 - Record the visit in your survey log
 - c. If you have made 2 house visit attempts and the respondent is still not around:
 - Administer the survey to an alternative family member who is of voting-age. Alternative family member should complete the consent form.
 - Record the visit in your survey log
 - d. If the respondent refuses to be surveyed:
 - i. See if another household member of voting-age is willing to be surveyed
 - ii. If neither the respondent or other household members are willing to be surveyed, proceed to your next assigned household.
5. Conduct the survey, being careful to follow the instructions in the survey manual and on the survey itself.
 - a. After the consent form is completed and signed, begin by administering the paper format Baseline Questionnaire, Section 1. The Respondent ID# in the Baseline Questionnaire will serve as the respondent's unique identifier, which you will need to enter at the start of the offline electronic survey in your portable tablet device.
 - b. Unless the survey indicates otherwise,
 - i. You should read all of the questions to the person taking the survey.
 - ii. You should hold on to the portable tablet device and input all answers on the survey yourself.
 - iii. Be careful not to show the respondent the questionnaire itself so that the text does not unduly influence their answer.
6. After completing the electronic survey:
 - a. Complete Section 2 of the paper Format Baseline Questionnaire.
 - b. Offer the respondent a copy of the consent form to keep.
 - c. Record the survey in the survey log.
7. At the end of the day, return the completed surveys and portable tablet device to your team leader. Team leaders should check all paper format surveys for completeness and legibility.

A.1.14 Informed Consent in Local Language

Consent to Participate in a Research Study ***Voter Education Campaign in [REDACTED]***

Principal Investigator: [REDACTED]

Co-Investigators: [REDACTED]

Invitation to participate in a research study

Nais po namin kayong imbitahan na makibahagi sa isang research study tungkol sa iba't ibang uri ng voter education campaigns sa mga taga [REDACTED]. Ang layunin nito ay upang suriin ang mga palakad at patakaran na maaaring makatulong para iwasan ang pagbili at pagbenta ng boto tuwing eleksyon. Hinihiling po namin ang inyong pagsali sa aming pag-aaral, bilang isang residente at registradong botante ng [REDACTED].

Description of your involvement

Kung kayo po ay papayag na maging bahagi ng pag-aaral na ito, aanyayahan po namin kayong sumagot sa isang survey. Magtatanong kami sa inyo tungkol sa mga plano ninyo sa pagboto ngayong darating na May Elections, at tungkol sa mga isyung panlipunan na mahalaga sa inyo, sa inyong mga kapamilya at mga kakilala. Ang survey po na ito ay maaring magtagal ng 30 minutos. Maaari din po kayong makatanggap ng impormasyon tungkol sa pagbili at pagbenta ng boto at kung papano nito naaapektuhan ang ating pamahalaan at sambayanan.

Benefits

Kahit na po walang direktang benepisyo sa inyo sa pagsali sa pag-aaral na ito, umaasa kami na makakatulong ito para mapabuti pa ang mga voter education campaigns tuwing halalan. Maaari din pong makatanggap kayo ng impormasyon na makakatulong sa inyong pag-desisyon kung sino ang inyong iboboto.

Risks and discomforts

Para po sa kapanatagan ng inyong loob, siniguro po ng mga researchers na walang panganib na kaakibat ang pakikilahok sa research study na ito. Anupaman, maaari po kayong makaranas ng konting pagkabalisa dahil sa inyong pagsali. Maaring hindi kayo maging komportable sa pagsagot ng mga katanungan sa survey. Sakaling ito nga ay mangyari, maaari pong hindi ninyo sagutin o piliing lagpasan ang ilan sa mga katanungan at maaari rin namang itigil na natin ang survey anumang oras kung sa tingin ninyo ay hindi na kayo komportable sa pagsagot.

Compensation

Wala po kayong matatanggap na anumang kabayaran sa pagsali sa survey na ito.

