Bloc Voting for Electoral Accountability[*]

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Abstract

How do citizens hold local politicians accountable? I argue that citizens, especially through neighborhood associations, can use bloc voting as a grassroots strategy to pressure local politicians to provide public services. Politicians monitor precinct-level voting, and communities switch their allegiance if politicians do not follow through. I focus on water access, which is an essential and often scarce resource prone to political manipulation. I analyze an original household survey and conjoint experiment with respondents from 120 rural communities merged with precinct-level electoral data in Brazil. Qualitative interviews illustrate theoretical mechanisms. Residents perceive that bloc voting is more likely in communities with high associational activity and responsive leadership. Bloc voting improves water access for association members. However, this strategy is only worthwhile for communities that can demonstrate their vote at their precinct. I shed light on the interaction of collective action and electoral institutions for development and environmental politics.

1 Introduction

How can citizens hold politicians accountable for providing public services? I argue that citizens, through coordinated groups, can use their bloc vote to combine two key mechanisms of collective action (Olson 1965) and voting (Przeworski, Stokes and Manin 1999) and effectively pressure political elites to follow through on provision of basic public services.

While bloc voting is generally seen as something that is coerced from above, I argue that it can also be a grassroots strategy for groups of voters to develop linkages with key political intermediaries for access to power and resources. In particular, community or neighborhood associations provide a platform for residents to organize around public services and other behaviors, such as voting. In local elections, even a small group of voters can often play a pivotal role, and if politicians fail to deliver public services, the bloc of voters can switch its votes to a different candidate. The credible threat of switching makes it more likely for politicians to respond to demand-making between elections.

However, the grassroots strategy of bloc voting for accountability is not possible everywhere; collective action mechanisms and electoral institutions must align. Bloc voting requires groups to coordinate a secret, individual action, so it is most likely where group members have high trust and/or the group leader is responsive to members' preferences and thus coordinates the group around preferred actions. Bloc voting requires politicians to monitor the group's vote, so it is most likely where group members vote at their own polling station. Where groups are more coordinated and better able to be monitored, they are more likely to bloc vote and initiate requests, and politicians are more likely to fulfill requests to invest in new and existing public services and other forms of constituency service.

Citizens could use this strategy in a variety of scenarios. Many public services are club goods that are non-rivalrous but serve a specific group or neighborhood, such as a water system, electricity grid, health clinic, or school. Since neighborhood residents often vote at the same polling station, politicians can publicly and legally monitor their aggregate results. As such, citizens in

neighborhood associations can strategically bargain with candidates and politicians for improved services.

My study takes place in rural, semi-arid Northeast Brazil. I focus on household water service, which is an essential and often scarce resource that requires public investment and is prone to political manipulation (Herrera 2017; Carlitz 2017; Björkman 2015), especially in this region (Cooperman 2022; Buckley 2017; Campos and Studart 2008).[1] During interviews, I was struck by the variation between otherwise similar communities as close as ten kilometers apart. In one community, the water pump on the well had been broken for months because the municipality would not respond and residents could not afford to replace it. In a community down the road, residents said that if the pump breaks, the association president contacts the city councilor that they supported last election, who gets it fixed. They referred to the community's "most voted city council candidate" and cited accurate vote counts for the polling station. Another community that I visited even petitioned to have a polling station in their community so residents could clearly demonstrate their support for a specific candidate. However, residents in otherwise similar communities were aware that others used this strategy but blamed their unreliable water access on low social trust and/or division of community members across multiple polling stations.

This study focuses on community-level, sub-municipal variation that is difficult to measure. My theory emerged from 104 qualitative interviews and consultation with rural residents, local leaders, bureaucrats, and scholars in the state of Ceará, Brazil.[2] I test my hypotheses from this inductive theory-building process through statistical analysis of an original household survey in 120 rural communities merged with precinct-level electoral data. Since participant buy-in is essential for bloc voting to be a grassroots strategy, I use a conjoint survey experiment to evaluate how residents themselves perceive the relative importance of different community characteristics. Conjoint experiments are difficult to implement in rural field settings with low literacy, so I created pictogram booklets. Lastly, I analyze long-term voting patterns for 15,566 sections in 182 munic-

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[1]Long-lasting water resources, such as rainwater cisterns, can reduce residents' reliance on politicians for clientelistic exchanges of votes for water resources (Frey 2020; Bobonis et al. 2017).

[2]See Appendix for qualitative data reporting following Bleich and Pekkanen (2013).

ipalities across the state of Ceará during five municipal elections. To operationalize bloc voting, I calculate the vote share for the candidate receiving the most votes in a given community, which is the metric that rural residents used when describing this strategy during interviews (see Appendix for alternatives).

I find evidence of a perceived and actual relationship between community organizing, bloc voting, and service provision. Coordination and electoral mechanisms interact in observational analyses: bloc voting is most likely where residents have stronger coordination capacity and vote at the same polling station. Association members in communities that bloc vote have more reliable, secure water access. The conjoint experiment shows that rural residents perceive that bloc voting is more likely in communities with active association participation and responsive association leaders. Large-scale electoral data shows that communities are consistent in bloc voting over time, and many communities switch allegiance across elections. Taken together, these results indicate that social and institutional factors interact to shape bloc voting, and communities are credible in their threats to switch their electoral support if they do not get the services they need.

My findings have important implications for our understanding of the interrelationship between distributive politics and collective action. First, I highlight the agency of organized voters, especially through community or neighborhood associations, to use bloc voting as a grassroots strategy. Bloc voting may sometimes be coerced from above in a form of collective clientelism,[3] but it can also be a mechanism through which marginalized groups hold politicians accountable. Second, I contribute to literature about the role of demand- or claim-making and constituency service in public goods provision.[4] I highlight the interaction between electoral institutions and collective action, and I explicitly unpack the conditions under which voters can use bloc voting to demand

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[3]While earlier work on clientelism focused on "top-down" or "supply-side" coercive clientelistic relationships driven by politicians, recent studies focus on "bottom-up" or "demand-side" clientelistic strategies (Nichter and Nunnari 2022; Pellicer et al. 2020; Nichter 2018; Auerbach and Thachil 2018; Kao, Lust and Rakner 2017; Oliveros 2016; Zarazaga 2014). Other work focuses on how collective groups can still bargain within hierarchical, clientelistic environments (Shami 2012).

[4]See Krishna, Rains and Wibbels (2020); Auerbach (2019); Bussell (2018); Kruks-Wisner (2018); Calvo and Murillo (2019).

collective goods. This study focuses on locally-based groups and services, but the mechanism can apply more generally and take different forms depending on the context.

2 Theory

I argue that citizens can use bloc voting as a grassroots strategy to hold local political elites accountable for providing public services. In the context of regular elections, bloc voting for accountability is a long-term relationship between group members, group leaders, and politicians that combines actions before elections with demand-making between elections (Figure 1). I start with a stylized example of this cycle.

Before the municipal election, a group of voters decides to coordinate its votes in a particular city council candidate. In a common scenario, the group leader invites candidates to speak to group members during a meeting before the election, and candidates compete for the promise of the group's votes. Group leaders are also members of the group, and they are opinion leaders who have frequent interactions and personal relationships with group members. The leader considers the campaign

Figure 1: Accountability Cycle

promises and gifts, discusses the options with group members, and encourages group members to vote for a particular candidate.[5] After voting ends, the public learns the polling station and

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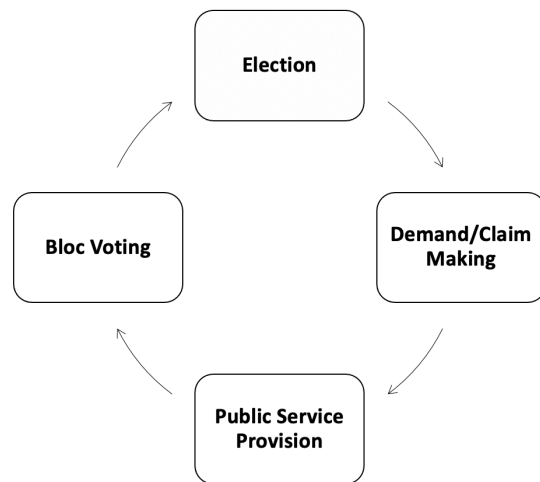
[5]Leaders acting as vote brokers (Stokes et al. 2013) while advocating for community interests have been called organizational brokers (Holland and Palmer-Rubin 2015), disloyal brokers (Novaes 2017), or free agents (Muñoz 2014).

aggregate election results by word of mouth or from news media. Group members, leaders, and politicians see which groups followed through and which candidates won.[6]

Between elections, groups make demands or claims on the state by reaching out to candidates and local politicians. Candidates who won are now elected politicians; candidates who lost are still embedded in local social and political networks involving politicians at different levels of government. Group leaders may act as "development brokers" for obtaining public services and development projects and to facilitate demand-making and problem solving between citizens and the state.[7] Local politicians decide whether or not to respond to the requests of a given group; they can take unilateral actions or put pressure on bureaucrats to provide public services, depending on the public service in question and policy rules of a given context. As the electoral term nears an end, the group evaluates the promises and actions of politicians and sets a plan for how to coordinate its votes in the next election.

