

RESEARCH ARTICLE

Unpacking Bribery: Petty Corruption and Favor Exchanges

Diego Romero 

Assistant Professor, Department of Political Science, Utah State University, Logan, Utah, United States
Email: diego.mejiaromero@usu.edu

(Received 26 March 2024; revised 24 September 2024; accepted 24 September 2024; first published online 27 November 2024)

Abstract

The incidence of petty corruption in public service delivery varies greatly across citizens and geography. This paper proposes a novel explanation for citizen engagement in collusive forms of petty corruption. It is rooted in the social context in which citizen-public official interactions take place. I argue that social proximity and network centrality provide the two key enforcement mechanisms that sustain favor exchanges among socially connected individuals. Bribery, as a collusive arrangement between a citizen and a public official, relies on the same enforcement mechanisms. Using an original dataset from a household survey conducted in Guatemala, the analysis shows that social proximity and centrality allow citizens to obtain privileges through implicit favor exchanges and illicit payments. These findings are not driven by better access to information about the bribery market. This paper contributes to our understanding of the role of preexisting social relations in sustaining corrupt exchanges.

Across most of the world, public officials often use their positions to extract illicit payments from some of their fellow citizens and to grant unfair advantages and privileges to others. The incidence and cost of these illicit payments seem to vary across citizens and geographical locations. The social context in which interactions between public officials and citizens take place plays a crucial role in determining whether extralegal exchanges can occur. Social ties provide a mechanism of enforcement for these exchanges which is often overlooked in empirical work on bribery in the context of public service delivery (Rose-Ackerman 1998). A proper understanding of the terms in which citizens interact with public officials, and in particular, of how social ties contribute to sustaining extralegal exchanges, has far-reaching implications for the quality of public goods and local governance, and the success of anti-corruption programs (Tellez et al. 2020; Bauhr 2017).

In this paper, I offer an explanation for why some citizens engage in *collusive* forms of petty corruption in the context of public service delivery, based on the social context in which interactions between citizens and public officials take place. I focus on two forms of collusive corruption: bribery and implicit favor exchanges. Both can be understood as types of favor exchanges among socially connected individuals. When a favor exchange involves a citizen and a public official, the latter grants a privilege or advantage to the citizen which she is not legally entitled to, such as speeding up bureaucratic procedures, skipping red tape or obtaining unlawful special treatment. The citizen, in turn, may provide a monetary payment or the promise of reciprocating the favor in a different context and at a later time. The former constitutes bribery, while the latter entails an implicit favor exchange. I argue that a citizen's relative position vis-à-vis a public official, within their community or town's social network, determines whether an

extralegal exchange may go ahead. This relative position is a function of two elements. First, the social distance between a citizen and a public official, which determines how strong their relation is. Lower social distance between two individuals increases the value of their relationship, thereby ensuring that norms of reciprocity apply between them. Second, the citizen's centrality within the community or town's social network. Socially central individuals are, by virtue of their position within their community's network, more capable of influencing the behavior and opinions of others, which increases their capacity to exact retribution when aggrieved. Thus, individuals with stronger connections (i.e., lower social distance) to public officials, as well as those who are socially central, are more likely to engage in collusive forms of corruption when dealing with public officials. I argue that these enforcement mechanisms, rather than access to superior information regarding the state of the bribery market, account for a higher exposure to corruption among well connected individuals.

The existing research on corruption in the context of public service delivery focuses, more often than not, on a predatory class of exchanges which Lambsdorf (2007) appropriately defines as "extortion," whereby a public official conditions the delivery of a legally-obligated public service on a payment from the citizen (Fried et al. 2010; Lupu 2017; Robinson and Seim 2018). Additionally, it tends to overlook the social context in which transactions between citizens and public officials take place. Researchers have hitherto dealt with the question of why the incidence of illicit payments in exchange for public services varies across individual transactions by focusing on issues of bureaucratic organization (Becker and Stigler 1974; Shleifer and Vishny 1993), a state's capacity to monitor its workers (Di Tella and Schargrodsky 2003; Olken 2007), the ability of public officials to engage in price discrimination based on observable characteristics (Fried et al. 2010; Olken and Barron 2009; Robinson and Seim 2018), or the role of expectations in fostering corruption (Corbacho et al. 2016). The prevailing approach has been to model transactions between citizens and public officials, as potentially corrupt agents of the state, while assuming that there is no social link between them (Banerjee 1997; Cadot 1987; Manion 1996; Shleifer and Vishny 1993). As a result, the dynamics of favor exchanges between citizens and public officials, and forms of non-pecuniary corruption—exchanges that do not require a monetary payment—have gone largely understudied.¹ Therefore, this paper makes a theoretical contribution to the literature on petty corruption by focusing on these largely overlooked collusive exchanges.

This paper contributes to the understanding of how preexisting social relations enable extra-legal exchanges in three important ways. First, it posits that bribery is a favor exchange with money as repayment, and therefore, depends on the same enforcement mechanisms that sustain implicit favor exchanges among socially connected individuals. Thus, it builds upon and complements existing studies that recognize the importance of norms, trust, reciprocity and repeated interactions to sustain contracts in the absence of third-party enforcement (Abbink 2004; Barr and Serra 2010; Chandrasekhar et al. 2018; Fehr et al. 1997; Ferrali 2020; Rose-Ackerman 1998). Second, it argues that individual citizens take advantage of their personal connections in the context of public service delivery, just as firms may do when obtaining permits or competing for public contracts. There is a wealth of recent studies emphasizing the importance of firms' relations with bureaucrats and politicians to obtain favorable treatment in exchange for bribes, especially to secure procurement contracts (De Jong et al. 2015; Lehne et al. 2018; Broms et al. 2019; Romero 2024). Third, by focusing on interactions between socially connected individuals, this paper complements a growing body of work on ethnic favoritism and corruption in service delivery (Isaksson 2015; Seim and Robinson 2020), local governance (Bhavnani and Lee 2018), and anthropological studies of informal payments and gifts (Polese 2014). Finally, this paper conceptually distinguishes favor exchanges from clientelistic exchanges and relates to the extensive clientelism literature, which shows the importance of preexisting networks (e.g., based on kinship or problem-solving networks) in the selection of political candidates, the construction

¹Some important exceptions include Coffman and Anderson (2018) and Hunt (2004).

of networks of brokers, and the development of strategies to target voters (Hicken 2011; Szwarcberg 2012; Stokes et al. 2013; Cruz 2019, Ravanilla and Hicken 2021; Hicken et al. 2022).

I rely on an original dataset gathered through two modules included in a household survey with 18,715 respondents that was conducted in Guatemala in 2019. An important aspect of this data collection effort sets my study apart from previous work: implicit favor exchanges and bribery are measured separately from extortion, taking steps to mitigate concerns regarding underreporting due to social desirability bias. To test whether such concerns were indeed mitigated, the survey also measured the incidence of favor exchanges, bribery and extortion employing list experiments. The findings suggest that respondents who are socially proximate to public officials are more likely to engage in implicit favor exchanges and bribery. There is also tentative evidence that social centrality increases the likelihood of engaging in bribery. While these results cannot be taken as evidence of a causal relation, I do control for key potential confounders which may determine the likelihood of engaging in collusive forms of petty corruption. Taken together, these findings suggest that social proximity and centrality, by providing enforcement mechanisms that sustain corrupt transactions, allow citizens to obtain illegal advantages through implicit favor exchanges and bribery. These findings go beyond simply increasing the frequency of contact with public officials and are not driven by better information about the bribery market (Abbink 2004; Rose and Peifer 2015).

2. The Argument

The most commonly accepted definition of corruption is “the abuse of entrusted power for private gain which harms the public interest, typically by breaching laws, regulations and/or integrity standards” (Barrington et al. 2024, p. 88). In line with this definition, corruption in public service delivery presents itself in two ways. First, it may take the form of extortion, where the public official uses its power over access to a given public good or service to extract an extra payment from the citizen (Lambsdorf 2007). Extortion has been the focus of the majority of studies of petty corruption in public service delivery (Bohn 2012; Fried et al. 2010; Robinson and Seim 2018). Alternatively, it may take the form of *collusion* between a citizen and a public official that materializes as an exchange of favors. A favor exchange between a citizen and a public official necessarily involves a transaction over essentially two different services; the public service that originated the contact, and a privilege or advantage the citizen is not legally entitled to, which is the favor to be exchanged. The public official and the citizen engage in an *implicit favor exchange* when the former receives from the latter either a promise or the realization of a favor or gift in a different context as payment for the advantage granted. This favor or gift may vary depending on the context and the kind of advantage granted: food, mediation on a business deal, help securing a private sector job for a family member, etc. In contrast, *bribery* occurs as a type of favor exchange in which money is exchanged for access to illegal advantages (Lambsdorf 2007).

In the surface, *implicit favor exchanges* may appear to be instances of clientelistic exchanges. The key distinction lies in the currency of the exchange. According to Hicken (2011), while there is no generally accepted definition of clientelism, all definitions have one element in common: contingency. Patrons (politicians) deliver a benefit or the promise of a benefit to a client (voter), usually through a network of brokers, in exchange for the client’s electoral support (Stokes et al. 2013). Importantly, while the benefits granted by the patron may range from public sector jobs (Robinson and Verdier 2013; Van de Walle 2007) to requests for help in times of vulnerability (Nichter 2018; Rains and Wibbels 2023), the client’s end of the bargain always consists of the same, namely, a display, declaration, or promise of electoral support. In other words, “The delivery of a purely private good by a politician to an individual would not be considered clientelism if it came without electoral strings attached.” (Hicken 2011, p. 294). In contrast, in *implicit favor*

exchanges as in other forms of corruption more generally, the public official abuses their office for private gain rather than in exchange for demonstrations of electoral support.

