"Social Density, Clientelism, and Targeted Pork"

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Word Count: 11931

Abstract

How does the social structure of a neighborhood affect the linkage strategies chosen by politicians? We develop an argument that links the centrality of individuals and the social density of neighborhoods to the incidence of clientelism and targeted pork, respectively. We test the resulting hypotheses using a combination of original network, experimental and non-experimental survey data collected across 7,452 households in 167 slums across three cities in India. We provide survey experimental evidence that targeted pork is an important phenomenon in poor neighborhoods, on par with individual clientelism. We also find that socially central individuals are more likely to be targeted with private clientelism and that more socially dense neighborhoods are more likely to coordinate votes, attract pork, and achieve the legal prerequisites for corresponding local public services.

Much research on the politics of the poor has focused on the exchange of individual votes for individual private goods (e.g. Levitsky 2003, Calvo and Murillo 2004, Stokes 2005, Kitschelt and Wilkinson 2007, Stokes et al. 2013, Wantchekon 2003). In some cases, this exchange is characterized as "vote buying", and in others as "turnout buying" (Nichter 2008; Gans-Morse et al. 2014). While traditional models of clientelism emphasize spot exchanges of private benefits for votes between parties and citizens, a growing body of recent work re-emphasizes older claims (i.e. Lemarchand and Legg 1972) that clientelistic relations involve persistent problem-solving relations (Calvo and Murillo 2013; Nichter and Peress 2016). We expand on these arguments by emphasizing neighborhood-level needs and citizen organization as key determinants of political exchanges. In doing so, we build on research showing that resource-constrained parties target socially central individuals in communities (Cruz 2013; Schaffer and Baker 2015) where they can coordinate the votes of coethnics (Ejedmyr et al. 2017) and other groups (Kramon 2017; Gottlieb et al. 2018). We also contribute to recent attempts to understand when parties target individuals with private goods versus communities with pork and/or public goods (Diaz-Cayeros et al. 2016). We advance this literature by showing how neighborhood-level social density and electoral coordination relate to party distributive strategies.

We conceptualize clientelism as an exchange between vote-maximizing, budget-constrained parties and voters *in neighborhoods*. Parties can deliver private, electioneering benefits to individual voters, and/or local public goods, such as a water pump, a public toilet, trash pickup, etc. to neighborhoods. Because parties are subject to a budget constraint, they consider both the social or political centrality of individual voters

and the social density of neighborhoods when deciding how to distribute benefits.[1] Socially dense neighborhoods are those where relationships exist among voters and informal local leaders that coordinate neighborhood-level voting. Only when neighborhoods can credibly commit to delivering a pool of votes will parties invest in local public goods. We refer to the contingent provision of neighborhood-level votes in exchange for local public goods as *targeted pork*. This concept echoes Diaz-Cayeros et al.'s (2016) "portfolio diversification" model of clientelism. Where the targeting of localized public goods is subject to political discretion, the provision of pork can take a form that is homologous to clientelism, in that it is targeted to neighborhoods conditional on that neighborhood's aggregate voting behavior. This pork—be it in the form of a health clinic, a borehole, or a public toilet—shares many characteristics with local public goods. Our unique contribution is two-fold: first, to connect the scale of pork more cleanly to the politically relevant scale at which votes are delivered; and second, to tie the analytics more precisely to neighborhoods and their social density: the neighborhoods that are targeted are those that can credibly commit to delivering votes en masse (ie serving as a vote bank).

Consistent with recent work, we hypothesize that socially central individuals are more likely to receive private clientelistic benefits. Our addition of neighborhood social and electoral context provides a novel additional hypothesis: that communities with dense social networks are more able to coordinate in pursuit of community-level benefits. Consistent with our conceptualization of targeted pork, we expect that communities with higher levels of social density have more unified leadership, are more likely to share

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[1] Individual social connectedness is measured using a battery of questions about respondents' relationships, as explicated below. Neighborhood social density is operationalized as a neighborhood average of individual connectedness.

partisan identification and coordinate votes, and achieve eligibility for public services.[2] Our account integrates voter and neighborhood characteristics to provide insight into the incidence of individual- and neighborhood-level political exchanges.

Testing this argument is difficult because the corresponding behaviors are difficult to directly observe, and participants have incentives to under-report. We leverage a rich set of original survey data from more than 7,400 households in 167 slums in three Indian cities – Bangalore, Jaipur and Patna. After a demanding process of finding the settlements, we map their boundaries by sending trained field teams to speak to residents and geocode the borders of the slums, *as they are reported and experienced by residents*, to ensure that our surveys correspond to the social networks embedded therein.

We then deploy survey experiments to measure the incidence of both private, election day exchange and more coordinated, neighborhood-level exchange. The former mirrors related survey-experimental efforts in Nicaragua, Lebanon and beyond, while the latter is an original attempt to assess neighborhood-level targeted pork. Together, the two survey experiments provide the first experimental insight into *both* linkage strategies in a single setting. We complement this survey experimental evidence with an original approach to measuring social density, a notoriously slippery concept. We collect full network data from eight slums, which involved a census-like enumeration of every household in each of the eight settlements, including each household's connections to others within the neighborhood. We use this full network data from the eight-slum subset of our full sample to derive a set of questions that assess individual network degree, to develop a measure of social centrality and density that can then be applied to our sample

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[2] We do not claim that the relationship is uni-directional; causality may run both ways.

surveys. The sample surveys also contain data on leadership (i.e. how unified community support for an individual leader is), allowing us to assess the relationship between social density, leadership, and the party identification of individuals and neighborhoods. We also leverage qualitative interviews with 171 informal neighborhood leaders.

The experimental results show that targeted pork is an important linkage strategy, similar in magnitude to that of individual clientelism. Consistent with our argument, we also find that more socially-connected individuals are more likely to be influenced by individual clientelism. Moreover, we show that socially denser *neighborhoods* tend to be better organized politically: they have more unified neighborhood leadership and party support, and residents are more likely to report that their neighborhood is a "vote bank". These results support our hypotheses that more socially connected individuals tend to be targeted for individual transfers, and that neighborhood social density is conducive to targeted pork. We also find that socially dense neighborhoods are correlated with local-government recognition of the neighborhood, which in many Indian states is the main prerequisite for service provision.

In the following section we review the relevant literature. Thereafter, we develop our argument linking voter and neighborhood characteristics to individual clientelism and targeted pork. In the third section we describe our extensive original data collection effort and empirical strategy. The fourth section provides results, and the concluding section summarizes our contribution and provides direction for future work.

II. Poor Voters, Clientelism and Social Networks

Studies on clientelism emphasize the direct exchange of material benefits for political support between voters and politicians (e.g. Auyero 1999, 2000; Brusco, Nazareno and Stokes 2004; Calvo and Murillo 2004; Chandra 2007; Kitschelt 2000; Kitschelt and Wilkinson 2007; Krishna 2007; Levitsky 2003; Magaloni and Estevez 2007; Nichter 2008; Remmer 2007; Stokes 2005). Building on Dixit and Londregan (1996), most work posits voters who maximize a joint function of ideological proximity and private, excludable benefits. Low-income voters are expected to be the principal targets of clientelism because they derive higher marginal utility from handouts (Brusco, Nazareno and Stokes 2004; Calvo and Murillo 2004; Remmer 2007; Keefer 2007).