Confidentiality

May plano po kaming ilathala ang resulta ng pag-aaral na ito, pero sinisiguro naming na hindi namin isasama ang alinmang impormasyon na maaaring maging sanhi ng inyong pagkakakilanlan o ng mga kapamilya ninyo. May mga dahilan kung bakit may ibang mga tao maliban sa mga researchers ang kailangang makita ang impormasyong ibinigay ninyo bilang bahagi ng pag-aaral. Kasama dito ang mga organisasyong responsable para siguruhing ang pag-aaral ay ginagawang ligtas at maayos, kabilang na ang [REDACTED]. Ang ibibigay mong mga impormasyon ay hindi kailanman iuulat sa alinmang ahensya o sa gobyerno o kanino pa man.

Para mapanatiling ligtas na nakatago ang mga impormasyong ibinigay ninyo, aalisin ng mga researchers ang alinmang impormasyong may pagkakakilanlan upang gumawa ng isang pangkalahatang file na gumagamit lamang ng natatanging pagkakakilanlan (unique identifier) sa bawat obserbasyon. Gagawa kami ng isang data file na mag-uugnay ng mga pangalan at address para muling makipag-ugnayan sa inyo, pero ang file na ito ay papanatiling ligtas na nakatago at hindi ipapamahagi. Ang orihinal na survey ay itatago sa isang nakakandadong cabinet at ito ay buburahin matapos ipasok sa computer.

At sakaling may sabihin kayo sa amin na sanhi upang aming paniwalaan na kayo o ibang tao ay nasaktan o maaaring masaktan, maaari namin itong ipagbigay alam sa mga kinaaukulang ahensiya.

Storage and future use of data

Pagkatapos ng data entry, lahat ng mga files na may mga impormasyong maaaring may pagkakakilanlan ay ilalagak sa mga encrypted folders gamit ang TrueCrypt Software. Ang mga folders na ito ay ilalagay sa Dropbox, na magiging paraan upang maibahagi namin sa aming mga researchers sa U.S. ang data. Sa paglinis o pag-analyze ng data lamang namin muling i-decrypt ang data, at gayunpaman, ito ay nasa local storage lamang at hindi ilalagay sa internet.

IRB: Health and Behavioral
Sciences

IRB Number: HUM00068776

Document Approved On: 3/18/2013

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A.1.15 Informed Consent in Local Language

Itatago ng mga researchers ang mga data sa loob ng dalawang taon matapos ang project.

Matapos ang dalawang taon, sisirain ang mga data sa pamamagitan ng pagpilas ng mga documento, pagsira ng mga disks o thumb drives, at pagbura ng mga electronic media.

Ang anumang data ay hindi papayagang magamit ng ibang mananaliksik para sa ibang pag-aaral matapos ang pag-aaral na ito at hindi maglalaman ng mga impormasyong maaaring may pagkakilalan sa iyo.

Voluntary nature of the study

Ang pagsali sa pag-aaral na ito ay boluntaryo. Kahit pumayag kayong sumali ngayon, maaari pa ring magbago ang inyong isip at tumigil anumang oras. Maaaring piliin ninyong hindi sagutin ang isang katanungan sa kahit anong dahilan. Kung magdesisyon kayong tumigil bago matapos ang survey, gagamitin pa rin namin ang inyong mga naunang kasagutan kung inyo pong papayagan.

Contact Information

Kung mayroon po kayong mga katanungan tungkol sa pag-aaral na ito, maari kayong makipag-ugnayan kay [REDACTED]

Kung may mga katanungan po kayo tungkol sa iyong mga karapatan bilang kalahok sa pag-aaral na ito, o nais makakuha ng impormasyon, magtanong o makipag-ugnayan tungkol sa pag-aaral na ito sa ibang tao maliban sa mga researchers, mangyaring pong makipagugnayan sa [REDACTED]

Consent

Sa paglakip ng inyong pirma sa dokumentong ito, pumapayag kayo na makilahok sa pag-aaral. Bibigyan naming kayo ng kopya ng dokumentong ito para sa inyong talaan at ang isang kopya ay sa aming talaan. Siguraduhin lang pong nasagot ang lahat ninyong mga katanungan tungkol sa pag-aaral na ito at naintindihan ninyo ang mga ipapagawa sa inyo. Kung may mga katanungan pa po kayo tungkol sa pag-aaral na ito sa hinaharap, maaari kayong makipagugnayan sa researchers.

Pumapayag akong sumali sa pag-aaral na ito.