The challenge for collusive corruption to be sustained is the absence of legal recourse when one of the parties to the exchange decides to defect. The literature presents us with at least 3 potential sources of enforcement for collusive corruption. First, there is the view that collusive corrupt exchanges are self-sustaining as long as the expected benefits from the exchange are greater than the potential costs associated with defection and detection by anti-graft authorities for both parties to the exchange. This logic was first articulated by Becker and Stigler (1974), and it is at the core of rational choice models of corruption.² The second source of enforcement for collusive corruption is repeated interactions between the same actors in the same context. Repeated interactions generate predictability and mutual trust, and lower the costs associated with the risk of defection (Abbink 2004; Pechlivanos 1998; De Jong et al. 2015; Rose and Peifer 2015; Hunt 2004).³ A third source of enforcement can be found in the identity of the actors involved. Previous research shows that in places where ethnicity is salient, altruism and norms of reciprocity among co-ethnics may foster illegal exchanges (Seim and Robinson 2020). Alternatively, pre-existing relations can help originate and sustain collusive corruption through relational contracting and reputation (in the case of ongoing business relations), trust, kin altruism, and reciprocity (Lambsdorf 2007; Rose-Ackerman 1998; Rose-Ackerman and Palifka 2016).

This paper builds on this latter research agenda and argues that a citizen's relative position vis-à-vis a public official, within their community or town's social network, provides the necessary enforcement mechanisms to sustain collusive extra-legal exchanges such as bribery and implicit favor exchanges. A citizen's position in the network, with respect to the public official, is determined by two characteristics: the social distance between the citizen and the public official, and the citizen's centrality within the town's social network. These are attributes which are typically known to the public official or can be signaled by the citizen at the moment when the exchange takes place. In general, individuals with stronger (direct or indirect) connections to public officials, as well as those who are socially central, are more likely to have access to favor exchanges in dealings with public officials. It has previously been observed that frequent interactions with public officials increase the likelihood of bribery (Abbink 2004; De Jong et al. 2015; Rose and Peifer 2015).⁴ Instead, I argue that social distance and centrality provide two important mechanisms of enforcement of extralegal exchanges *in addition to* increasing the frequency of interactions between citizens and public officials, which they also do. These are reciprocity and the capacity to influence the behavior of others, respectively.

The concept of social distance between a citizen and a public official refers to how strong and how mediated their relationship is. A citizen with a direct tie to a public official, based on friendship or family ties, is more proximate to them than a citizen who lacks a direct bond. Since the tie is direct, their relation is not mediated by any other tie. Moreover, the strength of that direct tie depends on the nature of tie (e.g., relatives versus acquaintances). Similarly, a citizen who has a direct tie to a public official is likely to be more socially proximate to other public officials that work in the same agency. In this case, the relation between the citizen and the other public officials will be mediated by the relation that exists between the citizen's direct tie and the other public officials. Formally, social distance may be defined as the sum of the inverse weights of each of the

²The dominant approach in the economics literature on corruption is to model public officials as agents of the state with monopoly power over the provision of a specific public good or service (Banerjee 1997; Cadot 1987; Shleifer and Vishny 1993). Public officials are assumed to have some information about the citizen that they come into contact with, which usually consists of signals regarding willingness and capacity to pay, potential political contacts, or moral character.

³Iteration is also important to sustain clientelistic exchanges between patrons and clients (through brokers) since it generates predictability and facilitates monitoring (Kitschelt and Wilkinson 2007).

⁴Similarly, as pointed by an anonymous reviewer, socially central individuals may have a higher demand for public services because of their importance within their community, resulting in more opportunities to engage in implicit favor exchanges and bribery.

ties in the shortest path between the two individuals, multiplied by the length of the shortest path. The weights assigned to each tie give a sense of the strength of the direct relationship; higher weights represent stronger relationships.

Reciprocal behavior, whereby individuals reward kind gestures and punish unfair treatment, allows for the enforcement of transactions absent an external enforcer (Fehr et al. 1997). Social distance affects the likelihood of reciprocity and trust between individuals. The number of interactions between any two individuals, and the number of different contexts in which those interactions take place, increases as the social distance between them decreases (Chandrasekhar et al. 2018). Furthermore, as the strength of the relationship between two individuals increases, so does the number of common connections they have. Thus, a stronger bond places both individuals in a situation where norms of reciprocity in multiplex relations, similar to those described by Ellickson (1991), regulate their interactions. The reciprocity that stronger and less mediated relations fosters, entails that as the social distance between a citizen and a public official decreases, the latter can be sure that taking the gamble of participating in corrupt behavior will pay off. This is so because the citizen will surely return the favor in future interactions or immediately with a monetary payment and can be trusted with maintaining the secrecy of the exchange.⁵ Thus, citizens that are socially proximate to public officials are more likely to participate with them in bribery and implicit favor exchanges, where repayment takes the form of a favor.⁶ Additionally, absent any connection, the bribe required to sustain an illegal exchange would be large. Therefore, favor exchanges of this sort can seldom take place when a citizen and a public official have no network connection whatsoever. The following testable hypothesis derives from the preceding argument:

H1: A citizen that is socially proximate to public officials is more likely to participate in favor exchanges (both implicit favor exchanges and bribery) with public officials.

On the other hand, centrality—particularly closeness centrality—is a concept that captures the importance of a given individual within a network (Chandrasekhar et al. 2018).⁷ Socially central individuals are in a better position to receive and disseminate information and influence other people within the network (Cruz et al. 2017). Furthermore, the social distance between a central individual and a public official is likely to be low, assuming that a path between the two exists, which is not always guaranteed.⁸

By virtue of their position within the network, socially central citizens can more easily spread information and influence the behavior of others. Local notables, community leaders and organizers are able to provide a more valuable repayment to the public official in exchange for an illegal privilege (e.g., by granting them access to new and potentially lucrative connections outside of the public sector). The value of the potential repayment stems not from these individuals' wealth but from how well-connected they are to the rest of the people in their town. Thus, it is important not to confuse the local importance social centrality entails with wealth as a proxy for

⁵From the perspective of a public official, reneging on an exchange with a socially proximate citizen in order to avoid consistent demands for favors carries with it the cost of potentially forgoing future exchanges with the citizen and with individuals in their network.

⁶Similarly, Rose-Ackerman (1998) argues that gift-giving between an agent of the state and a citizen, which requires an unenforceable (by legal means) *quid pro quo*, is more likely to take place when the parties to the exchange have a preexisting relationship based on friendship or kinship.

⁷An individual is said to be socially central, in terms of closeness centrality, if the total social distance between them and all other individuals in their common network is low (Opsahl et al. 2010).

⁸There are often occasions when public officials do not belong to the towns to which they are assigned, making them less likely to have local connections. Such assignments may be the result of an explicit strategy to combat corruption or may reflect spatial inequalities in the provision of public goods and the distribution of qualified public servants (Abbink 2004; Krishna and Schober 2014).

social stature.⁹ Additionally, Chandrasekhar et al. (2018) argue that socially central individuals can compel others to cooperate through the threat of large reputational punishments facilitated by their capacity to spread information within the network (e.g., the threat of losing access to networks of mutual exchange (Kranton 1996; Rose-Ackerman 1998)). Socially central individuals may, for example, influence hiring, firing and promotion decisions, even if they do not hold any position in local government themselves. Thus, either by the promise of great rewards or fear of reputational punishments, it should be expected that socially central individuals are more likely to have access to favor exchanges.¹⁰

H2: A citizen who is central within their town's social network is more likely to participate in favor exchanges (both implicit favor exchanges and bribery) with public officials.

The argument presented thus far holds under three specific conditions. First, it applies to states with patrimonial bureaucracies, where the boundaries between private and public spheres are blurred (Rose-Ackerman and Palifka 2016). Previous research shows that in those contexts people seek to leverage their connections to access state resources (Jancsics 2013; De Jong et al. 2015; Nystrand 2017; Smith 2017). Second, the argument pertains to appointed rather than elected public officials, particularly those with discretionary power over the delivery of public services (e.g., determining eligibility or deciding how a service will be provided) (Cadot 1987; Klitgaard 1988; Shleifer and Vishny 1993; Banerjee 1997). Third, the argument applies in both one-off as well as repeated interactions between citizens and public officials *in the context of public service delivery*. For norms of reciprocity to bind repeated exchanges in *different* contexts are necessary (i.e., in contexts beyond those in which the public official acts in that capacity) (Ellickson 1991).

3. Empirical Context: Petty Corruption Across Guatemala

To test the argument developed thus far I focus on the case of Guatemala. Latin America in general, and Guatemala in particular, are fertile grounds for the study of corruption. Transparency International places Guatemala as the fourth most corrupt country in the region, with a progressively deteriorating score of 23 out of 100 points on its expert survey-based Corruption Perception Index¹¹. There are two reasons behind selecting Guatemala as the empirical case: (a) the importance of social networks as substitutes for a functioning welfare state in the country, and (b) the patrimonial structure of the country's bureaucracy and the opportunities for collusive corruption that these generate.

Guatemala is a young democracy with the least institutionalized political party system in Latin America (Mainwaring 2018, Sanchez 2009, Sánchez-Sibony 2016), and a large informal sector which employs 70.2 percent of the country's workforce (INE 2019), which came out of a 36-year long civil war only 27 years ago. In contexts like this, social networks and connections to public officials play a key role in citizens' relation to the state. Networks based on kinship or affiliation to a group play a key role in risk-sharing arrangements, access to financial resources and jobs in developing countries with large informal sectors (Fafchamps 1992; Fafchamps and Lund 2003;

⁹Previous research has found that wealthier individuals are more likely to bribe and less likely to be extorted (Bohn 2012; Fried et al. 2010; Robinson and Seim 2018). These findings are attributed to the fact that wealth may be interpreted by public officials as a proxy for political connections. Moreover, wealthier individuals may have more opportunities to engage in bribery as they may seek more public services (e.g., construction or business permits).