Income aside, there are important theoretical disagreements as to the role of ideology. While Dixit and Londregan (1996) and Stokes (2005) suggests that ideologically indifferent voters represent the best investments in private benefits, Cox and McCubbins (1986) suggest that core supporters should receive the most benefits, and Nichter (2010) echoes that argument with the suggestion that election campaigns are aimed at motivating turnout rather than convincing swing voters. Despite some evidence to the contrary (Lindbeck and Weibull, 1987; Stokes, 2005), the weight of evidence is supportive of the core voter hypothesis (Hsieh et al. 2011; Calvo and Murillo 2004; Bickers and Stein 2000).

One of the biggest analytical challenges has been understanding the conditions under which clientelism is time consistent. Early research in anthropology and sociology posited clientelism as a "durable, face-to-face, hierarchical and thus asymmetrical exchange relation . . . supported by a normative framework" (Kitschelt and Wilkinson

2007; see also Piliavsky, 2014. Early work in political science understood clientelism as "complementary role relationships rooted in expectations of reciprocal rights and obligations" (Lemarchand and Legg 1972, p. 152). However, beginning with Scott (1972), researchers conceptualzed clientelistic exchange as an instrumental-rational practice of "market corruption," consisting of spot-market exchanges. The contingency of benefits on voting behavior necessitates a mechanism by which parties can be sure that voters keep their side of the exchange. As the dynamic inconsistency became clear, clientelism has been treated as a repeated game in which voters provide support in exchange for handouts, subsidies, welfare programs, etc. These linkages are part of a problem-solving network, and the ongoing relationship serves to resolve crucial information problems inherent to clientelistic exchange (Calvo and Murillo 2013; Lemarchand and Legg 1972). In this account, clientelistic relations are ongoing and "relational" (Nichter 2010). As summarized by Björkman (2014: pg 618), clientelistic gifts "work much like any other gifted good in producing relations of debt and obligation" and are "constitutive of enduring networks of trust, sociality, and accountability."

Recent work has identified three mechanisms through which networks facilitate clientelism. The first is *monitoring*. Under a secret ballot, parties need a way to verify votes. In Stokes et al. (2013) local brokers are nodes in partisan networks and serve to monitor voters. Alternatively, social networks allow voters to monitor each other. Well-connected individuals are easier to monitor: by virtue of having more social contact, their vote choice is more likely to be known. Cruz (2013: 5) notes that "having a large social network makes it more likely that others will know how the individual voted."

Second, individuals in dense social networks might be more disposed to *intrinsic reciprocity* (Finan and Schechter 2012), the tendency to repay favors. Reciprocators are good targets for clientelism, because they are less prone to time inconsistency: they can be trusted to vote for the party who has given them benefits. This echoes the logic in Cruz, Labonne, and Querubin (2017), who argue that socially central individuals are "more likely [to] . . . reciprocate with electoral support" (p. 3009).

Third, social networks provide a means for clientelistic exchanges to *persuade* voters. According to Schaffer and Baker (2015: 1094), parties "target citizens who are opinion-leading epicenters in informal conversation networks," calling this phenomenon a "social multiplier effect." Unlike monitoring, which relies on an implicit threat of social censure, persuasion implies that individuals believe the persuader can help them select the right candidate. This mechanism implies that parties should target socially-connected individuals, whose embeddedness in social networks allows them to exercise persuasion.

These mechanisms suggest that dense networks of social interaction "tie voters together and bring them into contingent exchange relationships with political parties" (Holland and Palmer-Rubin 2015: pg 1204). There is, however, scant empirical work testing the relationship between social networks and clientelism. To the extent such tests exist, they have focused on the hypothesis that socially central *individuals* will be targets of the excludable benefits that define traditional notions of clientelism. Cruz (2014), for instance, finds that individuals with many network connections tend to be disproportionately targeted, and Shaffer and Baker (2015) find evidence that "persuasive" individuals are more likely to be targeted. Moreover, Cruz, Labonne, and Querubin

(2017) argue that socially central *politicians* are better able to make use of clientelistic linkages with voters.

We build on this work in two ways. First, we emphasize that voters, and particularly poor voters, live in neighborhoods that define social networks. This echoes work on how the geographic concentration of ascriptive groups can facilitate partisan targeting (Ejdemyr et al. 2017; Kramon 2017; Gottlieb et al. 2018) and promote ethnic violence (Kasara 2017). Because social networks have a spatial component, the social aspects of clientelism tie into a well-developed literature on the political effects of neighborhoods (Huckfeldt and Sprague 1991, Pattie and Johnson 2000). Second, the problems that voters want politicians to solve are oftentimes collective in nature and can be addressed by projects that benefit the neighborhood as a whole. Whereas traditional models of clientelism emphasize private transfers, we echo Diaz-Cayeros et al. (2016) in suggesting that neighborhood benefits – be they a water pump, a local clinic, or a public toilet – are also subject to explicit political exchange. Understanding these exchanges, however, requires shifting the analysis from individual voters to the social and political characteristics of whole neighborhoods.

III. Social Density and Clientelism: The Argument

We begin with the observation that poor voters are clustered together in neighborhoods, with important implications for how politics operates. We conceptualize neighborhoods as social networks comprising voters and local political brokers (Huckfeldt 1983). That clientelism is embedded in a neighborhood context means that important dynamics operate at the neighborhood level rather than as a series of aspatial, individual-level

exchanges: an entire neighborhood receives water, electricity or a public toilet at the same time. If we understand neighborhoods as social networks, their political and social organization is relevant for the study of clientelism and has implications for which neighborhoods receive basic public services.

We elaborate on the definition of clientelism from Holland and Palmer-Rubin (2013: pg 1188) as "any distribution of particularistic or club goods conditioned on the political behavior of an individual or group" to define our key linkage strategies:

> *Individual clientelism*: the contingent exchange of an
> individual vote in return for material goods to be consumed
> by that individual's household.
> *Targeted pork*: the provision of a club good or local public
> good to the inhabitants of a neighborhood, conditional on
> the aggregate voting behavior of the neighborhood's
> inhabitants.