2.1   Mechanisms and Hypotheses

Democratic accountability, especially as it relates to provision of public or club goods, often focuses on two mechanisms of voting (electoral) and collective demand-making (coordination). Most studies focus on one mechanism, but each has its limitations, which I explore below. I argue that electoral and coordination factors together shape a group's ability or willingness to engage in bloc voting and impact public service provision.

In the electoral mechanism, voting in free and fair elections is the primary tool for individuals to hold office-seeking politicians accountable in democracies (Manin, Stokes and Przeworski 1999). With scarce resources in most parts of the developing world, politicians must make choices about who gets what. Politicians prioritize public investment in new infrastructure or ongoing

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[6]See examples globally where politicians and local leaders monitor the aggregate votes of small, identifiable groups at polling stations: Auerbach (2019); Spater and Wibbels (2019); Gottlieb, Larreguy et al. (2020); Rueda (2017); Rojo, Jha and Wibbels (2015); Björkman (2014).

[7]Group leaders pursue this because they want to keep their leadership position, they benefit as members themselves, and/or they may receive selective incentives. See work on development brokers by Koster and Eiró (2021); Krishna, Rains and Wibbels (2020); Rizzo (2019); Koter (2013); Krishna (2011).

maintenance to certain groups for a variety of programmatic reasons, including the number of people served, distance to other services, existing services, etc. Nevertheless, most candidates want to get elected, and politicians want to stay elected. I assume that office-seeking motivations will shape politicians' decisions for distributing resources to individuals and groups.

Individuals and groups can thus use their votes to reward or punish incumbents and/or select a challenger who promises to fulfill voter preferences, such as public service provision. However, voting is an infrequent and blunt instrument, which makes it hard to hold politicians accountable for policy outcomes, especially for public or club goods shared across many users (Przeworski, Stokes and Manin 1999). An individual vote is rarely pivotal, so politicians have little interest in the actions of a given voter.[8]

In the coordination mechanism, citizens organize in groups to use collective action to pressure politicians in public or private (Olson 1965). However, this requires significant effort; for public or club goods, free-riding jeopardizes coordination efforts, and individual action is often not worth the cost. Nevertheless, certain features can help groups to overcome collective action problems. Communities with high participation in civil society organizations and strong feelings of unity and reciprocity are more likely to advocate for better public services or are more likely to independently provide them (Putnam, Leonardi and Nanetti 1993). Strong leadership, informal accountability mechanisms, and community institutions can enable groups to make collective choices and monitor and sanction members, among other outcomes (Tsai 2007; Olson 1965; Ostrom 1990).

Community or neighborhood associations can shape voting and demand-making due to their geospatial focus. Many public services are geographically based club goods, and polling stations generally serve specific geographic zones. Many studies document the relationship between community associations and politicians (see Appendix for detailed literature). However, small groups vary significantly in their ability and willingness to engage in collective action. My theory extends existing work by showing how *variation* in associational life relates to *variation* in political

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[8]In addition, many scholars argue that distributive politics, especially pork politics or clientelistic targeting, can distort accountability; this "perverse accountability" takes place when individuals (or groups) exchange their vote for a specific good or service (Stokes 2005).

behavior or public services.[9] I further extend this literature by highlighting how local electoral institutions, in particular the distribution of community association members across polling stations, shape the ability of small groups to use bloc voting strategies.

I argue that bloc voting for accountability is most likely to succeed where groups are better able to coordinate and better able to have their aggregate votes monitored. I outline the mechanisms in Figure 2 and outline testable hypotheses.
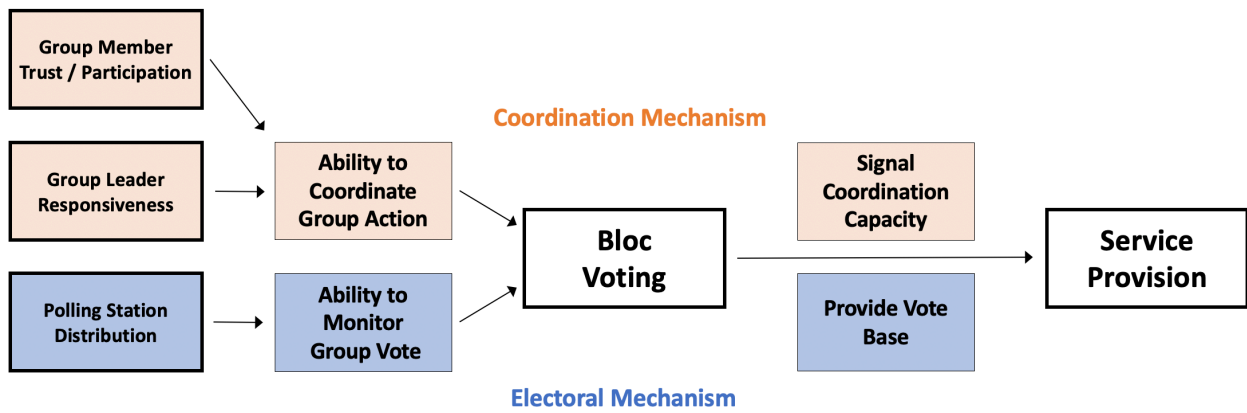
Figure 2: Theory Map

Note: To test my hypotheses, I use original quantitative data to operationalize the concepts in boxes with thick borders.

Ability to Coordinate Group Action

Community associations help residents coordinate their votes before elections and pressure politicians between elections, but they vary significantly across communities. In associations with low community activity, members do not participate in meetings or organize together, and they have weaker feelings of unity, trust, and reciprocity. Associations with high community activity have high participation in group meetings, and they share a sense that the group can achieve collective goals by working together. Regular meetings enable them discuss their collective vote choice, and

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[9]Exceptions include Rains (2021); Fox (2007); Collier and Handlin (2009); Grindle (2007).

group promises are more credible due to strong trust and reciprocity (Ravanilla, Haim and Hicken 2017).

Hypothesis 1 *Groups with higher trust and association participation are more likely to concentrate their votes in one local candidate.*

Group leaders also vary significantly between communities.[10] Leaders must coordinate group members around casting their single, private vote for the endorsed candidate. A responsive leader listens to the ideas and needs of community members, so she is more likely to endorse a candidate and advocate for development policies that community members also support. Responsive association leaders are better able to convince community members to vote for a specific candidate.

Hypothesis 2 *Groups with responsive leaders are more likely to concentrate their votes in one local candidate.*

Ability to Monitor Group Vote

Politicians, group leaders, and group members can legally monitor collective voting behavior, since polling stations commonly have fewer than 200 registered voters. However, electoral institutions, in particular the distribution of polling stations, affect community members' ability and incentive to coordinate. Communities are most likely to coordinate their votes in places where their bloc vote is clearly able to be monitored: where they are concentrated in one polling station, where the polling station is smaller, and where all voters at the polling station come from the same community. It will be more difficult for politicians to observe the group's vote if group members are divided among multiple polling stations or if group members are voting alongside residents of other communities.

Hypothesis 3 *Groups where members vote at the same polling station are more likely to concentrate their votes in one local candidate.*

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[10]Scholars differentiate leadership in voluntary organizations in different ways. For some characterizations of leadership types, see Flora (2018); Chilcote (1990).