¹⁰The clientelism literature has identified socially-central individuals (e.g., local notables and community leaders but also public officials) as the kinds of individuals needed to build networks of brokers (Stokes et al. 2013; Hicken et al. 2022). Their standing within the community makes them valuable assets for patrons who seek to maintain or increase their electoral base. This paper argues that social centrality enables individuals to incentivize public officials to engage in collusive corruption, regardless of their involvement in local electoral politics.

¹¹<https://www.transparency.org/en/cpi/2023/index/gtm>.

Wydick et al. 2011; Kranton 1996). More generally, connections to public officials are an important asset to citizens in a variety of institutional environments, from Italy to Vietnam (Cingano and Pinotti 2013; De Jong et al. 2015). These connections are particularly useful in weak institutional environments where the lines between duties to one's family and the responsibilities of public office are blurred (Rose-Ackerman and Palifka 2016). In particular, previous research shows that petty corruption is rampant in post-conflict societies, and that connections with public officials are useful to guarantee access to scarce resources through collusive corruption (Rose-Ackerman 2008; Smith 2017, Nystrand 2017).

Public employment is often used by candidates to national and municipal office as a tool to increase political and financial support, and the public office itself, as a platform to benefit one's circle (CICIG 2019). In fact, incumbents use their office to appoint, hire and promote loyalists, even through the creation of fake positions (Castillo Zamora 2022). As such, Guatemalan bureaucracies—specially at the municipal level—can be described as patrimonial.¹² In this context favor exchanges are not uncommon transactions between citizens and public officials. According to the 2016-17 wave of the Latin American Public Opinion Project (LAPOP) survey, which among other things, measures corruption victimization in seven public services, around 20.6 percent of respondents in the region reported having been asked to pay a “bribe” (translated as “mordida” in Guatemala) by a public official. In comparison, 25.1 percent of Guatemalan respondents made one such illicit payment in the same period (Lupu 2017).

Therefore, Guatemala presents an ideal empirical setting to study how citizens use their personal connections to obtain preferential treatment through bribery and implicit favor exchanges in the context of public service provision.

4. Data

This study relies on an original dataset gathered through 2 modules included in a household survey with 18,715 respondents. The survey was conducted in the summer of 2019, in 64 municipalities of 14 of the 22 departments of Guatemala. The survey was primarily designed to study the impact of the Model Police Precinct (MPP) project, which was implemented by RTI International¹³ between June 2016 and June 2019 with funding from the United States Department of State's Bureau of International Narcotics and Law Enforcement. At its core, the MPP project was a capacity-building program. Its primary objective was to strengthen coordination and collaboration between municipal governments and the National Civil Police (PNC). Therefore, there is a possibility that the interventions associated with the MPP project might have contributed to lower the incidence of collusive corruption in these municipalities.¹⁴

The dataset contains representative samples of the adult population of each municipality included.¹⁵ Although the sample of municipalities is not random because inclusion in the sample is predicated on participation in the MPP project, the sample of respondents does resemble the Guatemalan population as a whole.¹⁶ According to the 2018 Census, the average age of the adult Guatemalan population is around 37 years, 52 percent of the population is female, and 41.7 percent identify as Maya and speak a Maya language.¹⁷ In comparison, the average age of a survey respondent is 41, 54 percent of respondents are women, and for 36 percent of respondents said Spanish is not their mother tongue. Moreover, *municipalities* included in the survey are similar to

¹²Mayors, famously, use municipal employment, promotions, and bonuses to reward for, or to encourage loyalty (Morales 2019, 2021).

¹³RTI International is a non-profit research institute with expertise in implementing development projects in a wide array of areas, including security.

¹⁴The survey was limited to municipalities participating in the MPP project, which prevents testing this point.

¹⁵Appendix C contains information on the sampling procedures.

¹⁶Note, however, that municipalities with low and high crime rates were selected for inclusion in the project.

¹⁷The census data are available online at <https://www.censopoblacion.gt>.

Table 1. Connections with Public Officials

Any Connection		Acquaintance	Friend	Relative
Municipal Worker	54.49%	83.24%	12.96%	2.80%
Municipal Police Agent	21.20%	64.98%	24.82%	10.20%
National Police Agent	19.36%	57.45%	24.26%	18.29%

those excluded in measures such as levels of poverty, inequality and insecurity, access to internet (very low across the board) and sanitation, urbanization and the average size of the municipal economy (see Appendix Table A1). Municipalities in the sample, however, have a higher average population and a slightly lower electrification rate.

4.1 Survey-Based Measures of Social Distance and Centrality

To measure the distance between citizens and public officials, respondents were asked whether they personally knew anyone who worked as an agent of the municipal police, an agent of the national civil police (PNC), and a municipal worker, as well as the nature or strength of their relationship to them.¹⁸ Note, however, that without a network census of each populated place, it is only possible to measure the strength or weight of the direct tie between the respondent and each of the public officials, rather than the full social distance based on weighted shortest paths. Therefore, I employ an average measure of the strength of the respondent's direct ties to public officials as a proxy for their social distance with respect to public officials. I will refer to this measure hereafter as **proximity**, which is based on the question “*what is your relationship with the municipal worker/agent or officer of the national police/agent or officer of the municipal police?*” The answers correspond to “1” for an acquaintance, “2” for a friend, and “3” for a relative. Thus, the higher the value of the variable, the stronger the bond between the public official and the individual (i.e., the higher the weight of the direct tie), and the less social distance there is between them.¹⁹

This measure of social proximity is based on the assumption that kinship produces stronger bonds than friendship or acquaintances. This assumption is justified in so far as kinship and extended family networks have been shown to play an important role in risk-sharing arrangements and access to financial resources and jobs in developing countries (Fafchamps 1992; Fafchamps and Lund 2003). Moreover, this measure is also informative of the respondent's social proximity to the other public officials within the same agencies, since respondents who has a direct tie to a public official are likely to be more socially proximate to other public officials that work in the same agency. My approach allows for measuring existing relationships, as opposed to perceptions of the quality of personal interactions with public officials (De Jong et al. 2015). It also provides an improvement over binary measures of connections based on common belonging to a pre-defined network with regards to education, business, or employment, and over measures of embeddedness based on place of origin or ethnicity (e.g., Lehne et al. 2018; Schoenherr 2019).

About 55% of respondents reported having a personal connection with a municipal worker (excluding municipal police agents), far more than those who reported a personal connection with an agent of the municipal police (21.2%) or national police agent who is active in their municipality (19.4%). The estimates presented in Table 1 show that, while fewer people reported

¹⁸These questions were only asked to a randomly-chosen half of the sample due to constraints on the duration of the survey.

¹⁹Alternatively, I also use a count of relations to public officials as a measure of proximity.

to have a connection with police agents than with municipal workers, those relations are more likely to be based on friendship or family.²⁰

Absent data on the full network of each populated place, it is impossible to obtain a precise measure of social centrality for each individual surveyed. In light of this, I employ three similar but distinct measures to proxy for social centrality. The main measure of centrality, **centrality**, is based on answers to the question: “*how often do people from your neighborhood come to you for help or advice to solve problems?*” This question was designed to capture the capacity of individuals to spread information through their network and influence others’ behavior, and thus, to map as directly as possible to the definition of centrality presented earlier. The first alternative measure of centrality, **leadership**, is based on whether an individual reports having (or having recently had) a leadership role in any of the organizations they belong to. This measure captures individuals’ (self-reported) standing within the community. The second alternative measure of centrality, **community engagement**, was computed using item response theory to estimate a latent trait. This was based on the responses to the two questions employed as the main measure and the first alternative measure of centrality, and an additional one: “*There are many ways of getting involved in one’s community. Do you think you will attend a community meeting in the coming year?*” Results using these alternative measures of centrality are presented in the Appendix.²¹

4.2 Measuring Favor Exchanges

This paper examines exchanges between citizens and public officials within the context of public service delivery. Specifically, it focuses on interactions involving municipal workers and agents from both the municipal and national police. The relevant services are, therefore, those directly provided by municipal governments, such as water, sanitation, garbage collection, and construction permits. It also addresses services managed by the police, including parking permits issued by the municipal police and public safety and police records handled by the national police.

Favor exchanges, both implicit favor exchanges and bribery, were measured in two different ways, employing direct questions. These questions were designed to assuage concerns of underreporting due to social desirability bias, and to correctly distinguish bribery from instances of extortion. The word bribe, translated as “soborno” or “mordida” (the culturally relevant terms in Guatemala) is absent from the wording of these questions, because people use the same word to describe instances of bribery and extortion as defined in this paper. Instead, I use simple descriptions of what the act of exchanging favors (either for favors or money) entails. In this context, “favors” are understood as speeding up bureaucratic procedures, skipping red tape or obtaining unlawful special treatment. The first set of direct questions, which shall be referred to as “Direct Questions 1,” began with a short sentence intended to soften the question that followed.²² A randomly selected third of respondents in the sample saw one of the following questions:²³

²⁰Given the widespread presence of gangs in the country, one might be concerned that personal connections with the national police vary significantly based on gang activity. However, respondents in areas with both high and low gang presence reported personal relationships with national police officers at similar rates: 28.3% and 30.7%, respectively. The difference is not statistically significant ($p\text{-value} = 0.643$).

²¹Appendix Table A3 shows that there is no strong correlation between the measures of proximity and centrality. One may worry that central individuals may tend to be wealthier than their neighbors. However, there is no strong correlation between measures of centrality or proximity and measures of wealth (asset count) or income.