Targeted pork is a subset of the well-known concept of pork barrel spending. Evans 2011 (p. 316) defines pork barrel projects as "discrete, highly divisible benefits targeted to specific populations such as states and congressional districts." Pork barrel spending implies that incumbents will deliver projects, club good, or local public goods if they keep winning elections; one way they can continue to win elections is if neighborhoods coordinate their votes for them. Pork barrel spending has been analyzed at the level of electoral districts because that is the scale at which election results or government spending are reported. Nevertheless, most forms of pork (think of a road, a park or a clinic) involve much smaller catchment areas. Because pork barrel projects are locally non-excludable and, thus, opposition voters are free to use them, politicians have incentives to target projects with catchment areas that map onto the geographic extent of voters whom they can rely on. Targeted pork specifically refers to projects and public

goods provision that is targeted to *particular* geographical subsets within an electoral

constituency, and is contingent upon the coordinated voting behavior of those groups.[3]

The recognition that many contingent exchanges involve targeted pork

accommodates the fact that the most pressing needs of the poor are often for a public

toilet, paved alleys, clean water, or a solution to open sewage. Indeed, our interviews

with 171 neighborhood leaders across more than 80 slums showed that the vast majority

identify these basic public goods as their most important goals and achievements, and

nearly all of them emphasize the importance of trading slum votes for achieving these

ends. This more social characterization also overcomes some of the technical problems

that characterize one-off exchanges of private benefits for votes. Notably, parties need

not observe individual vote choice, as they can legally observe neighborhood-level voting

outcomes at the booth or precinct level (Chandra 2007; Hale 2007; Kitschelt and

Wilkinson 2007; Levitsky 2007; Scheiner 2007; Smith and Bueno De Mesquita 2012;

Rueda 2015).

Our conception of targeted pork overlaps with a phenomenon known as "vote

banking" in the Indian context (Srinivas 1955). Vote banking is the practice of

coordinating votes within a slum (Breeding 2011, Auerbach 2016). Targeted pork,

meanwhile, is a relationship between parties and voters, mediated by local leaders or

party brokers, in which voters take part in a "vote bank" in a contingent exchange for

neighborhood-level projects and public goods. Our conceptualization situates vote

banking as a constituent *component* of targeted pork: the former is a means on the part of

slum-dwellers, while the latter is an overarching concept that links voters participating in

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[3] Stokes et al (2013) separate pork from clientelism by characterizing the latter by contingency on *individual* voting behavior, and characterize pork as a particular type of "partisan bias." For us, targeted pork is a type of pork that is contingent on *neighborhood* voting behavior.

a vote bank to parties through leaders and brokers. As such, the incidence of neighborhood-level targeted pork can be estimated by the self-reported incidence of vote banking, *accompanied by* the organization of a slum around local, informal leaders, and by unified support around one political party. We conceptualize targeted pork as a distinct linkage strategy, characterized by vote banking on the part of the neighborhood with neighborhood-level service provision as its primary goal.

Our interviews with neighborhood focus groups across 167 slums and 171 individual leaders provide qualitative evidence for our conception of targeted pork; responses emphasize neighborhood unity, support for a particular party, and coordination through local organizations. We present focus-group responses, as paraphrased by our local enumeration teams, to the question "Why is your neighborhood an effective vote bank?" Here are some representative responses: "If we vote for the same person and win, he will provide us the government facilities." "We want to be united." "For development." "Better services." "For notification and we want to be united."[4] "They are provide [sic] facility, e.g. health and water facility." "We can receive facilities only if we vote collectively." These interviews demonstrate that vote banking is understood to involve collective voting in contingent exchange for neighborhood-level services, and that coordination is a necessary ingredient.

But why would particular individuals and neighborhoods be targeted with clientelism and/or targeted pork? Political parties face a budget constraint; they cannot offer unlimited benefits to everyone. They must decide how to optimally disburse their limited budget. We argue below that parties base their targeting decisions in part on

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[4] "Notification" refers to official government status that their settlement is legal and, therefore, qualifies for services.

individual social connectedness and *neighborhood social density*. Drawing on Putnam (2007), we define individual social connectedness and neighborhood social density:

> **Individual social connectedness**: The extent to which an individual is embedded in intra-neighborhood social networks and is bound by the associated norms of reciprocity and trustworthiness.

> **Neighborhood social density**: Neighborhood-level aggregation of individual social connectedness, reflecting the degree to which a neighborhood is characterized by tight networks of social interaction across its individuals.

We measure individual social density using individual responses to a battery of questions bearing on their relationships, as discussed in the next section. We validate our measured using social network data, which we collected for a subset of the sample. Neighborhood social density is operationalized as the neighborhood-level mean of individual social connectedness. A socially connected *individual* is closely tied to many other individuals; a socially dense *neighborhood* has many such closely tied individuals.

We claim that parties and brokers tend to target individual clientelism to voters who are socially connected. This policy is sensible for the three reasons noted above: first, because social connections transmit these voters' intentions and activities to neighbors and brokers, socially central individuals are easy to monitor; second, because of their tendencies toward intrinsic reciprocity such voters are more likely to spontaneously comply with their agreement to vote for a patron's party; and third, these socially connected individuals are likely to be "persuaders" who bring other voters (who may or may not have also received individual benefits[5]) into the fold.

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[5] Another possible mechanism is that socially connected voters who receive benefits can enforce the individual-clientelist bargain that *others* have entered into.

Meanwhile, because local public goods are expensive and not excludable, their provision in exchange for votes only makes sense if a high proportion of the neighborhood's residents can be relied upon to vote "correctly." Our claim is distinct from Diaz-Cayeros et. al (2016), who argue that parties should target swing districts with public goods as they are an efficient tool for convincing swing voters. We think otherwise, largely because we are operating in an urban context where single member electoral districts (in the Indian context, these elect ward leaders) include multiple neighborhoods, and expenditure decisions result from bargaining within the dominant city-wide party. Since needs greatly outstrip available budgets, we expect politicians to target expensive, scarce local public goods to those neighborhoods that provide the most votes. Indeed, this is consistent with a large body of work on core targeting in the Indian case (Bohlken 2018; Auerbach 2016). Still, serving as a neighborhood-level vote bank for a party represents a collective action problem for individual residents.

We argue that neighborhoods with high social density[6] are more likely to overcome this collective action problem. Consistent with network theory (Huckfeldt 1983; Ward et al. 2011), dense networks enable three mechanisms for collective action. First, they provide a social technology that transmits information on about other members. While it is nearly impossible for parties to know how individuals vote, tightly-knit neighbors and local leaders are usually aware of voting behavior. A dense neighborhood network internalizes the cost of monitoring clientelistic exchanges, because

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[6] We test our theory using edge or link density, rather than centralization or hierarchy. This is because our main sample data set (167 neighborhoods) contains a proxy for individual network degree, which we verify using a subset (8 neighborhoods) in which full network census data was collected. The estimated network edge density of the neighborhoods in the sample data are calculated from the estimated degree of the individuals in each neighborhood. The eight neighborhoods in our network dataset give us insufficient power to test theories about network attributes that cannot be directly estimated from individual degree.

residents will not receive the local public good if the whole neighborhood does not deliver votes. Second, dense neighborhood networks can sanction community members who deviate from voting for the machine. This might involve an inability to draw on local, informal social insurance (Nichter and Peress 2017) or extract household benefits from neighborhood leaders. Third, dense networks facilitate coordination around a common neighborhood leader. The literature on brokers (Stokes et al. 2013; Auerbach 2016; Auerbach and Thachil 2017), emphasizes the role of informal social ties in maintaining reciprocal relationships between a political broker and her constituents. Individual citizens are better able to assess the effectiveness and responsiveness of a broker when they or others in their network can vouch for her. Thus, when the neighborhood is tightly knit together by social ties, the group of people who have personal or secondhand knowledge of that leader is larger. Together, the augmented capacities to monitor and sanction fellow citizens and to coordinate on a leader provide dense neighborhood networks the tools to overcome collective action problems and coordinate votes for the sake of collective clientelistic benefits. Thus, we hypothesize that targeted pork will be targeted at socially dense neighborhoods.