Impact of Bloc Voting on Service Provision

Once a group has succeeded in bloc voting, electoral and coordination mechanisms also shape the impact of bloc voting on service provision. First, the group is a valuable vote base. Politicians make decisions based on the prior election's results and expectations for the next election. If Community A concentrated its 100 votes in Politician A, then Politician A will want to keep those 100 votes for the next election. Politician B also observes that Community A could potentially be a source of 100 votes, so Politician B may have an incentive to respond to Community A's demands and get those votes. Second, the group signals its ability to coordinate, which could translate to mobilization and protest between elections; elected politicians do not want to face public protest and possibly lose support from those or other voters.

The definition of a sufficient or effective bloc vote will vary significantly by context. It depends on electoral rules at the national or state level, such that bloc voting in a majoritarian single member district (SMD) system looks difference from bloc voting in a proportional representation (PR) system. While politicians generally want a larger vote base (Auerbach 2019), they also want a reliable vote base. These features may be at odds, since it is more challenging to coordinate large groups (Olson 1965). As such, a politician may prefer receiving 50% of a small group (100 of 200 potential votes) than 20% of a large group (100 of 500 potential votes). Politicians also likely respond to the difference between promised and delivered votes. A politician may prefer a reliable, but smaller group that delivered 50% of its promised votes to a larger, but uncertain group that delivered 20% of its promised votes. Reliable, smaller groups also signal stronger coordination capacity, which could translate to public protest and demand-making.

Rural communities are spatially distinct from each other such that officials can usually target local public or club goods to a specific community or neighborhood.[11] Since bloc voting signals both a group's coordination capacity and its potential as a future vote base, politicians are more likely to prioritize investment in public services to communities that bloc vote.

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[11]These goods are also termed "meso-particularistic" (Hutchcroft 2014). In many urban contexts, this type of targeting is also commonplace (Auerbach 2019).

Hypothesis 4 *Individuals in groups that concentrated their vote in a one local candidate have better public service access.*

For bloc voting to impact politicians' incentive to provide services, communities must be able to credibly commit to bloc voting again in the future and credibly threaten to switch candidates. I can thus evaluate a few long-term observable implications of the theory. Community activity and leadership are "sticky" and change slowly over time (Sampson and Graif 2009), so I expect bloc voting behavior to be fairly consistent. For my theory to be valid, I need evidence that communities can and do switch their loyalty, even if their previous most voted candidate is running. I note that these are not necessarily hypotheses that emerge from my theory, since their presence could also reflect the alternative explanation of coercive top-down bloc voting. Nevertheless, they are important preconditions for my theory that I explore empirically.

2.2 Scope Conditions

My theory applies best in places with regular, free and fair elections, which enable voters to negotiate over multiple cycles and threaten to switch their allegiance in a future election. It applies where citizens can organize freely and form local associations. While these conditions are most likely in democracies, bloc voting and community organizing can shape elections for local government and other party positions in semi-authoritarian or authoritarian countries.

My theory applies to local public goods and services that are highly salient to voters, and politicians must be able to target these services to specific groups. Depending on the context, my theory applies to new investment or maintenance/regular upkeep for public services such as water and sanitation, infrastructure for natural hazard mitigation (flood and wildfire mitigation, drought preparedness), health care (clinics, medicines, equipment, staff), education (schools, books, staff), transportation (paved roads, public transportation), electricity, trash collection, etc. Even in urban areas, politicians can prioritize services by block or street, such as fixing a broken pipe, restoring electricity, and collecting trash.

Geographic concentration is important to my theory because politicians use this to monitor voting and target local public or club goods (Ichino, Williams and Wibbels 2018). Community associations exist throughout the world, in democratic and non-democratic contexts (Collier and Handlin 2009; Auerbach 2017; Read 2012). Politicians can still monitor geographically dispersed communities if they vote within specific parties based on specific identities; politicians can target club goods based on those same identities by narrowing criteria for access or distributing them through sectarian organizations. Nevertheless, monitoring is clearer where communities are geographically concentrated and vote at the same polling station.

3   Context

My study takes place in the Northeast Brazilian state of Ceará. Located in the poorest region of the country, Ceará has long been considered a regional success with highly regarded bureaucratic reforms in the 1990s (Tendler 1997). Nevertheless, service provision varies widely across and within municipalities, which have 50 and 300 rural communities outside the city center depending on area and population. Many rural communities are very isolated; one community in my survey sample is 50 kilometers from the municipal city center by narrow dirt road. Rural communities in Northeast Brazil are similar to villages in other contexts and often have 20 to 200 households clustered around a small plaza in front of a church, with additional households spread out around the area. In rural Ceará, communities are quite homogeneous in terms of income and race.

3.1   Community Associations

Most rural communities have community associations, which exist to mobilize citizens for collective goals and development programs, with a focus on water resource management in rural Northeast Brazil (Enéas da Silva et al. 2013). Community associations constitute one quarter of all non-profit organizations with an average of 22 community associations per municipality in the state of Ceará (IBGE 2012); in my fieldwork in rural areas, I observed the number to be much

higher. A participatory map shows a typical community this area (Figure 3).[12] Households are black squares, and the community association is the building depicted prominently in the center.

A registered association is required for a community to enroll in many government development programs, and organized community associations are critical intermediaries between marginalized communities and the state.[13] In isolated communities, associations can give a voice to rural residents and enable the state to get information and target services. Residents do not see community associations and other NGOs as substitutes for the state; instead associations supplement and extend the

Figure 3: Participatory map of water resources; photo taken by research assistant, 2018.

work of federal and state bureaucracies and provide local expertise, flexibility, and proximity to local populations (Lopez and Abreu 2014).

Most association leaders are local residents who are elected to the position. Empirically, I find that the leaders in my sample tend to be more educated, older, and male, and they are likely to own more household assets than members. Nevertheless, they are not highly educated, with the mean leader still falling below a middle school education level (see Appendix). They are not the traditional wealthy, landed elites that the literature on elite capture would indicate.

The requirement that many development programs pass through registered community associations has undoubtedly helped communities to overcome collective action problems that would otherwise have inhibited organization. However, community associations differ greatly within the same municipality in terms of meeting frequency, participation of members in meetings and

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[12]Community members created it to map existing and potential water resources during a workshop on participatory water resource management.

[13]Associations are responsible for initiatives such as petitioning local government officials for health clinics, mobilizing the community to clean a local school or build rainwater cisterns, helping rural workers apply for retirement pensions, and enrolling the community or its members in programs administered by the city government.

association activity, leadership responsiveness to members' interests, and leadership activity in advocating for members' needs, among other factors.[14]

3.2   Elections and Bloc Voting

Municipal elections take place every four years; they are staggered by two years from state/federal elections. Voting is mandatory in Brazil for literate individuals ages 18 to 70. Voters are assigned to a section near their residence; each section is assigned to a voting machine at a polling station.[15] Votes are totaled and publicly reported at the level of voting machine, which may consist of one or more electoral sections. Rural polling stations usually have one section and are located in schools.

Brazilian municipalities have a mayor and a city council. Since the mayor is focused on running the municipality as a whole, city council members are more accessible, especially to those in rural areas. City council members are elected at-large via open-list proportional representation (PR), so candidates can target specific communities or seek votes throughout the municipality. The open-list PR system creates high numbers of candidates, and the median municipality in Ceará had 53 candidates for 13 city council seats in 2016. The difference between winning and losing a city council seat can be fewer than 5 votes. See Appendix for more information.

With many candidates and one vote, citizens face a confusing, important decision in the election. They look to familial, social, and organizational networks for information (Smith 2016), and local groups may bring candidates for presentations during monthly meetings. Leaders remind group members of the benefits of coordinating their vote to have a "representative" in municipal government who can help them gain access to public resources (Reis 1988). Similarly, candidates value their relationship with association leaders who serve as "an entrance to the community"

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[14]Where does variation in community characteristics come from? These characteristics may emerge through two separate but interrelated processes: state-driven processes that incentivize the creation and/or formalization of collective actors, and society-driven processes involving local leaders, trust, and social sanctions to achieve collective action (Fox 1996). For example, most community associations in Brazil were created as part of a push in the 1990s toward state-society partnerships for local development, and many of these associations grew out of existing community organizations such as Christian base communities and the land reform movement.

[15]Sections have a minimum of 50 voters and a maximum of 500 voters in the capitals and 400 voters in the rest of the country.

(Lopez 2004). Many associations participate in politics, and the geographic areas of a rural community association and electoral precinct often overlap due to spatial isolation.