²²Note that, although the public services are not specifically listed in the wording of the questions below, the questions themselves are included in a section of the survey asking about public services provided by the municipal government and by the police. Moreover, the questions do nudge respondents to keep municipal employees and police officers in mind.

²³The remaining third of the sample received a question regarding extortion.

Table 2. Estimates of Favor Exchanges and Extortion

Implicit Favors		Bribery	Extortion
<i>Full Sample</i>			
Direct Question 1	0.1328	0.0631	0.0941
	(0.0043)	(0.0031)	(0.0037)
Observations	6,161	6,161	6,124
List Experiments	0.1361	0.0679	0.0856
Difference in means	(0.0202)	(0.0197)	(0.0197)
Observations	5,496	5,527	5,448
<i>People who interacted with public officials</i>			
Direct Question 1	0.1902	0.0895	0.0984
	(0.0139)	(0.0099)	(0.0103)
Observations	799	816	791
Direct Question 2*	0.1873	0.0503	0.0813
	(0.0079)	(0.0044)	(0.0055)
Observations	2,451	2,448	2,449

*These were only asked to people who had interacted with a public official in the last year
Standard errors clustered at the Municipality level in parenthesis.

1. *Sometimes people receive free favors from public officials (such as a municipal employee or a police officer). When interacting with a public official in the last year, have you received a free favor?*
2. *Sometimes people pay money to obtain favors from public officials (such as a municipal employee or a police officer). When interacting with a public official in the last year, have you paid money in order to obtain a favor?*

Additionally, a randomly selected half of the sample received a set of questions regarding interactions with public officials (police and municipal workers).²⁴ Only those who reported an interaction were then asked the following direct questions (“Direct Questions 2”) without any priming:

1. *Did you receive a favor from the municipal worker (e.g. obtaining a permit or accelerating a process)/police agent (e.g. avoiding a penalty or accelerating a process)?*
2. *If respondent did receive a favor) Did you give a monetary payment to the municipal worker/police agent for that favor?*

Using Direct Questions 2, I create two dichotomous variables to measure whether a respondent engaged in at least one implicit favor exchange, and one act of bribery, respectively.

In order to test whether the wording of the direct questions actually lessened underreporting due to social desirability bias, the direct question (“Direct Questions 1”) that an individual was

²⁴Exploratory analysis (Appendix D) shows that 77 percent of all bribes and 36 percent of all implicit favor exchanges took place in interactions with agents of the national police (PNC), the municipal police and municipal workers. Similarly, data from LAPOP shows that respondents in the region reported a higher rate of bribery in transactions with municipal workers and police agents (Lupu 2017). These findings are in line with Klitgaard (1988) who argued that public officials that provide a service for which the state holds monopoly power are in a better position to be bribed.

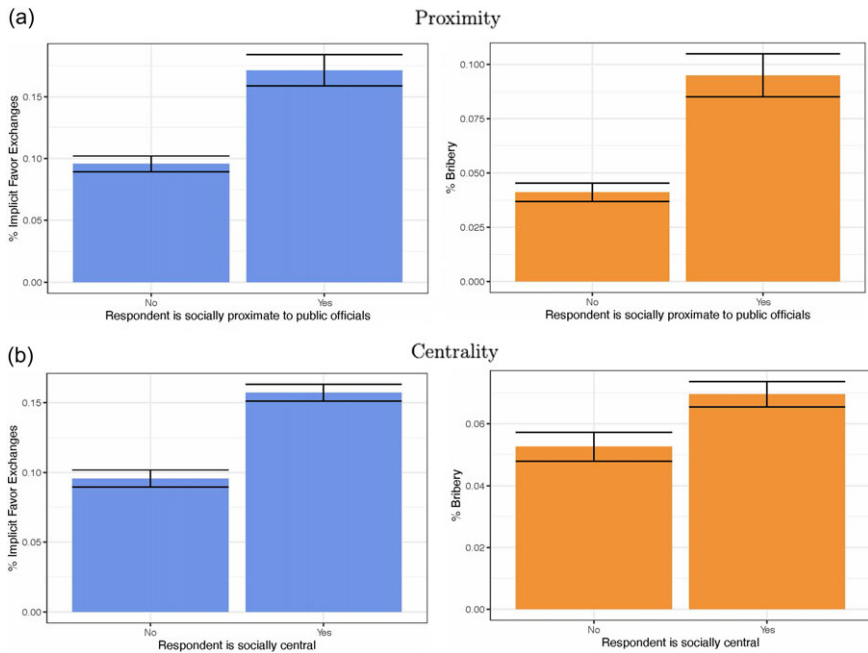


Figure 1. Who Engages in Favor Exchanges.

assigned to was paired with a list experiment, so that the sensitive item of the experiment employed the same wording as the direct question. List experiments have been used for measuring the incidence of sensitive beliefs and behaviors (e.g., vote buying in Nicaragua (Gonzalez-Ocantos et al. 2012), or bribing among foreign firms in Vietnam (Malesky et al. 2015)).

A third of respondents in the sample were randomly assigned to a “control” and a “treatment” group in order to conduct the list experiment to measure the incidence of implicit favor exchanges and bribery. The remaining third received a list experiment to measure the incidence of extortion. The prompt and the innocuous items were the same across all list experiments and across treatment assignment:

I will read you a list of things people commonly do when interacting with a public official (such as a municipal employee or a police officer). After I read all of them, tell me HOW MANY of these you have done when interacting with a public official in the last year.

- Address the public official respectfully.
- Chat with the public official about sports.
- Interrupt the public official when he/she is explaining a procedure.

Respondents assigned to the “treatment” group saw an additional, potentially sensitive item, depending on whether the objective was to measure the incidence of implicit favor exchanges (*Received a favor from the public official*) or bribery (*Paid the public official to obtain a favor*). Appendix B presents balance tables and diagnostics for the list experiments employed.

Table 2 presents estimates of the incidence of implicit favor exchanges and bribery using the different questioning methods described. Comparing the estimates obtained through direct questioning, and those generated using list experiments embedded in the survey, shows that the precautions taken in choosing the wording of the direct questions sufficed to prevent

underreporting; estimates of implicit favor exchanges and bribery are essentially identical across the two methods. In light of this finding, the list experiment measures will not be used in the main analysis presented on the next section. Multivariate regression estimators for list experiments are available, but they tend to be inefficient (Imai 2011; Blair and Imai 2012).

Overall, 13.3 percent of the respondents reported, through direct questioning, that they had engaged in implicit favor exchanges in their dealings with public officials within the past 12 months, and 6.3 percent reported having been engaged in acts of bribery. Among those who reported having an interaction with at least one public official within the last 12 months, prior to being asked about favor exchanges, the estimate of bribery increases slightly, while the estimate of implicit favor exchanges increases by 5.7 percentage points. Estimates of implicit favor exchanges and bribery obtained by directly asking about interactions with police agents and municipal workers (Direct Questions 2) are fairly similar, though always lower than those obtained through direct questions about exchanges with public officials in general, as Table 2 shows. About 9% of respondents reported having been a victim of extortion by public officials. Importantly, the combined incidence of implicit favor exchanges and bribery is significantly higher than that of extortion in the sample.

5. Methods

Multivariate regression analysis for the previously described dependent variables, which measure implicit favor exchanges and bribery, relies on the following logistic regression model:

$$V_{im} = \text{logit}^{-1}(\beta_0 + \beta_1 \text{Proximity}_{im} + \beta_2 \text{Centrality}_{im} + \lambda X_{im} + \phi_m + \varepsilon_{im}) \quad (1)$$

Where V_{im} is a binary indicator of whether a respondent participated in at least one implicit favor exchange or received a favor in exchange for a monetary payment (bribe) in her dealings with a series of public officials. X_{im} contains variables that measure individual characteristics, which may confound the relation between the proximity, centrality and participation in collusive exchanges (household size, employment status, gender, age, native language, educational attainment, physical distance to the administrative center of the municipality,²⁵ and capacity to pay bribes, measured as income and wealth). I also include a second battery of civic engagement controls (reported likelihood of attending community meetings, volunteering at a local organization, protesting and affiliating with a political party) which may determine social proximity, centrality and participation in bribery and implicit favor exchanges, but may also be affected by participation in such exchanges. Finally, ϕ_m stands for municipality fixed effects, which controls for time-invariant differences between municipalities.²⁶

6. Results

Appendix Table A2 displays summary statistics for all variables used in the analysis. Appendix Tables A4 through A6 show summary statistics for the randomly selected subsamples that received questions on bribery and implicit favor exchanges (from Direct Questions 1), as well as for the subsample that received Direct Questions 2.

We begin this section by exploring the question *who engages in favor exchanges?* Figure 1 shows the percentage of respondents who report having had engaged in implicit favor exchanges and bribery according to whether they are socially proximate to public officials (i.e., individuals with a

²⁵Distance was calculated as the geodesic distance between the precise location where an interview took place and the municipal government building. This measure underestimates the true distances many citizens in rural areas face since it does not take into account the terrain and existing roads.

²⁶Appendix Table A21 presents estimates from a mixed effects logistic regression which allows for the estimation of regression coefficients for municipality-level variables such as population size.