In summary, we have two hypotheses:

Hypothesis 1. Individuals with high social connectedness are more likely to be targets of individual clientelism.
Hypothesis 2. Neighborhoods with high social density are more likely to be targets of targeted pork.

Ours is the first research that analytically distinguishes neighborhood social density from individual social centrality, links them to targeted pork and individual clientelism, and brings the appropriate data to bear to test the relationships among these variables.

Our argument echoes several threads in recent work. Auerbach (2016) shows that denser partisan networks allow the poor to successfully petition governments. Similarly, Rueda (2015) finds that smaller polling stations invite clientelism because they allow for aggregate. We specify how that aggregate monitoring might take place and link it to different kinds of clientelism. Likewise, we build on recent work on the impact of geographically concentrated groups on targeting (Ejdemyr et al. 2017; Kramon 2017; Gottlieb et al. 2018) by developing the concept of targeted pork. Finally, Holland and Palmer-Rubin (2015) find that participation in civic organizations is the primary determinant of clientelistic targeting; our own conceptualization of social density clarifies where such organizations are likely to emerge, and emphasizes that they are often neighborhood-based.[7]

IV. Empirical Setting and Approach

We draw on original household and neighborhood data collected in 2015-16 in Jaipur, Rajasthan; Patna, Bihar; and Bengaluru, Karnataka. These cities provide a sample frame reflecting the diversity of Indian conurbations. The three cities are located at the corners of India's land mass, with Bengaluru in the south, Patna in the northeast and Jaipur in the northwest. They span the range of development outcomes; Bengaluru is considered the epicenter of India's IT revolution (Nair 2005) and is among the richest India cities, while Patna is among the poorest, with Jaipur in between.

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[7] Holland and Palmer-Rubin emphasize the importance of functional organization, such as street vending organizations, whereas we emphasize neighborhood organization.

Given the evidence linking poverty to clientelism, within each city we enumerated slum areas. In the absence of accurate government lists of slums, we conducted an onerous identification process that included satellite imagery, field teams, government lists and NGO-generated lists, producing a non-exhaustive list of 517 slums (273 for Jaipur, 132 for Bangalore, and 112 for Patna). To ensure a cross-section of slum conditions, we sampled across slum "types" which we defined with reference to the quality of housing, availability of services and the haphazardness of the layout. We then randomly selected 40 slums per survey wave (one wave each in Patna and Jaipur and two in Bangalore)[8] to preserve the distribution across slum types. We then sent teams to each neighborhood in the sample to map the borders of the slum, *as perceived by residents living there*, to ensure that the boundaries of the slums from which we sampled households for interviews reflected the underlying human geography. We conducted household interviews and neighborhood focus groups in 167 slums; we also conducted 171 interviews with informal slum leaders in the 80 Jaipur and Patna settlements.

From each neighborhood, we randomly sampled between 30 and 60 households. The total number of household respondents is 7,452. The interviews lasted approximately 45 minutes, and took place in or near the respondents' homes. The interviews were collected on tablet computers running the ODK platform, and contained questions including basic demographic information, such as age, caste, and religion; economic information, such as education, employment, incomes, and expenditures; and political attitudes, including political engagement, party support, and neighborhood leadership.

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[8] Surveys were conducted in 167 slums (83 in Bengaluru, 45 in Jaipur, and 39 in Patna) for reasons of accessibility and representativeness.

We complemented these sample surveys with a full network survey (i.e. the enumeration and interview of each household) in eight slums, and neighborhood surveys that gathered key information on housing and public goods characteristics; below we use the network survey to calibrate a set of individual social centrality questions and our neighborhood social density measure.

First, we use a list experiment to measure clientelism among our respondents. List experiments are a survey method to measure sensitive behaviors or attitudes that survey respondents might be reluctant to admit if asked directly. Respondents are randomly assigned to control or treatment group(s). Those in the control group are shown a list with a few (e.g. 3) items, while those in the treatment group are shown the same list, but with one additional, sensitive item that is of particular interest to the researcher. Both groups were asked how many of the items apply to them. The difference in means between treatment and control groups estimates the aggregate incidence of the sensitive attitude or behavior in the sample (Blair and Imai 2012).

Consistent with research showing social desirability bias regarding vote buying (Gonzalez-Ocantos et al. 2012; Corstange 2018), we treat clientelism as a sensitive item. We randomly assign respondents to the control group or to one of two treatment groups. Echoing similar list experiments, respondents are asked, "People decide who to vote for based on many different considerations. I will read you some of the reasons people have told us. Please tell me how many of these influence your vote choice. Don't tell me which ones, just tell me how many." The control group is shown the list of un-bolded points, while the treatment group is shown the un-bolded points plus the bolded treatment, which measures the incidence of coordinated voting:

- Party took me at Delhi party office.
- Listening to radio coverage of the campaign.
- Discussing the election with friends or family.
- **The suggestions of your neighborhood leader because he/she has made arrangements with a political party.**

Because neighborhood-level vote coordination can happen without a neighborhood leader, our approach likely underreports the incidence of targeted pork. Our design relies on the crucial role of local vote brokers (Stokes et al. 2013), particularly amongst the urban poor in India (Auerbach 2016; Auerbach and Thachil 2017). Because there are other ways to coordinate neighborhood voting, this list experiment represents a hard test, since it only captures coordination by local leaders on behalf of a party.

To assess individual-level clientelism, we include the sensitive item:

- **One party promising more favors, such as clothes or food, to you or your family.**

This design echoes that in Gonzalez-Ocantos et al. (2012), which emphasizes excludable, household benefits. Ours is more demanding because it measures not only whether respondents are offered gifts, but whether they are thereby influenced. The outcomes from the list experiments are shown in Table 1.

Table 1: List experiments: Descriptives

Response	Control	(pct.)	Targeted Pork	(pct.)	Individual Clientelism	(pct.)
0	202	(8.4%)	202	(8.2%)	184	(7.8%)
1	1085	(45.1%)	1010	(41.1%)	983	(41.4%)
2	844	(35.1%)	942	(38.3%)	903	(38.0%)
3	273	(11.4%)	232	(9.4%)	230	(9.7%)
4	0	(0%)	72	(2.9%)	74	(3.1%)
N	2404		2458		2374	
Mean	1.49		1.58		1.59	

We designed the list experiment to minimize ceiling effects and floor effects, which can occur if all or none, respectively, of the non-sensitive items apply. This would lead the respondent to not count the sensitive item, because doing so would admit the behavior.[9] Table A1 in Appendix A shows balance tests between the control group and the two treatment groups in the list experiment. Observables are balanced, except neighborhood social density (see below), which is slightly lower for the individual-clientelism treatment. Because the imbalance is the wrong sign to produce our hypothesized result (we expect that *lower* neighborhood social density should *decrease* clientelism), this does not undermine identification.