Bloc voting in this context revolves around the polling station and focuses on the most voted candidate. Rural residents, many with low levels of formal education, told me which city council candidates were the "most voted" by their community, with some even citing vote counts for their polling station that I later confirmed with public records. A rural resident said, "Our community has two electoral sections that vote at the local school. As soon as people vote, the whole world knows, you know? People working for different politicians know how many votes their politician should expect, and the politician will find out how many votes he actually got" (Interview 59).

In qualitative interviews, residents described the benefits and challenges of coordinating their vote as a community. In communities that bloc voted, respondents often said that the association leadership supported the main candidate and urged members to coordinate their votes. Respondents in other communities were aware that other communities used this strategy but lamented that their community was unable to concentrate its votes in a specific candidate because group members were dispersed across polling stations or disengaged from community affairs.

In one community that I visited, residents petitioned to have their own small polling station to demonstrate their loyalty to a candidate.[16] The residents previously voted at a polling station in a neighboring community with over 500 votes. They felt that they could not prove their allegiance to a particular candidate and petitioned to have their own polling station (Interview 61), which electoral records confirm. While this community is likely an outlier, its story demonstrates the salience of this mechanism.

3.3 Public Services

Groups that concentrated their vote in a particular candidate have a clear person to reach out to for services. Residents told me that the association president would first seek out the most voted

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[16]This also demonstrates that polling station characteristics are not exogenous, and community organizing can influence the size and make-up of polling stations.

politician. Their community helped elect that person, so the person had a responsibility to help them. In cases where the most voted candidate lost, residents would still seek out that person as an intermediary to political allies;[17] while the community's votes did not lead to the candidate being elected, they are a potential source of votes in the next election.

Elected officials are more likely to prioritize communities that signaled their ability to coordinate, even if they supported a different candidate, because they are more likely to protest in the future. Community members and association leaders are active between elections to obtain benefits. They protest on the radio, visit the city hall, and use public and personal appeals towards politicians, bureaucrats, or organizations to increase their likelihood of success (Teixeira 2008; Medeiros 2012; Taddei et al. 2010).

What do community members ask for? I focus on the public service outcome of drinking water, which is highly salient in the study area. In rural, drought-prone areas, residents routinely mention that water is the biggest challenge facing the community, and they rely on a mix of water sources as shown in the participatory map (Figure 3). Rainwater cisterns are small dots next to each house. Multiple wells surround the community. A water tower supplies the community's pipes with untreated water from a shallow well, and residents use water storage tanks and river water for subsistence farming and livestock. Access to any one of these sources can easily break down: the pump on the well breaks, the cistern gets contaminated, or reservoirs or wells dry out from lack of rain.

Communities primarily request services that the municipality should have provided but did not, either due to lack of information, lack of resources, or selective performance by municipal bureaucrats. The city council is primarily responsible for discussing municipal laws and budget and allocating small pockets of funds for public services, which they can target to specific neighborhoods (using a *requerimento* or *indicação*). Residents reported that they needed association

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[17]Local candidates for mayor or city council are often part of larger networks. They may be expected to use their electoral base to campaign for state or federal candidates in the elections two years later, who will reward them with access to government resources (Novaes 2017; Avelino, Biderman and Barone 2012; Vieira 2012). Most parties have weak identities at the municipal level in Brazil (Feierherd 2020), so most networks are based on personal relationships.

leaders and city council members to act as intermediaries to solve basic day-to-day problems and navigate complex bureaucracies.

During interviews, residents noted that politicians have helped with access to water resources, drought relief, paved roads, and ambulance services. In the community that petitioned to have its own polling station, residents said they leveraged the electoral relationship that they created through bloc voting to get public services (Interviews 60 and 61). One resident said the association was able to get a well and trash collection. Another resident said that the community's candidate promised to pave the road, and indeed, the public record shows that the council member requested and received approval to pave the road as one of his first legislative actions.

Still, residents in other communities said that the politician had not helped at all, which they attributed to a variety of factors. One resident said the community lacked local development because of low participation in association meetings and widespread individual vote-buying practices leading residents to disperse their votes across many candidates. She believed that community members shouldn't blame everything on their politicians and shouldn't complain if they don't mobilize before and after elections (Interview 63).

4 Research Overview

To test my hypotheses, I need data on household and community characteristics. Brazil has rich data for its 5,570 municipalities, but little data exist for sub-municipal phenomena, especially in rural communities.[18] I conducted over 100 interviews in rural areas, which informed my theory and the design of an original household survey and conjoint experiment.[19] I combine data from a household survey with precinct-level election results and geospatial analysis.

The sample is composed of rural communities with existing associations that use wells in the semi-arid region of Ceará. Surveys took place in 2017 and 2019 in 120 communities spread across

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[18]Communities are not official administrative units in Brazil; even census tracts merge many/all rural communities.

[19]More details on my iterative theory development, interview, and survey process available in the Appendix.

10 municipalities as part of a field experiment about community water resource management.[20]
In each community, local enumerators surveyed 1) male or female heads of households in the
most populated area; 2) male or female heads of households in more rural areas; 3) community
association leaders; 4) water experts; 5) landowners. Enumeration teams visited one community
per day and surveyed an average of 16 people per community.

I first report the methods and results from the observational analysis of survey results merged
with electoral data. The observational analysis uses data from the 2017 survey and election results
from the 2016 election; the full sample has 1,990 observations of rural residents and leaders. Next,
I report the methods and results from the conjoint experiment. The conjoint analysis uses data
from the 2019 survey; the full sample has 1,745 observations in the same communities. Last, I
report methods and results using section-level data across the state from 2000-2016. To illustrate
the main mechanisms, I include anecdotes from qualitative interviews that I conducted in similar
rural communities (see Appendix), which I triangulate with electoral results and public records.

5   Observed Relationships

5.1   Data and Models

Election Data

To measure bloc voting, I first calculate each candidate's polling station vote share: the number
of votes candidate A received at polling station p divided by the total number of votes for all city
council candidates at polling station p.[21] Next, I identify a community's primary polling station
by selecting the modal response among survey respondents' reported polling station in the 2016

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[20]See Appendix for details about the experiment and methodology. We designed the sample selection procedures
for the field experiment and not for this study. We did not collect personally identifying information, so I cannot match
respondents between the two waves.

[21]Electoral data is publicly available online from the Ceará state electoral agency: *Tribunal Regional Eleitoral*. I
aggregate all sections at the polling station. All calculations use valid votes for a specific candidate; this excludes
blank ("*branco*") and null ("*nulo*") votes as well as party list votes ("*legenda*"). See Appendix for more details.

election. My main measure of bloc voting is the maximum of the vote share for every candidate at the community's primary polling station (*Vote Share in Most Voted CC Member*). This measure had specific salience in rural communities in my interviews (Section 3.2). As alternative measures, I calculate a Herfindahl index and a two-candidate concentration index (see Appendix).

In some communities, respondents voted at the same place, and in others they voted at up to nine different polling stations. I account for the ability to monitor the group's vote by calculating the share of respondents who report voting at the primary polling station in their community (*Share of Respondents at Polling Station*). I also calculate the total number of votes for city council candidates at the primary polling station, which I transform because of its skewed distribution (*Total Votes at Polling Station (ln)*).

Community Coordination

My theory predicts that communities with active, trusting members and responsive leaders are more likely to bloc vote. In the observational analysis, I focus on variation in trust in other community members. *Community Trust in Others* is a binary variable that is 1 if respondent reports that people in the community are very trustworthy or trustworthy, and 0 if not very or not at all trustworthy.[22]

Community relations and bloc voting may be endogenous in the long run, as in the earlier example where a community petitioned to have its own polling station. However, my interviews suggest that this is an interesting case but by no means the norm. I do not find a strong or statistically significant correlation between community trust in others and share of respondents at the main polling station ($r = -0.09$, $p = 0.33$).

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[22]The conjoint experiment described later captures other key concepts in my theory for the share or degree of activity of association members in regular meetings (H1) and whether the leader is responsive to members' ideas (H2). I do not have survey questions on these specific topics.

Water Access

Most studies of development and public service provision use measures of service reach, such as share of households with piped water or existence of health clinic or school. While important, they do not reflect the security and reliability of access.