Table 3. Proximity, Centrality and Interactions with Public Officials Interacted with a Public Official

	(1)	(2)	(3)	(4)
Proximity	0.824*** (0.081)	0.682*** (0.087)	0.643*** (0.076)	0.609*** (0.079)
Centrality	0.310*** (0.043)	0.285*** (0.042)	0.323*** (0.042)	0.295*** (0.043)
<i>Demographics</i>				
Asset Count		0.079*** (0.019)	0.083*** (0.018)	0.084*** (0.019)
Enough Income		0.064 (0.095)	0.131 (0.103)	0.140 (0.104)
Spanish		0.049 (0.159)	0.011 (0.136)	0.050 (0.144)
Male		0.090 (0.072)	0.104 (0.074)	0.085 (0.077)
Age		0.009*** (0.002)	0.009*** (0.002)	0.010*** (0.002)
Household Size		0.008 (0.013)	0.007 (0.012)	0.009 (0.013)
Distance		−0.008 (0.006)	−0.016*** (0.004)	−0.017*** (0.004)
Secondary Education		0.422*** (0.078)	0.422*** (0.075)	0.417*** (0.076)
Employment		−0.055* (0.023)	−0.048* (0.023)	−0.046* (0.022)
<i>Civic Engagement</i>				
Attend Meetings				0.010 (0.040)
Volunteer				0.073+ (0.039)
Protest				0.013 (0.026)
Affiliate				0.045+ (0.027)
Constant	−1.963*** (0.125)	−2.559*** (0.241)	−2.405*** (0.176)	−2.863*** (0.255)
Municipality FE			Y	Y
Observations	9,272	8,658	8,658	8,357
Log Likelihood	−5,126.3	−4,625.2	−4,346.1	−4,219.6
AIC	10,258.5	9,274.5	8,844.1	8,599.1

Standard errors clustered at the Municipality level. Coefficients are in log-odds.

* $p < 0.05$, ** $p < 0.01$, ***

Table 4. Proximity, Centrality and Favors Exchanges I

	Implicit Favors (Direct 1)					Bribes (Direct 1)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Proximity	0.563*** (0.104)	0.512*** (0.109)	0.527*** (0.125)	0.428** (0.133)	0.405** (0.130)	0.827*** (0.169)	0.715*** (0.209)	0.687** (0.220)	0.619** (0.229)	0.706*** (0.213)
Centrality	0.395*** (0.075)	0.407*** (0.082)	0.407*** (0.087)	0.365*** (0.090)	0.398*** (0.087)	0.254* (0.107)	0.249* (0.116)	0.243* (0.114)	0.216+ (0.122)	0.235* (0.115)
Interact				0.794*** (0.169)					0.661* (0.270)	
Constant	−2.995*** (0.173)	−2.860*** (0.285)	−2.336*** (0.297)	−2.391*** (0.293)	−2.729*** (0.513)	−3.701*** (0.231)	−4.071*** (0.388)	−2.982*** (0.384)	−2.969*** (0.404)	−2.988*** (0.528)
Demographics		Y	Y	Y	Y		Y	Y	Y	Y
Civic Engagement					Y					Y
Municipality FE			Y	Y	Y			Y	Y	Y
Observations	3,013	2,819	2,819	2,819	2,724	3,053	2,851	2,851	2,851	2,765
Log Likelihood	−1,065.4	−973.4	−892.5	−877.0	−858.9	−642.4	−585.9	−486.4	−481.0	−472.3
AIC	2,136.9	1,970.9	1,935.0	1,906.1	1,875.7	1,290.8	1,195.8	1,124.9	1,115.9	1,104.7

Standard errors clustered at the Municipality level. Coefficients are in log-odds.
 * p < 0.05, ** p < 0.01, *** p < 0.001

proximity score above the mean), or socially central within their communities (i.e., individuals with a **centrality** score above the mean). We can see that individuals with stronger social ties to public officials and socially central individuals are more likely to report participating in implicit favor exchanges and bribery. Appendix Figure A4 shows that the same holds true for wealthier and more educated individuals. On the other hand, women are *less* likely to report engaging in bribery and respondents of Maya descent are *less* likely to report engaging implicit favor exchanges (see Appendix Figure A5).

6.1 Social Distance, Centrality, and Interactions with Public Officials

The argument developed so far refers to how social proximity and centrality provide a mechanism to sustain favor exchanges (both implicit favor exchanges and bribery), *taking interaction as given*. Previous research has alluded to the fact that socially proximate citizens should be more likely to interact with public officials in the context of public service delivery simply because of the nature of their relation (Rose and Peifer 2015). Moreover, central individuals, by virtue of their position within their town's social network, may seek public services at a higher rate.²⁷ Therefore, before testing the argument, I first assess whether social proximity and centrality are associated with an increase in the likelihood of interaction in the context of public service delivery. I regress an indicator for whether an individual interacted with a public official within the last 12 months on the measures of proximity and centrality. Table 3 displays these results. The coefficients of the two variables of interest are positive and statistically significant (at the 0.1 percent level) across all specifications. In the fully specified model (Column 3), which includes a municipality fixed effects and a set of controls for individual characteristics that may confound the relation between the proximity, centrality, and interactions with public officials, an increase of one standard deviation above the mean in the measure of social proximity is associated with a 5.1 percentage point increase in the predicted probability of interacting with a public official, holding all other variables constant. Similarly, for an increase of one standard deviation above the mean in the measure of centrality, we expect a 3.9 percentage point increase in the predicted probability of interacting with a public official, holding all other variables constant. The results remain largely unchanged when using the alternative measures of centrality described above, and when using a count of the number of reported relationships with public officials as the measure of social proximity.²⁸

6.2 Social Distance, Centrality, and Favor Exchanges

Figure 1 provides descriptive evidence of the importance of proximity and centrality on collusive petty corruption. To test the hypotheses developed in this paper, I now estimate equation 1, making use of the binary measures of implicit favor exchanges and bribery obtained via direct questions since underreporting is of no concern.²⁹ First, I regress the binary measures of implicit favor exchanges and bribery generated using Direct Questions 1, on the measures of social proximity and centrality. The fully specified models include all control variables listed above. Table 4 presents these results, and Appendix Figure A2 plots the predicted marginal effects of the variables of interest.³⁰

²⁷As pointed out by an anonymous reviewer, this constitutes a competing mechanism by which proximity and centrality increase the likelihood of engaging in favor exchanges.

²⁸See Appendix Tables A7 and A8.

²⁹Appendix Table A20 displays results obtained by employing the nonlinear least squares estimator proposed by Imai (2011). The coefficients on proximity and centrality cannot be distinguished from zero.

³⁰Appendix Table A21, Columns 1 through 4, present estimates from a mixed effects logistic regression which include population size. While the coefficient of population size cannot be distinguished from zero in any of the models, the coefficients on the variables of interest are qualitatively similar to the estimates presented in Table 4.

Table 5. Proximity, Centrality and Favor Exchanges II

	Implicit Favors (Direct 2)				Bribes (Direct 2)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Proximity	0.409*** (0.094)	0.376*** (0.095)	0.415*** (0.108)	0.389*** (0.115)	0.512* (0.201)	0.472* (0.202)	0.360* (0.174)	0.415* (0.180)
Centrality	0.230*** (0.069)	0.232** (0.074)	0.215** (0.080)	0.186* (0.079)	0.103 (0.124)	0.113 (0.112)	0.057 (0.116)	0.003 (0.124)
Constant	-2.174*** (0.179)	-2.238*** (0.423)	-1.467*** (0.401)	-1.898** (0.593)	-3.495*** (0.298)	-3.484*** (0.476)	-3.813*** (0.476)	-4.397*** (0.536)
Demographics		Y	Y	Y		Y	Y	Y
Civic Engagement				Y				Y
Municipality FE			Y	Y			Y	Y
Observations	2,436	2,256	2,256	2,204	2,433	2,253	2,253	2,201
Log Likelihood	-1,157.20	-1,060.10	-958.6	-933.3	-472.1	-434.5	-345.2	-329.3
AIC	2,320.40	2,144.20	2,067.20	2,024.50	950.2	893	840.4	816.6

Standard errors clustered at the Municipality level. Coefficients are in log-odds.

* p < 0.05, ** p < 0.01, *** p < 0.001

According to **H1**, social proximity is expected to be positively associated with the likelihood of participating in implicit favor exchanges and bribery. The results in Table 4 support this expectation. Respondents with stronger ties to public officials are more likely to participate in *both kinds* of favor exchanges. Let us first focus on implicit favor exchanges—those in which the public official grants access to an illicit advantage in exchange for a future favor from the citizen. Note that proximity is positively associated (significant at the 0.1 percent level) with the likelihood of engaging in implicit favor exchanges in the most parsimonious model (Column 1), as well as in the fully specified model in Column 3. Focusing on the latter model, an increase of one standard deviation from the mean in the social proximity measure is associated with a 2.37 percentage point increase in the predicted probability of engaging in implicit favor exchanges with a public official at least once within the past 12 months, holding all other variables constant. Next, we focus on bribery, a class of favor exchanges where the citizen makes a payment to obtain an illicit advantage. Proximity is positively associated with the likelihood of engaging in bribery across all specifications presented in Columns 6 through 10 of Table 4. As Column 8 shows, an increase of one standard deviation from the mean in the measure of social proximity is associated with a 1.51 percentage point increase in the predicted probability of bribing a public official, holding all other variables constant (significant at the 5 percent level).

Centrality is positively associated (significant at the 0.1 percent level) with the likelihood of participating in implicit favor exchanges with public officials, and with the likelihood of participating in bribery (significant at the 5 percent level). Taken together, these results provide evidence in support of **H2**. The results in Column 3 of 4 imply that an increase of one standard deviation from the mean in the measure of centrality is associated with a 2.84 percentage point increase in the predicted probability of participating in implicit favor exchanges with a public official at least once within the past 12 months, holding all other variables constant. Similarly, the results in Column 8 of 4 imply that the same increase in the measure of centrality is associated with a 0.83 percentage points increase in the predicted probability of engaging in bribery. An important concern in the Guatemalan context may be that respondents who reported occupying positions of leadership or high importance within their communities but outside local government, may in fact be antagonized by local public service providers in some municipalities. This may be especially problematic in the case of environmental or indigenous rights activists. To ease these concerns, models in Columns 5 and 10 also include controls for different types of civic engagement, including participating in protests and volunteering.