To test the effects of individual connectedness and neighborhood social density, we construct indices from questions in the household survey. Measuring social connectedness is difficult in a sample survey (Handcock and Gile 2010). A common approach is to ask respondents how much they interact or talk politics (Schaffer and Baker 2015). It is hard to validate these self-reports, and relying on single questions could be problematic. Thus, we take a different approach: we validate the effectiveness of a series of questions to capture individual social centrality by examining the same questions within a full network survey of 2,581 residents in 8 slums. Our operationalization of individual social connectedness, defined above, is based on a principal component analysis (PCA) of responses to three survey questions, as follows: "Suppose that 10 of your neighbors were invited to help in community work, such as a

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[9] We estimate the proportion of respondents affected by ceiling and floor effects using a generalized linear model (Blair and Imai 2012). This yields estimated proportions of 0 and 1%, respectively, demonstrating that ceiling and floor effects are unlikely to affect our results. We also assess ceiling or floor effects by checking the proportion of respondents in the control group who respond with the maximum (3) and minimum (0) number of items, respectively. In our sample, approximately 11% of the control group responded with 3 items, and 8% with zero items, indicating that the prevalence of ceiling and floor effects is relatively low.

community water project, cleaning of gutters, or weeding on the side of the road. How many do you think would show up?"; "How often are there serious disagreements among people who live in this neighborhood?"[10]; and "Have you attended a community meeting in your neighborhood in the past 12 months?" The details of the PCA are shown in Appendix B. Of course, some of these measures ask respondents about others in the settlement and thus do not seem to reflect the social centrality of the respondent in the settlement. But as we show below, responses to these questions do reflect the social centrality of respondents.

To validate our approach, we use a parallel network survey that maps the social networks of *all* households in eight slums in Jaipur and Patna. In collecting these data we completed a demanding process of, first, conducting a census of all residents of the communities, gathering the names of residents, and programming those names for subsequent use; and second, asking respondents from *every* household a set of 23 questions bearing on social, political and economic ties with individuals in their settlement. These questions asked respondents to name individuals with whom they socialized, talked politics, asked for help, who helped them find jobs, etc. This process resulted in 2581 respondents (one per household) in the eight settlements and allows us to map their full social and political networks. Figure 1 shows the social network graphs[11] of the eight neighborhoods in the network sample. To assess the relationship between our individual-connectedness questions and the social network density of respondents, we

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[10] The reported frequency of disagreements loads positively on the social density metric, because neighborhoods with little social contact are unlikely to have disagreements. We constructed an alternative metric without this question, discussed below, with similar results.

[11] The social network graphs are constructed from three network questions that reflect social ties: "If you suddenly needed to borrow Rs. 1000 for a day, [who] in the slum who you could ask?"; "Who in the settlement would come to you if they needed to borrow Rs. 1000?"; and "In your free time, whose house do you visit in this neighborhood?"

regress the network attributes of individuals, including their in-degree, out-degree, and total degree[12], on responses to each of the three questions that constitute our individual connectedness measure (Appendix D). The results indicate that the three questions in our sample survey are capturing individual network degree, reflecting social connectedness.

Figure 1: Social network diagrams for the eight neighborhoods in the network sample.
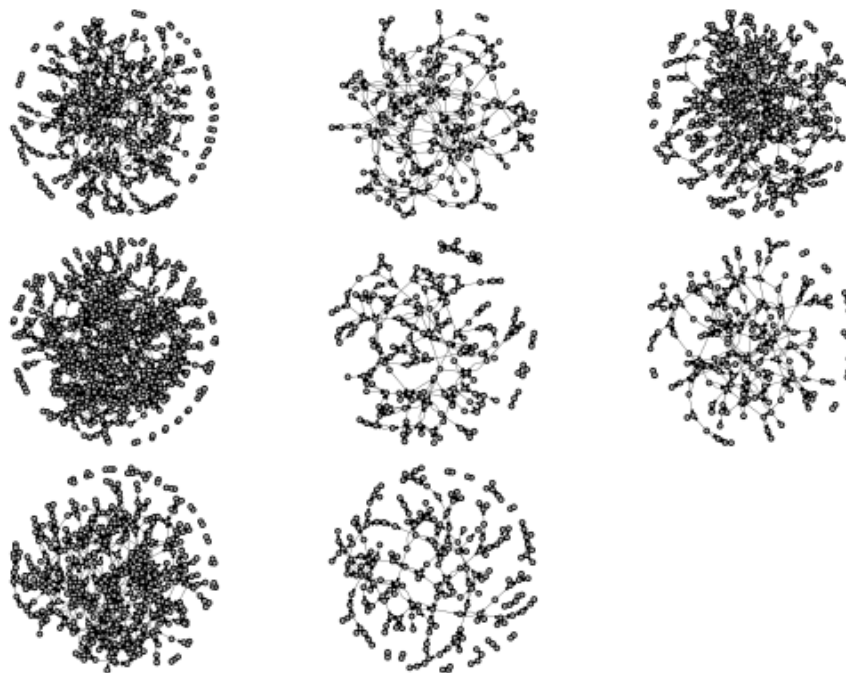

Figure C1 (Appendix) shows the distribution of our individual connectedness metric. The modal respondent among those at least one standard deviation above (below) the mean responded that 10 (5) out of 10 neighbors would report for community work; that there are sometimes (never) disagreements in the neighborhood; and that they have (have not) attended a neighborhood meeting in the past year.

Our operationalization of neighborhood social density, defined above, is the average individual connectedness score for all respondents in the neighborhood. This

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[12]An individual's in-degree is the number of respondents who name that individual as a connection. Out-degree is the number of other respondents whom that individual names as a connection. Total degree is the sum of in-degree and out-degree.

estimates the edge density of the network. A socially dense neighborhood is one where there are many socially connected individuals. Figure C2 (Appendix) shows the distribution (with neighborhoods as the unit of analysis) of our neighborhood social density metric. The modal respondent of a neighborhood at least one standard deviation above (below) the mean reported that 10 (5) out of 10 neighbors would report for community work, and that disagreements sometimes (never) occur, while 22% (7%) report having attended a community meeting in the last year.

The empirical implication of Hypothesis 1 is that individuals with higher social connectedness scores should be more likely to participate in individual clientelism, as measured in the list experiment, than individuals with lower social connectedness. This implies a positive interaction term between the individual-clientelism treatment and individual social connectedness, reflecting a greater difference in the number of list items indicated between the treatment and control groups for connected individuals relative to less-connected individuals.