Water access is a challenging concept to operationalize. Most organizations ask about a household's primary water source, whether the household has piped water, or whether the household has access to an improved water source (IBGE 2011; WHO 2015). However, I found during fieldwork that most residents rely on many different water sources depending on use and time of year. In addition, data about the existence of a piped water system cannot capture how often the system breaks down or how quickly it gets fixed.

Instead, I developed a water security and reliability index that uses survey questions that I selected and wrote based on interviews with 87 rural residents and leaders about water access in their communities. The measures are broad enough to apply in multiple settings while also appropriately tailored to local conditions.[23] I calculate an index that reflects the reliability and security of access to water for each household. I use measures for access (piped water, rainwater cistern, satisfaction with access), security (days with water in last month, no reliance on emergency water truck), and satisfaction with quality. Measures are self-reported on the household survey, and I create a z-score index with equal weights; see Appendix for details.

Empirical Models

In the observational survey data merged with election and geospatial data, some variables are collected at the individual level, while others are measured at the community level. I use two main linear models to test my hypotheses.

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[23]Earth systems scientists argue that indices require more detailed knowledge on a variety of indicators but are better able to capture water security, especially in rural communities that combine multiple water sources to satisfy different needs (Young et al. 2019; Sullivan 2002).

In model 1, I aggregate fine-grained individual-level data to the community level to test hypotheses about coordination and electoral mechanisms:

$$BlocVoting_{cm} = \beta_1 Trust_{cm} + \beta_2 Electoral_{cm}$$
$$+ \beta_3 Trust_{cm} * Electoral_{cm} + \mathbf{\Omega X}_{cm} + \alpha_m + \epsilon_{cm} \qquad (1)$$

where $BlocVoting_{cm}$ is the vote share for the most voted city council candidate at the primary polling station in community c in municipality m, $Trust_{cm}$ is the mean community value for trust in others, $Electoral_{cm}$ captures the share of respondents voting at the primary community polling station, $\mathbf{X}_{cm}$ is a series of control variables, and α_m is a municipal fixed effect. Time and cost constraints limited the number of communities that I could survey, which has implications for statistical power when I aggregate the household results to the community level.

Variation also exists across households within the same community in terms of water access and social factors, especially their relationship to the association.[24] In model 2, I analyze individual-level variation in water access, and I evaluate the independent and interactive effects of bloc voting and association membership:

$$WaterIndex_{icm} = \beta_1 BlocVoting_{cm} + \beta_2 AssocMember_{icm}$$
$$+ \beta_3 BlocVoting_{cm} * AssocMember_{icm} + \mathbf{\Omega X}_{icm} + \alpha_m + \epsilon_{icm} \qquad (2)$$

where $WaterIndex_{icm}$ is the water access security and reliability index for respondent i in community c in municipality m, $BlocVoting_{cm}$ is the vote share for the most voted city council candidate at the primary polling station, $AssocMember_{icm}$ is household membership in the association, $\mathbf{X}_{icm}$ is a series of control variables, and α_m is a municipal fixed effect.

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[24]In future work I will explore if communities with more household variation have trouble coordinating.

I use municipal fixed effects because my theory focuses on variation within municipalities. Since individual observations within the same community are not independent, I cluster standard errors at the community level in model 2. All models use ordinary least squares regression.

5.2 Coordination and Electoral Mechanisms for Bloc Voting

Consistent with the coordination mechanism in H1, I find that, on average, communities with higher trust in others are more likely to have higher bloc voting at their main polling station (Table 1, Column 1, $p < 0.05$). However, my interviews suggest that groups with high trust would *only* be willing to pursue bloc voting if they are able to clearly demonstrate their vote by voting at the same polling station. Otherwise, it would be a waste of time; instead they apply their coordination skills elsewhere, such as being more active in making demands between elections. I therefore focus on the interaction between the coordination and electoral mechanisms (H3) in Column 2.

Table 1: Coordination and Electoral Mechanisms Interact for Bloc Voting

	Dependent variable:	
	Vote Share in Most Voted CC Member	
	(1)	(2)
Community Trust	0.137**	−0.265
	(0.064)	(0.226)
Share at Main Polling Station	0.088	−0.293
	(0.059)	(0.214)
Community Trust * Share at Main Polling Station		0.573*
		(0.309)
Municipal Fixed Effects	Yes	Yes
Observations	120	120
R^2	0.430	0.450
Adjusted R^2	0.315	0.332
Residual Std. Error	0.102	0.101

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

Note: Includes municipal fixed effects. Controls included but not shown for elites attend meetings, CC member lives in community, vote perceived secret, more than one association, leader proposes ideas, constant leader, total votes at polling station, distance to city center, household assets index. See Appendix for full model with controls.

When I interact 'trust in others' with the 'share of respondents at primary polling station,' the interaction term is positive ($p = 0.07$). When 'share of respondents' is one standard deviation above the mean (92%), the predicted coefficient on 'trust' is 0.26; when community members are concentrated at one polling station, higher trust is associated with bloc voting (Figure 4). When

'share of respondents' is one standard deviation below the mean (52%), the predicted coefficient on 'trust' is 0.03; when community members are dispersed across polling stations, higher trust is not associated with bloc voting. I find consistent results for the Herfindahl index, but results are not statistically significant for vote share in the top two most voted candidates ("two CC concentration ratio"); see Appendix.

The results are consistent with my theory that it is challenging for politicians to monitor the collective votes of community members if they are spread across multiple polling stations, therefore it is not strategic for communities to coordinate their votes (nor is it strategic for politicians to seek support in those communities). However, when a community has both coordination and electoral mechanisms, we observe more bloc voting.

Figure 4: Bloc Voting
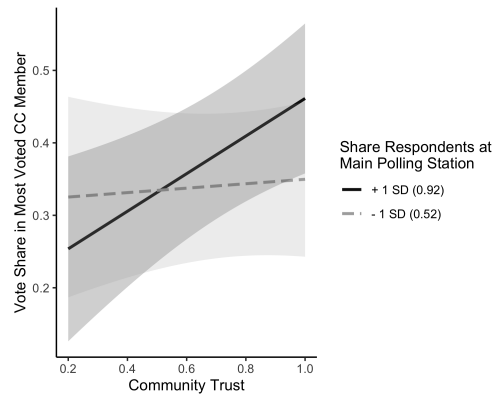
Note: Model from Table 1, Column 2.

Alternative Drivers and Robustness Checks

Is this bloc voting coerced by elites? If so, we should observe more bloc voting when voters believe their vote is not secret and when economic elites participate in association meetings. These variables have coefficients in the expected direction but are not statistically significant ($p > 0.1$, see Appendix). The presence or proximity to political elites could also influence vote concentration. Community members are more likely to coalesce their bloc vote around candidates with whom they have closer social, geographic, or familial ties (Ravanilla, Davidson Jr and Hicken 2022; Cruz, Labonne and Querubin 2017). A resident politician could coerce members but also provides an obvious candidate around whom to mobilize. Community members would have more information about that candidate pre-election and more easily pressure the candidate post-election. I find that vote concentration is higher in communities with current or past city council member living in the

area ($p < 0.01$, see Appendix). I do not doubt that bloc voting could be coerced by political and economic elites in some cases. Still, after controlling for these factors, my results suggest that bloc voting is more likely in groups with stronger trust.

Could concentrated voting simply reflect that more cohesive and trusting groups have similar preferences and therefore independently select the same candidate? While this may be partially true, if this were the only explanation, we wouldn't see any impact of the electoral mechanism. In addition, given the high number of candidates in this context and that each party puts forth multiple candidates for city council, it is unlikely that candidates differentiate themselves so clearly that 30-50% of voters would independently coalesce around the same candidate out of 50 candidates.

A limitation of this analysis is that I use household survey data from 2017 to predict voting behavior in 2016. Unfortunately, panel data for the same community across multiple elections does not exist. I do not use 2020 election data because the surveys asked respondents where they voted in 2016; this is how I merge the survey and electoral data. Polling stations and sections can and do change between elections, and the 2020 municipal election was atypical due to the Covid-19 pandemic, which affected turnout differentially depending on local incidence rates (Constantino, Cooperman and Moreira 2021). My interviews and other scholars find that leadership and social dynamics tend to change very slowly, so community characteristics in 2017 are likely very similar to those in 2016 or before. Nevertheless, voting behavior could drive community characteristics and not the other way around.