In order to probe whether social proximity and centrality are positively associated with the likelihood of engaging in favor exchanges—beyond simply increasing contact with service providers, as Table 3 shows—I first estimate the fully specified model once again, including a binary variable for whether the respondent has been in contact with a public official in the context of public service delivery within the past 12 months as an additional control. Results in Table 4, columns 4 and 9, show that including this control decreases the magnitude of the coefficients on proximity and centrality, although they remain statistically significant at conventional levels.

As a second step, I now restrict analysis to the sample of individuals who reported at least one interaction with a public official within the past 12 months. The measures of implicit favor exchanges and bribes now come from the second set of direct questions, Direct Questions 2. Table 5 displays the results, and Appendix Figure A3 plots the predicted marginal effects of the variables of interest.³¹

Once again, there is clear evidence in support of **H1**. Among respondents who reported at least one interaction with a public official in the last 12 months, those with stronger ties to public officials were more likely to participate in favor exchanges. Column 3 of Table 5, which displays

³¹Moreover, Appendix Table A21, Columns 5 through 8, present estimates from a mixed effects logistic regression which include population size. While the coefficient of population size cannot be distinguished from zero in any of the models, the coefficients on the variables of interest are qualitatively similar to the estimates presented in Table 5.

results from the fully specified model, shows that proximity is positively associated (significant at the 0.1 percent level) with the engaging in implicit favor exchanges. Thus, an increase of one standard deviation from the mean in the measure of social proximity is associated with a 2.68 percentage point increase in the predicted probability of participating in implicit favor exchanges with a public official, holding all other variables constant. The results displayed in Column 7 of Table 5 show that proximity is positively associated (significant at the 5 percent level) with engaging in bribery. Specifically, an increase of one standard deviation from the mean in the measure of social proximity is associated with a 0.71 percentage point increase in the predicted probability of engaging in bribery, *ceteris paribus*.³²

Evidence in support of H_2 is rather mixed. First, among respondents who reported at least one interaction with a public official in the last 12 months, the measure of centrality is positively associated (significant at the 5 percent level) with participation in implicit favor exchanges with public officials. According to the fully specified model in Column 3 of Table 5, a one standard deviation increase from the mean in the measure of centrality is associated with an increase of 2.16 percentage points on the predicted probability of implicit favor exchanges, holding all other variables constant. In contrast, the coefficient of centrality cannot be distinguished from zero across the three specifications (Columns 5 to 8) presented in Table 5. Therefore, while social centrality plays a key role in securing access to implicit favor exchanges, the present analysis cannot decisively conclude that it plays a role in obtaining access to illegal advantages through bribery, beyond its correlation with an increase in interactions with public officials in the context of public service delivery. These null finding may be a product of measurement error. Depending on the context, certain individuals, from activists to local organized crime bosses, may have incentives to not truthfully report the degree to which they are important within their community (e.g., through their counseling and support to other members of the community) in the context of a survey.³³

The results presented thus far hold when employing a count of relationships with public officials as the measure of social proximity, instead of the average strength of the reported connections (Appendix Tables A9 and A10). The results remain largely unchanged when employing two alternative measures of centrality as well (Appendix Tables A11 and A12). The main measure of social proximity may suffer from reverse causality, since the reported friendship between a respondent and a public official could be the result of previous exchanges. To test whether this is the case, I repeat the analysis, dropping all individuals who reported being friends with any public officials and calculating proximity by only taking into account family and acquaintance. Results in Appendix Table A19 lend support to the findings regarding social proximity. Further analysis also shows that social proximity and centrality do not affect the likelihood of extortion (Appendix Table A14). These results highlight how problematic it is to reach conclusions regarding bribery and its correlates while only relying on survey data that does not appropriately distinguish bribery from instances of extortion. Finally, the main results hold when estimated using a mixed effects logistic regression which includes population size (Appendix Table A21).

³²Social proximity makes bribery more likely by increasing both the likelihood of citizen-public official interactions, and the likelihood of reciprocity between the two. The coefficient of social proximity in the models presented in Table 4 captures its association with bribery through both paths, while the coefficient of social proximity in the models of Table 5 captures its association with bribery only through latter path. This, and the fact that models presented in both tables use a different measure of bribery, account for the observed differences in the magnitude of the coefficients of social proximity.

³³In light of this possibility, the models presented in Columns 4 and 8 of Table 5 also include controls for different types of civic engagement. Alternatively, as suggested by an anonymous reviewer, socially central individuals may coerce public officials into participating in implicit favor exchanges to avoid participating in a money exchange (e.g., due to the stigma associated with monetary payments).

6.3 Alternative Arguments

There are three alternative arguments that may explain the results presented thus far. The first one is altruism towards one's own kin. Public officials may be more willing to favor family members and would grant them favors with no expectation of reciprocation. Kin altruism is particularly prevalent in situations when helping is costly, such as in the case of instances of petty corruption (Stewart-Williams 2007). If kin altruism is at play, we should expect respondents with personal ties based on family to be less likely to engage in bribery than those whose ties are based only on friendship or acquaintance and those with no ties at all. We should expect individuals whose ties are based only on friendship or acquaintance to be less likely than does with family ties to report having received a favor in exchange for no money. Furthermore, we should expect respondents with ties based on family to be less likely to engage in gift giving in exchange for favors. This is so, because family members—those who benefit from the public official's altruism—would not be required to reciprocate or pay for the favor received. To test whether kin altruism is the relevant mechanism I first replace the measure of proximity with three binary variables, one for respondents whose ties are only based on kin, friendship or acquaintance, respectively, and regress these measures and a full set of controls on the binary measures of favor exchanges used thus far. Results in Appendix Table A15 show that the expectations described are not necessarily met. The coefficient of family ties on implicit favor exchanges is positive but it is not statistically significant. However, the coefficient of friendship ties is positively and significantly associated with bribery. For the second test I rely on data from the exploratory study conducted before the survey that produced the data employed so far, and estimate equation 1 using a binary variable indicating whether the respondent engaged in gift giving in exchange for favors as the outcome of interest. The measures of proximity and centrality included are analogous to those described earlier.³⁴ I find that proximity—and centrality—has a positive and significant effect on the likelihood of engaging in gift giving in exchange for favors (see Appendix Table A16). Although this evidence suggests that kin altruism may not be the mechanism behind the results presented in the previous section, it cannot be fully ruled out.

A related alternative argument is that bribery is the product of weak ties. As such, we should expect there to be an inverted U-shaped relation between bribery and social proximity. First, a monetary exchange should not be required when ties between two individuals are sufficiently strong (i.e., family members should not pay bribes). However, when the social distance between the citizen and the public official is high enough, we should also expect the likelihood of bribery to decrease, since the enforcement mechanism provided by social proximity dissipates. I test this argument by including the squared term of proximity in equation 1. Results in Appendix Table A17 show that this is not the case: Columns 1 and 2 provide no evidence in support of an inverted U-shaped relation between bribery and social proximity.

Finally, according to the third argument, citizens, by virtue of their direct connections with public officials, or their privileged positions within their community's social network, may be privy to important information about the bribing market in their towns. One version of this argument, which focuses on access to accurate information about how much to bribe specific public officials, rests on the assumption that there is a market-clearing price for each illegal advantage a citizen may purchase from a public official. To test this alternative explanation, I rely on data generated by a question regarding the size of the bribe needed to avoid the consequences of a traffic violation.³⁵ Respondents were asked the following question: "*Sometimes people offer money to the police to avoid a traffic fine. How much do you think a person in your community would have to give a policeman to avoid a traffic fine?*" For each individual who provided an

³⁴The exact wording of the question employed is: "Have you ever given a present (e.g., food or some other little detail) to a public official (such as a teacher, a municipal worker, a RENAP worker, or a health worker) in exchange for a favor?" Appendix D contains a description of the exploratory study.

³⁵Space constraints within the survey instrument prevented the inclusion of additional similar questions.

estimate for the bribe, I construct a measure of estimate inaccuracy by calculating the absolute difference between that estimate and the median bribe estimate in their municipality and community,³⁶ and then take the natural logarithm of this amount. Appendix Table A18 contains the results of regressing the measure of inaccuracy on proximity, centrality and a full battery of controls. Those results suggest that proximity and centrality have no effect on bribe estimate inaccuracy. Thus, we cannot conclude that the relevant mechanism is, in fact, better access to accurate information regarding how and how much to bribe.³⁷

Finally, according to an alternative and more general version of this argument, citizens with a direct connection to public officials may be more likely to learn about the potential for using collusive corruption to obtain illicit advantages when accessing public services. While I lack the appropriate data to rule out this alternative mechanism, it is important to note that for such knowledge to transform into favor exchanges, an enforcement mechanism may still be required to protect the secrecy of the exchange and ensure repayment.