We test Hypothesis 2 at the neighborhood level.[13] We expect that neighborhoods with higher social density should have more coordinated political mobilization, as reflected by more agreement regarding which neighborhood leader and which political party are supported in the neighborhood, and a higher proportion of individuals reporting that the neighborhood is a vote bank. Moreover, we expect that this coordinated mobilization should in turn be positively correlated with neighborhood notification

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[13] We do not have adequate power to use the list experiment to test the relationship between social density and targeted pork. Because social density varies only at the neighborhood level, there is substantial intra-cluster correlation, causing the standard errors to become large when clustered. Therefore the effective number of observations is closer to the number of neighborhoods (167) than to the number of individuals (7,452).

(described in greater detail below), which is the key prerequisite for official provision of services by local governments.

V. Results

V.1 Incidence of Individual Clientelism and Targeted Pork

Table 2 shows the basic result of our list experiment. The treatment effect of the list item "The suggestions of your neighborhood leader . . ." indicates that 9.6% of our sample is influenced by targeted pork. The treatment effect of "One party promising more favors . . ." indicates that 8.4% of our sample is influenced by individual clientelism. This is the first experimental evidence showing the incidence of a key ingredient of targeted pork, namely the coordination of votes at the neighborhood level. This evidence supports our notion that most research on clientelism has underappreciated the importance of neighborhood-level dynamics for political exchange.

Table 2: List experiment: Basic results

	Targeted Pork	Individual Clientelism
	(1)	(2)
Treatment	0.096***	0.084***
	(0.023)	(0.024)
N	2374	2458
Note:		*p<0.1; **p<0.05; ***p<0.01

V.2 Social Connectedness and Individual Clientelism

Our first hypothesis is that individuals with higher social connectedness are more likely to be targeted for individual clientelism. We test this hypothesis by interacting the individual clientelism treatment in the list experiment with the individual connectedness

score. Our hypothesis implies that the coefficient on this interaction term should be positive. The results are shown in Table 3. The left-hand column shows the results for a basic specification with no demographic controls, while the right-hand column includes controls (age, gender, assets, education, migrant status, caste, mother-tongue[14], and religion; full results in Appendix E).[15] Results are estimated using OLS, with standard errors clustered by neighborhood. For both specifications, the interaction term between the individual clientelism treatment and individual connectedness is positive and statistically significant.[16]

Table 3: List experiment: Individual social connectedness and individual clientelism

|	(1)	(2)
Individual Favors Treatment	0.093***	−0.102
	(0.024)	(0.182)
Individual Social Connectedness	−0.066***	−0.058***
	(0.021)	(0.021)
Treatment * Connectedness	0.050**	0.055**
	(0.025)	(0.026)
Demographic Controls	No	Yes
N	4523	4498
R^2	0.006	0.047
Note:	*p<0.1; **p<0.05; ***p<0.01	

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[14] Mother tongue is included as a "local language" dummy that takes a value of 1 for native speakers of the locally dominant languages (Kannada in Bangalore, Hindi and Marwari in Jaipur, and Hindi and Bihari in Patna).

[15] In Appendix F, we show results for individual clientelism versus neighborhood social density. The interaction term between the treatment and neighborhood social density is close to zero, indicating that individual clientelism does not seem to be less prevalent in socially denser neighborhoods.

[16] The main effect of connectedness relates to the number of non-sensitive items chosen, and is not the quantity of interest.

Figure 2 shows a marginal effects plot of the individual-clientelism treatment effect as a function of individual connectedness. It shows that the treatment effect (incidence of individual clientelism) is near zero for the least socially connected individuals, but increases to nearly 15% for the most connected. Measuring social connectedness in a sample survey is not easy, but robustness checks suggest that these results are broadly consistent with alternative measures.[17]

Figure 2: Marginal effects plot showing the relationship between individual social connectedness and the individual clientelism treatment effect.

Individual Clientelism and Individual Connectedness
No Controls

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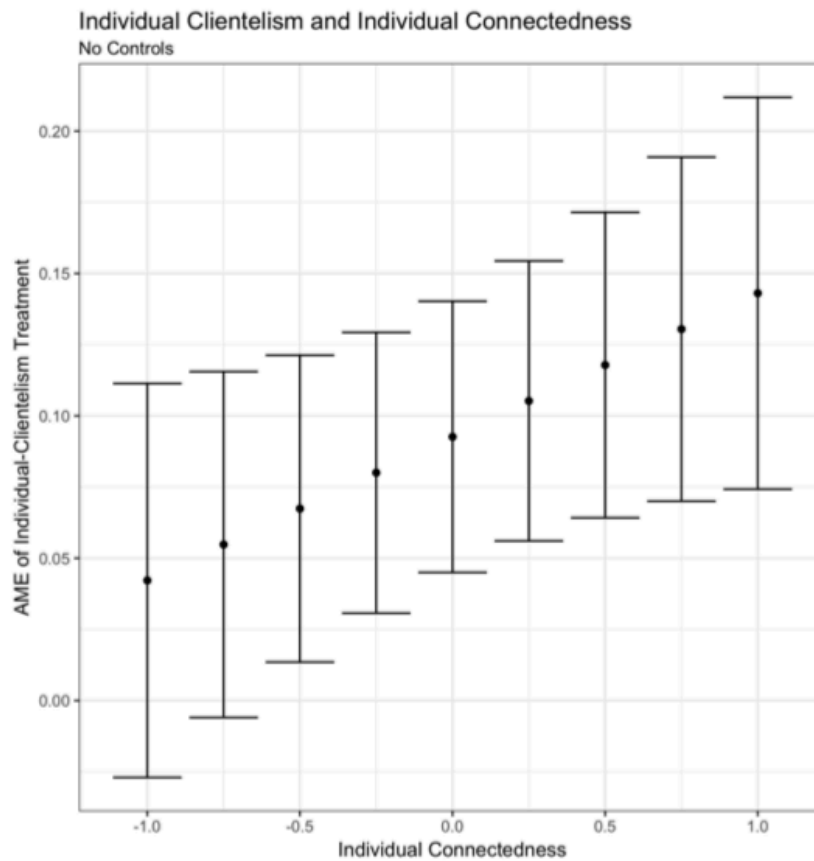
[17] The alternate measure of social density omits the question about disagreements in the neighborhood, and includes only the two questions about neighborhood work and neighborhood meetings.

V.3 Social Density and Targeted Pork

Our second hypothesis is that targeted pork should increase with *neighborhood-level* social density. We test this using survey data bearing on mobilization practices associated with targeted pork, namely, leader fractionalization, party fractionalization, and reported vote banking. Having established the relationship between social density and collective political mobilization, we then show that these mobilization strategies are in turn associated with government recognition of neighborhood's legality, which is a key prerequisite for service provision.