To address these concerns, I analyze data from a smaller household survey that I implemented two to three weeks *before* the 2016 municipal election in 104 small communities in Ceará with 415 respondents (see Appendix). The sample included communities with and without associations in rural and urban areas.[25] I find that communities with associations and especially with high

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[25]With limited funding, I opted to run the survey in a large number of communities with fewer respondents per community to maximize sub-municipal variation.

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satisfaction in the association are more likely to concentrate their votes in the election three weeks later ($p < 0.1$).[26]

5.3   Bloc Voting and Water Access

The final stage of my theory (Figure 2) predicts that groups that bloc vote will have better public service access. In the study area, community associations assist with coordinating voting preferences and manage local development programs from government and non-governmental entities, many of which focus on water and drought relief (see Section 3.1). However, water service provision varies not only by community but also within communities: piped systems may exist in some parts of the community but not others, water trucks can be diverted to certain households over others, and access to water storage programs (such as cisterns) or drought relief is sometimes contingent on formal association participation. I therefore evaluate whether bloc voting improves water access across the entire community (universal) or based on household participation in the association (selective).

Bloc voting is associated with more secure, reliable water services (H4), but this finding only holds for households with association members (Table 2, Column 2). On average, it appears that association members have better services (Column 1), but this no longer holds in communities where the group dispersed its vote (Column 2).[27] Community residents who are not association members do not seem to benefit from bloc voting. This suggests that in this context, bloc voting may lead to selective distribution. I find that it does not matter if the most voted city council candidate won or lost (Table 2, Columns 3 and 4). Results are consistent using either the Herfindahl index or vote share in the top two most voted candidates; see Appendix.

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[26]I do not include variables for leadership or other association characteristics; respondents did not answer those questions if there was no association in the community or they/a relative were not members.

[27]The minimum observed Vote Share in Most Voted CC Member in the sample is 8 percentage points, so the predicted impact of being an Association Member would be the coefficient for Association Member (-0.016) plus the interaction term ($0.516 * 0.08$), which equals 0.025.

Table 2: Water Access and Vote Concentration

	Dependent variable:			
	Water Service Index			
	(1)	(2)	(3)	(4)
Vote Share in Most Voted CC Member	0.178	−0.157		
	(0.190)	(0.251)		
Most Voted CC Won			0.024	0.022
			(0.045)	(0.057)
Association Member	0.136***	−0.015	0.135***	0.133***
	(0.027)	(0.063)	(0.027)	(0.050)
Vote Share in Most Voted CC Member x Association Member		0.509**		
		(0.218)		
Most Voted CC Won x Association Member				0.003
				(0.057)
Municipal Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	Community	Community	Community	Community
Observations	1,990	1,990	1,990	1,990
R^2	0.123	0.127	0.122	0.122
Adjusted R^2	0.115	0.118	0.114	0.114
Residual Std. Error	0.455	0.454	0.455	0.456

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

Note: Includes municipal fixed effects and clustered standard errors at community level. Dependent variable is an index where units are standard deviations. Controls included but not shown for gender, age, household assets index, type of respondent (populated area resident, rural area resident, leader, water operator, landowner). See Appendix.

I expect that bloc voting helps association members through both the electoral and coordination mechanisms. In the study area, community associations are the primary venue for both coordinating voting behavior and distributing water services. In the coordination mechanisms, bloc voting signals an association's ability to coordinate group action. Since coordinated associations are more likely to make demands between elections, politicians prioritize them for constituency services. In the electoral mechanism, the association's votes are a current or potential vote base.[28] Even losing candidates are likely to have strong personal or partisan ties to elected officials or bureaucrats.[29] In one community I visited, residents bloc voted for a candidate with familial ties to the community; even though he lost, he has connections with a state representative who helped the community get access to resources (Interview 70).

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[28]The salient level and measure of bloc voting will vary by context. In the study area, having even 30% of the community vote for a single candidate is perceived as bloc voting.

[29]While voters may be punished for supporting losing candidates (Nichter and Nunnari 2022), individuals and groups can bypass local elected officials to still receive benefits (Bussell 2018; Bueno 2017; Grindle 2007).

6   Perceptions of Bloc Voting: Conjoint Experiment

Do rural residents actually think that commu-
nity characteristics matter for bloc voting? I
use a conjoint method to provide causal evi-
dence for the extent to which rural residents
perceive that certain features of community co-
ordination cause bloc voting.[30]

Figure 5: Sample Profiles

Conjoint experiments have a complex de-
sign that is difficult to implement in rural field
settings with low literacy rates. I therefore cre-
ated pictogram booklets with five features of a community association that are typical, but also
vary, in this context: 1) active participation in association meetings, 2) leadership that is responsive
to community members, 3) endorsement of a local political candidate by the association president,
4) high competition for the position of association president, and 5) turnover in the association
leadership.[31] All combinations are plausible and independent, which led to 32 unique profiles.

The enumerator first read a preface then turned the physical booklets to the profiles randomly
selected by the tablet; see the example in Figure 5. As the respondent held the two booklets
on his or her lap, the enumerator read the text (see Appendix) of the profiles' options so that
respondents had consistent interpretations of the pictograms. Finally, the enumerator asked the
respondent four follow-up questions, including: "In your opinion, in municipal elections, which of
these communities would organize to vote for just one candidate?"[32]

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[30]The full conjoint experiment included other outcomes: having a political representative to get access to services, individual vote-buying, and public service access. Results presented in Appendix.

[31]I worked with local graphic designers and piloted the pictogram designs and verbal descriptions in a rural community in a similar municipality.

[32]See pre-registration at (URL) for more details and all outcome questions.

I estimate the average marginal component effect (AMCE) on the choice outcome (Hain-mueller, Hopkins and Yamamoto 2014). Standard errors are clustered by respondent ID.

Figure 6: Direct Effects of Community Association Features on Bloc Voting
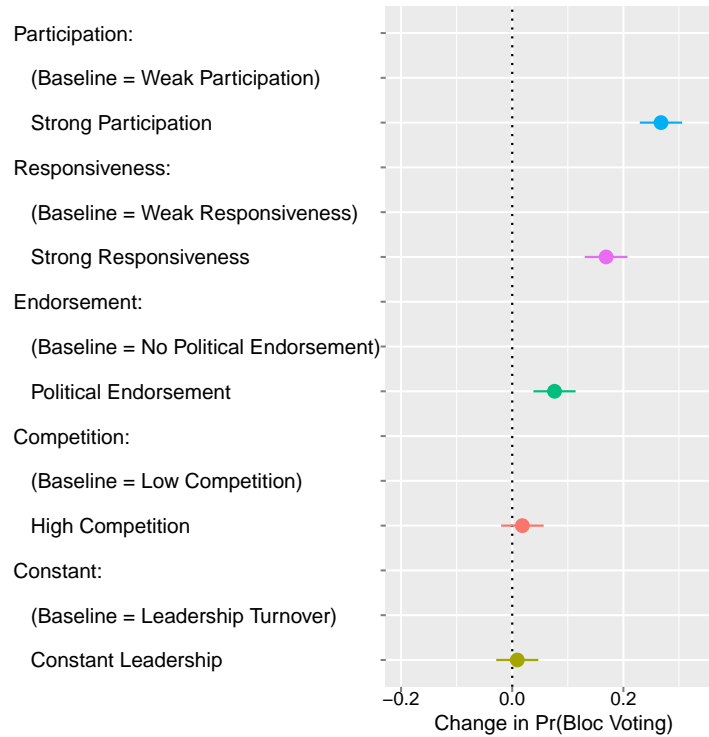
Note: Outcome reflects whether the respondent selected a community profile with that characteristic as more likely to engage in bloc voting. Results show average marginal component effects (AMCE). n= 1239. Standard errors clustered by respondent. Plot shows 95% confidence interval. No additional controls.

Residents perceive a strong impact of participation in association meetings (H1): going from weak (0) to strong participation (1) leads to a 27 percentage point (pp) increase in the perceived likelihood of bloc voting (Figure 6). Residents perceive a strong impact of having responsive leadership (H2): going from weak responsiveness (0) to strong responsiveness (1) leads to a 17 pp increase in the perceived likelihood of bloc voting (Figure 6). In one interview, a resident said that they discussed as a group whom they wanted to vote for: "Yes, we [got together to vote for him.] We see what the [candidate] talks about, and then we give a vote of confidence in that person and then will see if the person works out [and follows through]" (Interview 60).