Signature

Date

☐ *Pumapayag akong makipagugnayan pa sa mga researchers sa hinaharap kaugnay sa research study na'to. Naiintindihan ko na ang aking pangalan at address ay maingat na itatago at gagamitin lamang para sa pag-aaral na ito.*

A.2 Supplementary Tables and Figures

Table A.1: The effect of familial distance and vote-buying perceptions on vote-switching in the run-up to elections.

	Switched Away			Switched To		
	(1)	(2)	(3)	(4)	(5)	(6)
Perception of vote-buying (PVB)	-0.040*		-0.78***	0.0026		-0.40
	(0.021)		(0.28)	(0.014)		(0.25)
Familial Distance (SD)		0.23***	-0.094		-0.11**	-0.26**
		(0.063)	(0.15)		(0.053)	(0.12)
Familial Distance ² (SD2)		-0.039***	0.016		0.017*	0.039*
		(0.012)	(0.028)		(0.0087)	(0.020)
PVB*SD			0.53**			0.26
			(0.21)			(0.17)
PVB*SD2			-0.090**			-0.038
			(0.039)			(0.029)
District Fixed Effects	YES	YES	YES	YES	YES	YES
Candidate Fixed Effects	YES	YES	YES	YES	YES	YES
Voter-respondent Controls	YES	YES	YES	YES	YES	YES
No. of Observations	4,605	4,389	4,389	5,865	5,660	5,660
No. of Voter-respondents (i)	894	894	894	894	894	894
No. of Candidates (k)	41	41	41	41	41	41
R-squared	0.189	0.188	0.190	0.130	0.133	0.134

Notes: *Switched Away*=1 voter-respondent reported *not* voting for an initially favored candidate. *Switched To*=1 voter-respondent reported voting for a candidate who is *not* an initial favorite. Perceived vote-buying in the village is a value between 0 and 1, and is the respondents' answer to the question, "In your own perception, approximately what fraction of the voting population of your barangay was offered money by politicians this last election?" and the possible answers are 0, 0.2, 0.4, 0.6, 0.8 or 1. Familial distance is the number of degrees between voter-respondent and candidate in the familial network. Huber/White robust standard errors clustered at the respondent level in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table A.2: The effect of familial distance on the probability of supporting a candidate at the polls (without controlling for initial favorability ratings).

Dependent Variable: Vote = 1 if voter-respondent reported voting for a candidate.						
	(1)	(2)	(3)	(4)	(5)	(6)
Familial Distance	-0.27*** (0.040)	-0.27*** (0.040)	-0.27*** (0.041)	-0.22*** (0.042)	-0.25*** (0.042)	-0.27*** (0.053)
Familial Distance ²	0.036*** (0.0068)	0.035*** (0.0068)	0.036*** (0.0070)	0.033*** (0.0069)	0.039*** (0.0070)	0.043*** (0.0091)
Constant	0.78*** (0.056)	0.79*** (0.059)	0.80*** (0.060)	0.77*** (0.073)	0.42*** (0.064)	0.46*** (0.078)
Voter-respondent Controls	NO	YES	YES	YES	YES	.
District Fixed Effects	NO	NO	YES	YES	YES	YES
Candidate Controls	NO	NO	NO	YES	.	.
Candidate Fixed Effects	NO	NO	NO	NO	YES	YES
Voter-respondent Fixed Effects	NO	NO	NO	NO	NO	YES
No. of Observations	12,685	12,685	12,685	12,685	12,685	12,685
No. of Voter-respondents (i)	894	894	894	894	894	894
No. of Candidates (k)	41	41	41	41	41	41
R-squared	0.012	0.013	0.014	0.083	0.160	0.176

Notes: Familial distance is the number of degrees between voter-respondent and candidate in the familial network. Voter-respondent controls are listed in Table 3. Candidate controls are age, gender, incumbency status (relation to incumbent), and position. Huber/White robust standard errors clustered at the respondent level in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table A.3: Summary statistics for the main variables used in Tables 6 and 7.