We first examine the relationship between social density and unified leadership. As discussed above, informal leaders serve as the crucial political intermediary between slum citizens and formal government, and their influence is increasing in the number of votes they can deliver. Our survey instrument in the Bangalore 2015 and 2016 survey waves asked respondents to name the most important leader in their neighborhood.[18] This allows us to construct an index for each neighborhood's leadership fractionalization:

$$F = 1 - \sum_{i=1}^{n} s_i^2$$

where *F* is the fractionalization score; *n* is the number of leaders in one neighborhood; and *s* is the proportion of respondents in the neighborhood naming each leader. The score goes from 0 to 1, with 0 corresponding to everyone naming one leader. Low values indicate neighborhood agreement on the most important leader (higher political coordination), consistent with accounts of neighborhood vote banking.

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[18] Identifying and harmonizing leader names was not trivial. We, the field managers and the enumerators developed a system for harmonizing the spelling of leader names.

The variation in leadership unification[19] among slums is demonstrated by Figure 3, which shows network graphs from four slums in our household sample; each arrow indicates a node being named as a leader. Some slums have many respondents who do not name a leader; some have several leaders; and some have one dominant leader.

Figure 3: Network graphs showing variation across neighborhoods in leadership unification.
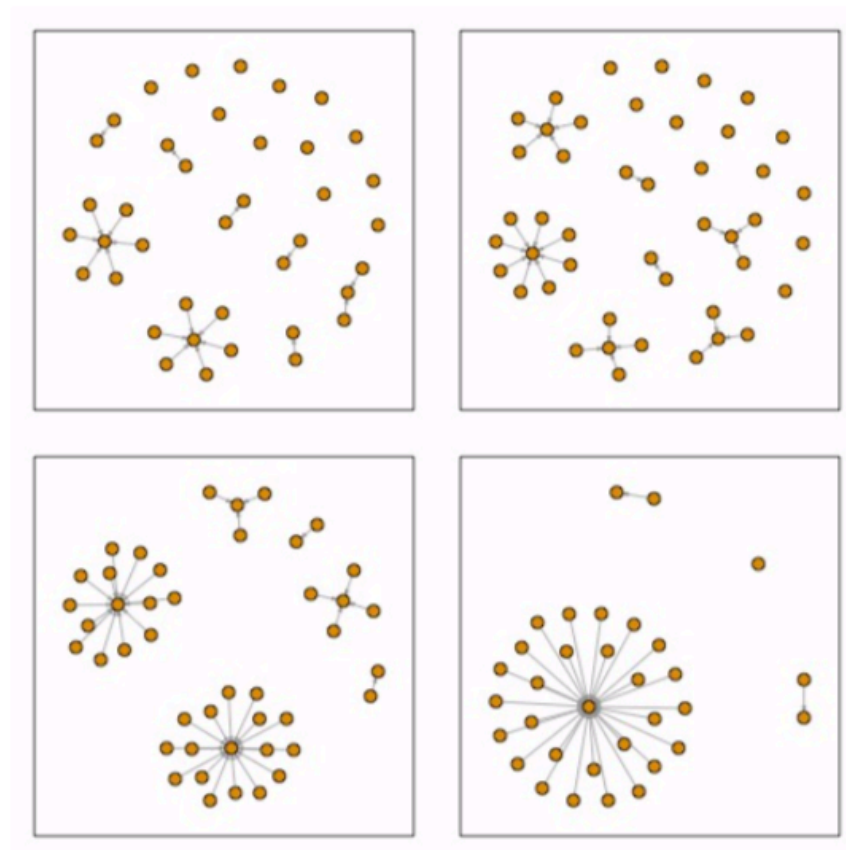

Table 4 shows OLS regression of leadership unification on neighborhood-level social density, with the right-hand column controlling for average assets of neighborhood respondents. These results show higher leadership unification (lower fractionalization) in socially denser neighborhoods. Column 2 indicates that a one-standard deviation

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[19] This is a distinct concept from individual social centrality. Leadership unification is a neighborhood-level attribute measuring whether the neighborhood supports a single leader.

increase in neighborhood social density is correlated with a ~0.3 standard deviation decrease in leadership fractionalization. Separate analysis confirms these results with an alternative dependent variable, namely the proportion of neighborhood respondents who named the top leader.

Table 4: Leadership fractionalization and social density

	Dependent variable:	
	Leadership Fractionalization	
	(1)	(2)
Neighborhood Density	−0.201***	−0.174***
	(0.057)	(0.056)
Asset Score		−0.015***
		(0.005)
Constant	0.691***	0.858***
	(0.023)	(0.060)
City	Bangalore	Bangalore
Observations	83	83
R^2	0.132	0.220
Adjusted R^2	0.121	0.201
Residual Std. Error	0.137 (df = 81)	0.131 (df = 80)
F Statistic	12.321*** (df = 1; 81)	11.295*** (df = 2; 80)
Note:		*$p<0.1$; **$p<0.05$; ***$p<0.01$

Next we turn to shared party identification within slums. Table 5 shows the results of fractionalization analysis based on the question "In your opinion, which party is doing good?"[20] Party unification is positively and significantly correlated with neighborhood-level social density. Column 2 reflects that a one standard deviation increase in neighborhood social density is correlated with a ~0.25 standard deviation decrease in party fractionalization.

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[20] This is an adaptation of the standard U.S. party ID question. The wording was chosen after consultation with field staff and field testing.

Table 5: Party fractionalization and social density

	Dependent variable:	
	Party Fractionalization	
	(1)	(2)
Neighborhood Density	0.037	−0.123***
	(0.036)	(0.043)
Asset Score		−0.005
		(0.005)
Jaipur Dummy		0.176***
		(0.035)
Patna Dummy		0.172***
		(0.040)
Constant	0.619***	0.568***
	(0.013)	(0.053)
City	All	All
Observations	167	167
R^2	0.006	0.186
Adjusted R^2	0.0001	0.166
Residual Std. Error	0.168 (df = 165)	0.154 (df = 162)
F Statistic	1.022 (df = 1; 165)	9.233*** (df = 4; 162)

Note: *p<0.1; **p<0.05; ***p<0.01

Next, we turn to voting itself. We asked respondents: "Do you think your neighborhood is an effective vote bank?" The responses provide another indication of slum-level political coordination. Table 6 shows the relationship between neighborhood-level social density and the proportion of respondents claiming an effective vote bank. Once again, social density is positively and significantly correlated with neighborhood-level political coordination. To the extent vote banking is a crucial tool for attracting attention from parties and government, this finding shows that socially dense neighborhoods have important advantages in organizing it. Column 2 shows that a one-standard deviation increase in neighborhood social density is correlated with a ~0.27 standard deviation (four-percentage-point) increase in reported vote banking.