These findings highlight that residents perceive that community participation and leadership responsiveness are much stronger drivers of bloc voting than formal endorsement of a candidate by the association president.[33] If bloc voting were only coerced from above, residents would likely perceive endorsement to be the most influential category. This design does not evaluate the interaction between collective action and electoral mechanisms. It would be difficult, and possibly unconvincing, to add the distribution of community members across polling stations to the experiment, especially in a pictogram format. Instead, I explore the interaction between the coordination and electoral mechanisms using observational data; while both analyses have their limitations, I use the combination of methods and sources to provide evidence for my theory.

7   Switching in Electoral Data

Lastly, I verify the key assumptions that communities have consistent voting behavior and can credibly threaten to switch candidates. I analyze data from 15,566 sections in 182 municipalities across Ceará during five municipal elections: 2000-2016.[34] Figure **??** demonstrates that vote concentration stays remarkably consistent over time.[35] While it dips at the high end of the distribution, a section with 75% of its votes for the most voted candidate in one election is still likely to give around 50% of its votes to the most voted candidate in the next election.

Bloc voting is most consistent where the previous most voted candidate ran again and was chosen again to be the section's most voted candidate ("Ran and Same"); it is still remarkably consistent where the community switches its vote ("Ran Not Same") or the prior choice is not available ("Did Not Run"); see Appendix. These findings fit with my observations from fieldwork that community characteristics are sticky. Certain communities saw value in coordinating their votes across multiple elections. Other communities were unwilling or unable to coordinate their

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[33] Average component interaction effects (ACIE) are insignificant for all interactions. See Appendix.

[34] I exclude the state capital's metropolitan area (Fortaleza, Caucaia) because its electoral dynamics differ from most other municipalities.

[35] The correlation between a section's vote in 2000-2004 is 0.823, in 2004-2008 is 0.808, in 2008-2012 is 0.819, and in 2012-2016 is 0.805.

votes, so they dispersed their votes in multiple elections. Still, if the long-time favored candidate stops running for office, it takes time and effort to identify a new candidate.

My theory argues that communities have more bargaining power if they bloc vote. This assumes that communities can and do switch candidates even if their previous top choice runs again. I find that many sections do switch: in the full sample, 72% of all sections during 2004-2016 are switchers.[36] For those sections whose previous most voted candidate was in the race, 56% switch and coordinate around a different candidate. While these patterns would also be consistent with top-down coercive bloc voting, they validate key assumptions in my theory that communities can and do switch allegiance between elections.

Figure 7: Voting Behavior Over Time
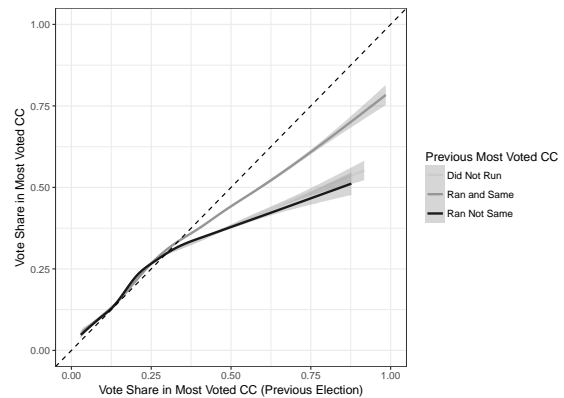
Note: Lines calculated using "auto" from package **ggplot2:geom_smooth** on a simple regression without controls, municipal fixed effects, or clustered standard errors.

8   Conclusion

How can citizens hold politicians accountable for providing public services? I argue that organized groups of citizens, especially through community associations, can use bloc voting to effectively pressure politicians to provide basic public services. By combining an original household survey, a conjoint survey experiment, electoral data, and geospatial data, I am able to measure the perceived and actual relationships between community characteristics, bloc voting, and water services.

I find that coordination and electoral mechanisms interact to shape a community's ability and willingness to pursue bloc voting: bloc voting is most likely where residents have stronger community trust and vote at the same polling station. Residents perceive that communities with high

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[36]Data from 2000 identify the previous most voted candidate for 2004; section-level data from 1996 are only available for Fortaleza. The previous most voted candidate runs again in the next election in 64% of sections.

association participation and responsive leadership are more likely to bloc vote. Bloc voting indeed shapes outcomes: it is associated with secure, reliable water access among association members.

My theory and empirical findings have several implications. First, organized marginalized communities have agency even in clientelistic settings. Most studies about vote-buying and pork politics focus on politicians' strategies and suggest that politicians or partisan brokers drive bloc voting. I advance our understanding of collective action and distributive politics by providing evidence that civil society groups can help marginalized residents coordinate and use their votes to influence the distribution of public services. Nevertheless, some residents in "successful" communities – those that were able to leverage their bloc vote for better services – were frustrated that they had to use this strategy in the first place. They believed that they shouldn't have to use grassroots bloc voting to obtain reliable, secure drinking water, which was their fundamental right. In addition, residents in communities with weak cohesion and leadership felt that the use of bloc voting by other communities left them even farther behind. Future research should explore both the perceptions of the fairness of this strategy as well as its actual impact on inequality between and within communities.

Second, I highlight the role of electoral institutions in shaping or constraining grassroots strategies for holding politicians accountable, which could partially explain why recent work hasn't found a link between service quality and accountability (Bland et al. 2021). Where community members are able to clearly demonstrate their voting behavior, they can leverage their coordination capacity and bargain with their bloc vote. One community I visited even petitioned to have its own polling station to do just that! The flip side is that communities whose members are dispersed across polling stations, or who vote with other communities, have no incentive to pursue this strategy. Still, organized communities can and do use their coordination between elections to make demands by calling on city council members, protesting, and leveraging their political networks. Future research should explore how institutional arrangements, including different types of electoral systems and how citizens are assigned to polling stations, affect the ability and willingness of various types of groups to use bloc voting for accountability.

Lastly, my findings contribute to a growing literature on water politics. Water scarcity is a growing concern for a majority of the world's population, and more than half of the world's poor live in drought-prone areas (Mearns and Norton 2010). While water is highly salient for many communities, other public or club goods may be more relevant in different contexts, by which I mean rural/suburban/urban environments or different states and countries. Future research should explore how bloc voting dynamics vary by service within the same context and for water in other contexts (Kramon and Posner 2013).

This article points to the interrelationship of collective action, distributive politics, political economy of development, and environmental politics. All of these factors impact who has access to services as essential as water. By unpacking how civil society organizations participate in local politics and how electoral institutions motivate or constrain their actions, we can better understand the political economy of development in developing democracies and design public policies to ensure that all citizens have access to essential services.

Bibliography

Auerbach, Adam Michael. 2017. "Neighborhood Associations and the Urban Poor: India's Slum Development Committees." *World Development* 96:119–135.

Auerbach, Adam Michael. 2019. *Demanding development: the politics of public goods provision in India's urban slums*. Cambridge University Press.

Auerbach, Adam Michael and Tariq Thachil. 2018. "How Clients Select Brokers: Competition and Choice in India's Slums." *American Political Science Review* 112(4):775–791.

Avelino, George, Ciro Biderman and Leonardo S Barone. 2012. "Articulações intrapartidárias e desempenho eleitoral no Brasil." *Dados-Revista de Ciências Sociais* 55(4).

Björkman, Lisa. 2014. "Vote banking as politics in Mumbai." *Patronage as Politics in South Asia* pp. 176–96.

Björkman, Lisa. 2015. *Pipe politics, contested waters: Embedded infrastructures of millennial Mumbai*. Duke University Press.

Bland, Gary, Derick Brinkerhoff, Diego Romero, Anna Wetterberg and Erik Wibbels. 2021. "Public Services, Geography, and Citizen Perceptions of Government in Latin America." *Political Behavior* pp. 1–28.

Bleich, Erik and Robert Pekkanen. 2013. How to report interview data. In *Interview research in political science*, ed. Layna Mosley. Cornell University Press pp. 84–105.

Bobonis, Gustavo J, Paul Gertler, Marco Gonzalez-Navarro and Simeon Nichter. 2017. "Vulnerability and Clientelism." *NBER Working Paper* (23589).