7. Conclusion

This paper has shown that an individual's social proximity to public officials, and her centrality within their town's social network predicts engagement in collusive forms of petty corruption, namely implicit favor exchanges and bribery. While doing so, it contributes to the literature on petty corruption in at least two substantive ways. First, it builds on previous work on the importance of social networks to sustain exchanges in the absence of a third party to enforce agreements (Chandrasekhar et al. 2018; Fehr et al. 1997; Ferrali 2020; Rose-Ackerman 1998) to show how social proximity and centrality provide enforcement mechanisms that sustain extralegal exchanges and allow citizens to obtain advantages through implicit favor exchanges and bribery, in the context of public service delivery. Social proximity enables rules of reciprocity that bind among friends and family members, and which are particularly important in weak institutional environments. Centrality embodies the proverbial carrot and stick in the form of potentially large rewards for a public official that grants extralegal advantages to a socially central citizen, and equally large punishments for a public official that cheats on such a citizen. Therefore, this paper contributes to our understanding of the role of preexisting social relations, whether based on kin, ethnicity or business networks in sustaining corrupt exchanges more generally (De Jong et al. 2015; Isaksson 2015; Lehne et al. 2018; Seim and Robinson 2020; Schoenherr 2019). The findings presented here also relate to previous research on how preexisting networks (e.g., based on kinship) provide a structure through which clientelistic exchanges may take place (Stokes et al. 2013; Cruz et al. 2017; Cruz 2019; Ravanilla and Hicken 2021; Hicken et al. 2022).

The second contribution is both conceptual and empirical. My argument situates bribery within the broader context of favor exchanges among individuals connected through social networks, clearly differentiating it from instances of extortion by public officials. Additionally, I distinguish these exchanges from clientelistic ones based on the nature of the currency involved: while clientelism seeks displays of political support from citizens, these favor exchanges are aimed only at securing private gains for the public official and the citizen involved (Hicken 2011). Since bribery is a favor exchange between a citizen and a public official, it depends on the same enforcement mechanisms that sustain implicit favor exchanges among socially connected individuals. Consequentially, the analysis employs direct measures of implicit favor exchanges and bribery that are clearly distinguishable from extortion and mitigate concerns of underreporting

³⁶Communities are established based on the sampling procedure: each populated place within a municipality is assumed to be a community.

³⁷One limitation of this test is the relatively low ownership of motor vehicles beyond larger urban areas. According to the Guatemalan Tax Authority (SAT), by December 2018 there were 1,520,153 registered motor vehicles in the country, or about 100 vehicles per every 1000 people. Data is available at <https://portal.sat.gob.gt/portal/parque-vehicular/>.

due to social desirability bias—a claim which I test using list experiments. In contrast, traditional survey measures of “bribery” do not allow for a distinction between payments that are made in exchange for illegal advantages (i.e., collusive forms of petty corruption) and payments that are made to access legally entitled services.

The findings with regards to social proximity also have important implications for the implementation of anti-corruption programs at a local level. Private citizens, this paper suggests, make use of their relationships with public officials in much the same way that firms use their political and bureaucratic connections to obtain illegal advantages in licensing, access to loans, and procurement contracts (Khawaja and Mian 2005; De Jong et al. 2015; Lehne et al. 2018; Broms et al. 2019; Romero 2024). While efforts to combat extortion should be expected to garner support from aggrieved citizens, as Bauhr (2017) suggests, addressing collusive forms of corruption, particularly bribery and favor exchanges, presents a more complex challenge. These exchanges create a constituency that benefits from and supports the status quo, where unfair advantages can be traded. Tackling bribery may require individuals to betray the trust of relatives and friends. Thus, policymakers must carefully consider the existing relationships between citizens and public officials when designing anti-corruption policies.

Supplementary material. To view supplementary material for this article, please visit <https://doi.org/10.1017/lap.2024.50>

Acknowledgments. I would like to thank Erik Wibbels, Pablo Beramendi, Livia Schubiger, Scott de Marchi, Edmund Malesky, Herbert Kitschelt, Evelyne Huber, Jonathan Hartlyn, Cecilia Martinez-Gallardo, Serkant Adiguzel, Mateo Villamizar-Chaparro, Ngoc Phan, Dean Dulay, Marco Morucci, Paweł Charasz, Rasmus Broms and Jeremy Springman for their feedback at various stages of this project. I would also like to thank the members of 2020-2021 Quality of Government Best Paper Award, Marcia Grimes, Lena Wängnerud, Georgios Xezonakis, and Stephen Dawson, and the members of the Quality of Government Institute for their encouragement, comments and suggestions.

Competing of interest declaration. I have no conflict of interest to declare.

Funding declaration. This research benefit from financial support from the Molano Endowment Research Award Grant, The Center for Latin American and Caribbean Studies’ Graduate Student Field Research Grant, and the Center for International and Global Studies’ Graduate Research & Training Grant, all from Duke University.

References

- Abbink, Klaus. 2004. Staff Rotation as an Anti-Corruption Policy: An Experimental Study. *European Journal of Political Economy* 20, 4: 887–906.
- Banerjee, Abhijit V. 1997. A Theory of Misgovernance. *The Quarterly Journal of Economics* 112, 4: 1289–1332.
- Barr, Abigail, and Danila Serra. 2010. Corruption and Culture: An Experimental Analysis. *Journal of Public Economics* 94, 11–12: 862–869.
- Barrington, Robert, Elizabeth David-Barrett, Rebecca Dobson Phillips, and Georgia Garrod. 2024. *Dictionary of Corruption*. Agenda Publishing.
- Bauhr, Monika. 2017. Need or Greed? Conditions for Collective Action Against Corruption. *Governance* 30, 4: 561–581.
- Becker, Gary S., and George J. Stigler. 1974. Law Enforcement, Malfeasance, and Compensation of Enforcers. *The Journal of Legal Studies* 3, 1: 1–18.
- Bhavnani, Rikhil R., and Alexander Lee. 2018. Local Embeddedness and Bureaucratic Performance: Evidence from India. *The Journal of Politics* 80, 1: 71–87.
- Blair, Graeme, and Kosuke Imai. 2012. Statistical Analysis of List Experiments. *Political Analysis* 20, 1: 47–77.
- Bohn, Simone R. 2012. Corruption in Latin America: Understanding the Perception-Exposure Gap. *Journal of Politics in Latin America* 4, 3: 67–95.
- Broms, Rasmus, Carl Dahlström, and Mihály Fazekas. 2019. Political Competition and Public Procurement Outcomes. *Comparative Political Studies* 52, 9: 1259–1292.
- Cadot, Olivier. 1987. Corruption as a Gamble. *Journal of Public Economics* 33, 2: 223–244.
- Castillo Zamora, Juan Manuel. 2022. ¿De Qué Tamaño es Nuestro Estado? La Pregunta Tiene más de una Respuesta. *Plaza Pública*. URL: <https://www.plazapublica.com.gt/content/de-que-tamano-es-nuestro-estado-la-pregunta-tiene-mas-de-una-respuesta>

- Chandrasekhar, Arun G., Cynthia Kinnan, and Horacio Larreguy. 2018. Social Networks as Contract Enforcement: Evidence from a Lab Experiment in the Field. *American Economic Journal: Applied Economics* 10, 4: 43–78.
- CICIG. 2019. *Servicio Civil en Guatemala: La Necesidad de una Burocracia Estable en Guatemala*. Comisión Internacional contra la Impunidad en Guatemala. URL: <https://cicig.org/wp-content/uploads/2019/08/InformeServicioCivil.pdf>
- Cingano, Federico, and Paolo Pinotti. 2013. Politicians at Work: The Private Returns and Social Costs of Political Connections. *Journal of the European Economic Association* 11, 2: 433–465.
- Coffman, Chad D., and Brian S. Anderson. 2018. Under the Table: Exploring the Type and Communication of Corruption on Opportunity Pursuit. *Journal of Business Venturing Insights* 10: Article e00101.
- Corbacho, Ana, Daniel W. Gingerich, Virginia Oliveros, and Mauricio Ruiz-Vega. 2016. Corruption as a Self-fulfilling Prophecy: Evidence from a Survey Experiment in Costa Rica. *American Journal of Political Science* 60, 4: 1077–1092.
- Cruz, Cesi. 2019. Social Networks and the Targeting of Vote Buying. *Comparative Political Studies* 52, 3: 382–411.
- Cruz, Cesi, Julien Labonne, and Pablo Querubin. 2017. Politician Family Networks and Electoral Outcomes: Evidence from the Philippines. *American Economic Review* 107, 10: 3006–37.
- De Jong, Gjal, Phan Anh Tu, and Hans van Ees. 2015. The Impact of Personal Relationships on Bribery Incidence in Transition Economies. *European Management Review* 12, 1: 7–21.
- Di Tella, Rafael, and Ernesto Schargrodsy. 2003. The Role of Wages and Auditing During a Crackdown on Corruption in the City of Buenos Aires. *The Journal of Law and Economics* 46, 1: 269–292.
- Ellickson, Robert C. 1991. *Order Without Law*. Harvard University Press.
- Fafchamps, Marcel. 1992. Solidarity Networks in Preindustrial Societies: Rational Peasants with a Moral Economy. *Economic Development and Cultural Change* 41, 1: 147–174.
- Fafchamps, Marcel, and Susan Lund. 2003. Risk-Sharing Networks in Rural Philippines. *Journal of Development Economics* 71, 2: 261–287.
- Fehr, Ernst, Simon Gächter, and Georg Kirchsteiger. 1997. Reciprocity as a Contract Enforcement Device: Experimental Evidence. *Econometrica: Journal of the Econometric Society* 65: 833–860.
- Ferrali, Romain. 2020. Partners in Crime? Corruption as a Criminal Network. *Games and Economic Behavior* 124: 319–353.
- Fried, Brian J., Paul Lagunes, and Atheendar Venkataramani. 2010. Corruption and Inequality at the Crossroad: A Multimethod Study of Bribery and Discrimination in Latin America. *Latin American Research Review* 45, 1: 76–97.
- Gonzalez-Ocantos, Ezequiel, Chad Kiewiet De Jonge, Carlos Meléndez, Javier Osorio, and David W. Nickerson. 2012. Vote Buying and Social Desirability Bias: Experimental Evidence from Nicaragua. *American Journal of Political Science* 56, 1: 202–217.
- Hicken, Allen. 2011. Clientelism. *Annual Review of Political Science* 14, 1: 289–310.
- Hicken, Allen, Edward Aspinall, Meredith L. Weiss, and Burhanuddin Muhtadi. 2022. Buying Brokers: Electoral Handouts Beyond Clientelism in a Weak-Party State. *World Politics* 74, 1: 77–120.
- Hunt, Jennifer. 2004. Trust and Bribery: The Role of the Quid Pro Quo and the Link with Crime. Working Paper 10510, National Bureau of Economic Research. URL: <http://www.nber.org/papers/w10510>
- Imai, Kosuke. 2011. Multivariate Regression Analysis for the Item Count Technique. *Journal of the American Statistical Association* 106, 494: 407–416.
- INE. 2019. *Encuesta Nacional de Empleo e Ingresos 1-2019*. Instituto Nacional de Estadística. URL: <https://www.ine.gob.gt>
- Isaksson, Ann-Sofie. 2015. Corruption Along Ethnic Lines: A Study of Individual Corruption Experiences in 17 African Countries. *The Journal of Development Studies* 51, 1: 80–92.
- Jancsics, David. 2013. Petty Corruption in Central and Eastern Europe: The Client's Perspective. *Crime, Law and Social Change* 60: 319–341.
- Khwaja, Asim Ijaz, and Atif Mian. 2005. Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market. *The Quarterly Journal of Economics* 120, 4: 1371–1411.
- Kitschelt, Herbert, and Steven I. Wilkinson. 2007. Citizen-Politician Linkages: An Introduction. In *Patrons, Clients and Policies: Patterns of Democratic Accountability and Political Competition*, eds. Kitschelt, Herbert, and Steven I. Wilkinson. Cambridge University Press.
- Klitgaard, Robert. 1988. *Controlling Corruption*. University of California Press.
- Kranton, Rachel E. 1996. Reciprocal Exchange: A Self-Sustaining System. *The American Economic Review* 86: 830–851.
- Krishna, Anirudh, and Gregory Schober. 2014. The Gradient of Governance: Distance and Disengagement in Indian Villages. *Journal of Development Studies* 50, 6: 820–838.
- Lambsdorff, Johann Graf. 2007. *The Institutional Economics of Corruption and Reform: Theory, Evidence and Policy*. Cambridge university press.
- Lehne, Jonathan, Jacob N. Shapiro, and Oliver Vanden Eynde. 2018. Building Connections: Political Corruption and Road Construction in India. *Journal of Development Economics* 131: 62–78.
- Lupu, Noam. (2017), Corruption in the Americas. In *The Political Culture of Democracy in the Americas 2016/17: A Comparative Study of Democracy and Governance*, eds. Cohen, Mollie J., Noam Lupu, and Elizabeth J. Zechmeister. Vanderbilt University.