Table 6: Vote banking and social density

	Dependent variable:	
	Proportion Claiming Vote Bank	
	(1)	(2)
Neighborhood Density	0.080***	0.124***
	(0.026)	(0.034)
Asset Score		0.002
		(0.004)
Jaipur Dummy		−0.037
		(0.027)
Patna Dummy		−0.056*
		(0.031)
Constant	0.286***	0.288***
	(0.010)	(0.041)
City	All	All
Observations	167	167
R^2	0.055	0.087
Adjusted R^2	0.049	0.065
Residual Std. Error	0.121 (df = 165)	0.120 (df = 162)
F Statistic	9.620*** (df = 1; 165)	3.883*** (df = 4; 162)
Note:	*p<0.1; **p<0.05; ***p<0.01	

Finally, we consider the relationship between neighborhood political coordination and neighborhood notification. "Notification" refers to a status conveyed by city and/or state officials which provides residents with assurance that their settlement is legal and, therefore, qualifies for public services. State and city officials who manage notification suffer from an excess of demands and report that prioritization of cases is responsive to political pressure from elected ward leaders and members of legislative assemblies. Cities cannot legally provide services to settlements that are illegal, so notification is an important precursor to accessing piped water, sewage, a public toilet, garbage pickup and the like.

Table 7 shows the results of regressions at the neighborhood level, where the dependent variable slum notification. Assessing notification status is not as straightforward as it sounds. Given the value of notification to residents, many politicians provide "papers" to local residents that actually have no legal status, generating confusion. We operationalize notification as the proportion of respondents who report that the slum has been notified, though separate analysis on the basis of (incomplete) government lists provides similar results. The independent variables of interest are leader fractionalization, party fractionalization, and reported vote banking. These results show that neighborhoods with more unified (i.e. less fractionalized) party support, and with a higher proportion of residents reporting that the neighborhood is a vote bank, also tend to have the legal status that makes them eligible for government services.[21] Subsequently attaining services is itself politically mediated, but official notification is an important step in receiving them.

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[21] The significance of leadership fractionalization is not robust to the inclusion of controls. This is consistent with the finding from Auerbach (2016) that the presence of multiple party operatives in a neighborhood is associated with better services, but only if the operatives all belong to the same party. Thus party fractionalization, rather than leader fractionalization, is robustly associated with notification.

Table 7: Neighborhood recognition, leader unification, vote banking, and party fractionalization

| | *Dependent variable:* | | | | | |
| | Neighborhood Recognition | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Leader Fractionalization	−0.402***	−0.143				
	(0.137)	(0.129)				
Party Fractionalization			−0.670***	−0.557***		
			(0.113)	(0.103)		
Vote Bank					0.600***	0.515***
					(0.163)	(0.135)
Asset Score		0.050***		0.048***		0.050***
		(0.007)		(0.006)		(0.006)
Jaipur Dummy		−0.045		0.005		−0.072*
		(0.044)		(0.040)		(0.040)
Patna Dummy		0.009		0.056		−0.009
		(0.051)		(0.046)		(0.047)
Constant	0.859***	0.166	0.944***	0.389***	0.363***	−0.078
	(0.114)	(0.130)	(0.072)	(0.092)	(0.050)	(0.077)
City	All	All	All	All	All	All
Observations	167	167	167	167	167	167
R^2	0.050	0.329	0.175	0.427	0.076	0.379
Adjusted R^2	0.044	0.313	0.170	0.413	0.071	0.364

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

These results indicate that socially dense neighborhoods are better able to coordinate votes. Given the cross-sectional nature of our data, we are unable to investigate the relationship between vote banking and the delivery of collective clientelistic benefits, because social density likely responds to the potential gains from organization. Thus, social density and vote banking might well decline once desired services are achieved. Nevertheless, our qualitative work in these cities strongly suggests that vote banking is a crucial ingredient for achieving local services.

Conclusion

Building on a massive data collection effort, we provide evidence for the practices of individual clientelism and targeted pork among the urban poor in India. Targeted pork reflects the demands of the urban poor for neighborhood-level benefits and the prevalence of vote banking in urban slums. Targeted pork also overcomes the observability challenge inherent in monitoring private exchanges, since parties can observe how neighborhoods vote by looking at booth-level returns. We argue that social density further ameliorates monitoring difficulties because it outsources the monitoring and coordinating of voters to neighbors and their leaders. In also showing that socially central individuals are more likely to be targeted with private clientelism, we are the first to provide direct evidence on the incidence of both linkage strategies simultaneously. Many scholars (e.g. Stokes 2005) underscore the exploitative aspect of the asymmetric relationship between voters and politicians, while Auyero (1999) and Nichter and Peress (2017) have drawn attention to the mutually beneficial side of clientelism. Here we have shown that contingent exchange is consistent with both individual exploitation and neighborhood-wide benefits.

These findings point to two challenges for future research. First, while we show evidence of a link between vote banking and slum notification, the available data is insufficient to draw conclusions about public services. Several obstacles must be overcome to test this relationship. First, we do not have an exhaustive census of neighborhood services, and services vary across time and location. Even more challenging is that vote banking is likely endogenous to service quality. Good services today might reflect the outcome of past organizing, and vote banking today might reflect

the absence of services and a hope for getting them soon. To resolve this relationship, one would need panel data; this is not a trivial task.

Second, we face the challenge that bedevils most work on social networks and social capital: we do not know how dense networks and social cooperation emerge. Do dense political leadership networks and successful vote banking emerge from some ideal, primordial social conditions early in a slum's history? Or do good leaders produce densely organized communities and vote banks through organizing, constituency service, and hard work?

Furthermore, how does network structure condition collective action capacity? We find that edge density facilitates targeted pork, but cannot address the effects of network hierarchy and centralization.[22] Network experiments (Mason and Watts 2012) have shown that "flatter," less centralized networks are more efficient in solving certain types of problems. However, perhaps targeted pork places a higher premium on coordination and therefore on centralization. We surmise that networks with high centralization and low clustering are conducive to collective mobilization for public goods, because a centralized structure reflects unified political leadership, and a single point of contact between the slum and outside political actors. Moreover, we expect that a high degree of clustering is detrimental to this type of collective action, because it could reflect the presence of rival partisan networks, which often undermine collective mobilization for local public goods (Auerbach 2016). However, testing the relationship between more complex network structures and targeted pork requires the collection of detailed network data from a large number of slums.

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[22] Note that "centralization" in this paragraph refers to the hierarchy of the entire network, as distinct from the concept of "individual social centrality," which refers to the position of a single node in the network.

A closely related issue for any work on neighborhood effects is that individuals, to some extent, self-select into neighborhoods, and it is difficult to distinguish the effect of self-selection from that of places on individuals. In separate work, we find limited evidence of residential sorting on social capital, but considerable research on ethnic and religious heterogeneity suggests that caste and religious diversity should condition the collective action capacity of local communities. Again, in separate analysis we do not even find correlational evidence supportive of such a notion in our 167 slums. Nevertheless, progress on this front will require sustained analytical engagement with an emergent (mostly formal) work on leadership, sustained panel data collection on a large number of slums, and substantial sociological work reconstructing the histories of those communities. Given the growing evidence on the social nature of clientelism and its role in mediating the poor's access to government, such efforts strike us as important.

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