Variable	Mean	Std. Dev.	Min	25th percentile	50th percentile	75th percentile	Max
Vote	0.32	0.47	0	0	0	1	1
Favorability Rating	0.24	0.24	-3	-1	0	2	3
Familial Distance	2.83	0.61	1	2	3	3	5
Familial Distance ²	8.39	3.50	1	4	9	9	25

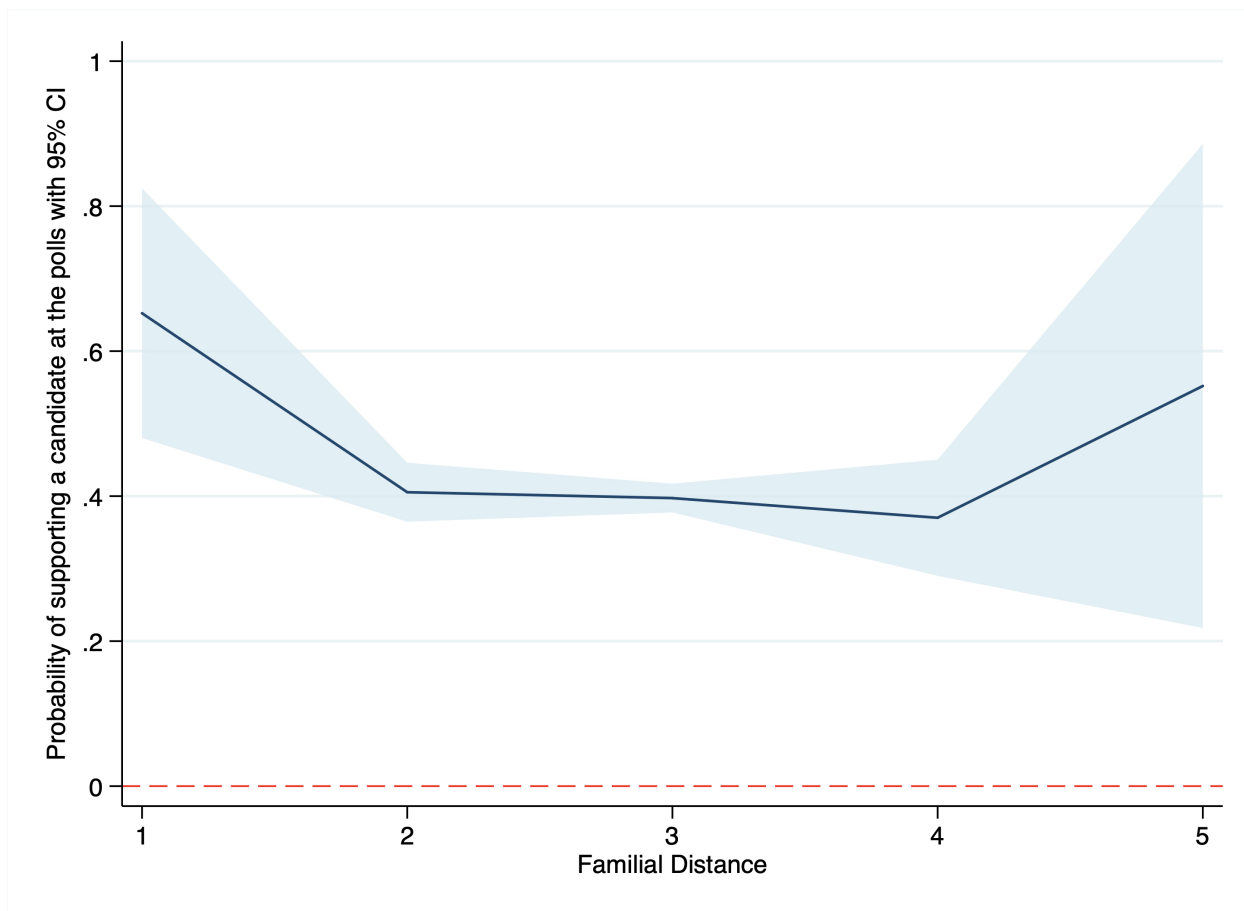


Figure A.1: **The effect of familial distance on the probability of supporting a candidate at the polls; mayoral and vice-mayoral candidates only.** Familial distance is the number of degrees between voter-respondent and candidate in the familial network.