- Mainwaring, Scott.** 2018. Party Systems in Latin America: Institutionalization, Decay, and Collapse. In *Party System Institutionalization in Contemporary Latin America*, ed. Mainwaring, Scott. Cambridge University Press.
- Malesky, Edmund J., Dimitar D. Gueorguiev, and Nathan M. Jensen.** 2015. Monopoly Money: Foreign Investment and Bribery in Vietnam, a Survey Experiment. *American Journal of Political Science* 59, 2: 419–439.
- Manion, Melanie.** 1996. Corruption by Design: Bribery in Chinese Enterprise Licensing. *The Journal of Law, Economics, and Organization* 12, 1: 167–195.
- Morales, Isaías.** 2019. Villa Nueva Destinó 2.7 Millones en Bono Extraordinario para los Empleados Municipales. *Ojo con mi Pisto*. URL: <https://www.ojoconmipisto.com/villanueva-destino-q2-7-millones-en-bono-extraordinario-para-los-empleado-s-municipales/>
- Morales, Isaías.** 2021. Secretarios Municipales: Ganar más de Q20 Mil sin Conocer las Leyes. *Ojo con mi Pisto*. URL: <https://www.ojoconmipisto.com/secretarios-municipales-ganar-mas-de-q20-mil-sin-necesidad-de-saber-de-leyes/>
- Nichter, Simeon.** 2018. *Votes for Survival: Relational Clientelism in Latin America*. Cambridge University Press.
- Nystrand, Malin J.** 2017. Petty and Grand Corruption and the Conflict Dynamics in Northern Uganda. In *Corruption in the Aftermath of War*, eds. Lindberg, Jonas, and Camilla Orjuela. Routledge.
- Olken, Benjamin A.** 2007. Monitoring Corruption: Evidence from a Field Experiment in Indonesia. *Journal of Political Economy* 115, 2: 200–249.
- Olken, Benjamin A. and Barron, Patrick.** 2009. The Simple Economics of Extortion: Evidence from Trucking in Aceh. *Journal of Political Economy* 117, 3: 417–452.
- Opsahl, Tore, Filip Agneessens, and John Skvoretz.** 2010. Node Centrality in Weighted Networks: Generalizing Degree and Shortest paths. *Social networks* 32, 3: 245–251.
- Pechlivanos, L.** 1998. Self-Enforcing Corruption and Optimal Deterrence. *Unpublished manuscript*. Université des Sciences Sociales, Toulouse, France.
- Polese, Abel.** 2014. Informal Payments in Ukrainian Hospitals: On the Boundary Between Informal Payments, Gifts, and Bribes. *Anthropological Forum*, 24, 4: 381–395.
- Rains, Emily, and Erik Wibbels.** 2023. Informal Work, Risk, and Clientelism: Evidence from 223 Slums Across India. *British Journal of Political Science* 53, 1: 1–24.
- Ravanilla, Nico, and Allen Hicken.** 2021. Poverty, Social Networks, and Clientelism. *World Development* 162: 106128.
- Robinson, Amanda Lea, and Brigitte Seim.** 2018. Who is Targeted in Corruption? Disentangling the Effects of Wealth and Power on Exposure to Bribery. *Quarterly Journal of Political Science* 13, 3: 313–331.
- Robinson, James A., and Thierry Verdier.** 2013. The Political Economy of Clientelism. *The Scandinavian Journal of Economics* 115, 2: 260–291.
- Romero, Diego.** 2024. Bureaucratic Capacity and Political Favoritism in Public Procurement. *Comparative Political Studies*. DOI: <https://doi.org/10.1177/00104140241259448>
- Rose-Ackerman, Susan.** 1998. Bribes and Gifts. In *Economics, Values, and Organization*, eds. Ben-Ner, Avner, and Louis Putterman. Cambridge University Press.
- Rose-Ackerman, Susan.** 2008. Corruption and Post-Conflict Peace-Building. *Ohio N.U.L. Rev* 34: 405–444.
- Rose-Ackerman, Susan, and Bonnie J. Palifka.** 2016. *Corruption and Government: Causes, Consequences, and Reform*. Cambridge University Press.
- Rose, Richard, and Caryn Peiffer.** 2015. *Paying Bribes for Public Services: A Global Guide to Grass-Roots Corruption*. Springer.
- Sanchez, Omar.** 2009. Party Non-Systems: A Conceptual Innovation. *Party politics* 15, 4: 487–520.
- Sánchez-Sibony, Omar.** 2016. Guatemala's Predicament: Electoral Democracy Without Political Parties. In *Guatemala: Gobierno, Gobernabilidad, Poder Local y Recursos Naturales*, eds. Way, John T., Gema Sánchez Medero, and Rubén Sánchez Medero. Tirant Humanidades.
- Schoenherr, David.** 2019. Political Connections and Allocative Distortions. *The Journal of Finance* 74, 2: 543–586.
- Seim, Brigitte, and Amanda Lea Robinson.** 2020. Coethnicity and Corruption: Field Experimental Evidence from Public Officials in Malawi. *Journal of Experimental Political Science* 7, 1: 61–66.
- Shleifer, Andrei, and Robert W. Vishny.** 1993. Corruption. *The Quarterly Journal of Economics* 108, 3: 599–617.
- Smith, Daniel Jordan.** 2017. Corruption Complaints, Inequality and Ethnic Grievances in Post-Biafra Nigeria. In *Corruption in the Aftermath of War*, eds. Lindberg, Jonas, and Camilla Orjuela. Routledge.
- Stewart-Williams, Steve.** 2007. Altruism Among Kin vs. Nonkin: Effects of Cost of Help and Reciprocal Exchange. *Evolution and Human Behavior* 28, 3: 193–198.
- Stokes, Susan C., Thad Dunning, and Marcelo Nazareno.** 2013. *Brokers, Voters, and Clientelism: The Puzzle of Distributive Politics*. Cambridge University Press.
- Szwarcberg, Mariela.** 2012. Revisiting Clientelism: A Network Analysis of Problem-Solving Networks in Argentina. *Social Networks* 34, 2: 230–240.
- Tellez, Juan Fernando, Erik Wibbels, and Anirudh Krishna.** 2020. Local Order, Policing, and Bribes: Evidence from India. *World Politics* 72, 3: 377–410.

- Van de Walle, Nicolas.** 2007. Meet the New Boss, Same as the Old Boss? The Evolution of Political Clientelism in Africa. In *Patrons, Clients and Policies: Patterns of Democratic Accountability and Political Competition*, eds. Kitschelt, Herbert. and Steven I. Wilkinson. Cambridge University Press.
- Wydick, Bruce, Harmony Karp Hayes, and Sarah Hilliker Kempf.** 2011. Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala. *World Development* 39, 6: 974–982.

Diego Romero is an assistant professor in the Department of Political Science at Utah State University. He is also an affiliated researcher at the University of Pennsylvania's PDRI-DevLab@Penn. He earned a PhD in Political Science from Duke University, specializing in Political Economy and Political Methodology, in May of 2022.