Buckley, Eve E. 2017. *Technocrats and the Politics of Drought and Development in Twentieth-century Brazil*. UNC Press Books.

Bueno, Natália S. 2017. "Bypassing the Enemy: Distributive Politics, Credit Claiming, and Non-state Organizations in Brazil." *Comparative Political Studies* .

Bussell, Jennifer. 2018. *Clients and Constituents: Political Responsiveness in Patronage Democracies*. Oxford University Press.

Calvo, Ernesto and Maria Victoria Murillo. 2019. *Non-policy politics: Richer voters, poorer voters, and the diversification of electoral strategies*. Cambridge University Press.

Campos, José Nilson B and TMd Carvalho Studart. 2008. "Drought and water policies in Northeast Brazil: backgrounds and rationale." *Water policy* 10(5):425.

Carlitz, Ruth D. 2017. "Money flows, water trickles: Understanding patterns of decentralized water provision in Tanzania." *World Development* 93:16–30.

Chilcote, Ronald H. 1990. *Power and the ruling classes in Northeast Brazil: Juazeiro and Petrolina in transition*. Cambridge University Press.

Collier, Ruth Berins and Samuel Handlin, eds. 2009. *Reorganizing Popular Politics: Participation and the New Interest Regime in Latin America*. Penn State Press.

Constantino, Sara M, Alicia D Cooperman and Thiago MQ Moreira. 2021. "Voting in a global pandemic: Assessing dueling influences of Covid-19 on turnout." *Social Science Quarterly* .

Cooperman, Alicia Dailey. 2022. "(Un)Natural Disasters: Electoral Cycles in Disaster Relief." *Comparative Political Studies* .

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.

Enéas da Silva, Francisco Osny, Tanya Heikkila, Francisco de Assis de Souza Filho and Daniele Costa da Silva. 2013. "Developing sustainable and replicable water supply systems in rural communities in Brazil." *International Journal of Water Resources Development* 29(4):622–635.

Feierherd, Germán. 2020. "How mayors hurt their presidential ticket: Party brands and incumbency spillovers in Brazil." *The Journal of Politics* 82(1):195–210.

Flora, Cornelia Butler. 2018. *Rural communities: Legacy+ change*. Routledge.

Fox, Jonathan. 1996. "How does civil society thicken? The political construction of social capital in rural Mexico." *World development* 24(6):1089–1103.

Fox, Jonathan. 2007. *Accountability politics: Power and voice in rural Mexico*. Oxford University Press on Demand.

Frey, Anderson. 2020. "Strategic allocation of irrevocable and durable benefits." *American Journal of Political Science* .

Gottlieb, Jessica, Horacio Larreguy et al. 2020. "An Informational Theory of Electoral Targeting in Young Clientelistic Democracies: Evidence from Senegal." *Quarterly Journal of Political Science* 15(1):73–104.

Grindle, Merilee Serrill. 2007. *Going local: decentralization, democratization, and the promise of good governance*. Princeton University Press.

Hainmueller, Jens, Daniel J Hopkins and Teppei Yamamoto. 2014. "Causal inference in conjoint analysis: Understanding multidimensional choices via stated preference experiments." *Political Analysis* 22(1):1–30.

Herrera, Veronica. 2017. *Water and Politics: Clientelism and Reform in Urban Mexico*. University of Michigan Press.

Holland, Alisha C and Brian Palmer-Rubin. 2015. "Beyond the Machine: Clientelist Brokers and Interest Organizations in Latin America." *Comparative Political Studies* 48(9):1186–1223.

Hutchcroft, Paul D. 2014. *Clientelism, social policy, and the quality of democracy*. Johns Hopkins University Press: Baltimore, MD, USA chapter Linking capital and countryside: Patronage and clientelism in Japan, Thailand, and the Philippines, pp. 174–203.

IBGE. 2011. Censo Demográfico: Notas Técnicas. Technical report Instituto Brasileiro de Geografia e Estatística.

URL: *https://www.ibge.gov.br/apps/snig/v1/notas_metodologicas. html?loc=0*

IBGE. 2012. "As Fundações Privadas e Associações Sem Fins Lucrativos no Brasil 2010." *Estudos e Pesquisas Informação Econômica* 20.

Ichino, Nahomi, Martin J Williams and Erik Wibbels. 2018. "The Political Geography of Government Projects: Evidence from +/- 40,000 Projects in Ghana." *AIDDATA* Working Paper 58. AIDDATA Working Paper 58.

Kao, Kristen, Ellen Lust and Lise Rakner. 2017. "Money Machine: Do the Poor Demand Clientelism?" *Program on Governance and Local Development Working Paper* (14).

Koster, Martijn and Flávio Eiró. 2021. "Clientelism in Northeast Brazil: brokerage within and outside electoral times." *Contemporary Social Science* pp. 1–13.

Koter, Dominika. 2013. "King makers: Local leaders and ethnic politics in Africa." *World Politics* 65(2):187–232.

Kramon, Eric and Daniel N Posner. 2013. "Who benefits from distributive politics? How the outcome one studies affects the answer one gets." *Perspectives on Politics* 11(2):461–474.

Krishna, Anirudh. 2011. "Gaining access to public services and the democratic state in India: Institutions in the middle." *Studies in Comparative International Development* 46(1):98–117.

Krishna, Anirudh, Emily Rains and Erik Wibbels. 2020. "Negotiating Informality–Ambiguity, Intermediation, and a Patchwork of Outcomes in Slums of Bengaluru." *The Journal of Development Studies* 56(11):1983–1999.

Kruks-Wisner, Gabrielle. 2018. *Claiming the State: Active Citizenship and Social Welfare in Rural India*. Cambridge University Press.

Lopez, Felix G. 2004. "A política cotidiana dos vereadores e as relações entre executivo e legislativo em âmbito municipal: o caso do município de Araruama." *Revista de Sociologia e Política* (22).

Lopez, Felix Garcia and Rafael Abreu. 2014. A participação das ONGs nas políticas públicas: o ponto de vista de gestores federais. Texto para Discussão 1949 Instituto de Pesquisa Econômica Aplicada (IPEA).

Manin, Bernard, Susan C. Stokes and Adam Przeworski. 1999. Elections and Representation. In *Democracy, Accountability, and Representation*, ed. Bernard Manin, Susan C. Stokes and Adam Przeworski. Cambridge University Press.

Mearns, Robin and Andrew Norton. 2010. *Social dimensions of climate change: equity and vulnerability in a warming world*. World Bank Publications.

Medeiros, Helloana. 2012. Poder Local Versus Política Local: A Câmara Municipal de Itapipoca (1824-2012). Master's thesis Universidade Federal do Ceará.

Muñoz, Paula. 2014. "An informational theory of campaign clientelism: The case of Peru." *Comparative Politics* 47(1):79–98.

Nichter, Simeon. 2018. *Votes for survival: Relational clientelism in Latin America*. Cambridge University Press.

Nichter, Simeon and Salvatore Nunnari. 2022. "Declared Support and Clientelism." *Comparative Political Studies* .

Novaes, Lucas M. 2017. "Disloyal brokers and weak parties." *American Journal of Political Science* 62(1):84–98.

Oliveros, Virginia. 2016. "Making it personal: Clientelism, favors, and the personalization of public administration in Argentina." *Comparative Politics* 48(3):373–391.

Olson, Mancur. 1965. *The logic of collective action: public goods and the theory of groups*. Harvard University Press.

Ostrom, Elinor. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge university press.

Pellicer, Miquel, Eva Wegner, Markus Bayer and Christian Tischmeyer. 2020. "Clientelism from the client's perspective: A meta-analysis of ethnographic literature." *Perspectives on Politics* pp. 1–17.

Przeworski, Adam, Susan C. Stokes and Bernard Manin. 1999. *Democracy, Accountability, and Representation*. Cambridge University Press.

Putnam, Robert D, Robert Leonardi and Raffaella Y Nanetti. 1993. *Making democracy work: Civic traditions in modern Italy*. Princeton university press.

Rains, Emily. 2021. Negotiating Informality: Essays on Policy Needs and Political Problem-Solving in Indian Slums PhD thesis Duke University.

Ravanilla, Nico, Dotan Haim and Allen Hicken. 2017. "Brokers, social networks, reciprocity, and clientelism." *American Journal of Political Science* .

Ravanilla, Nico, Michael Davidson Jr and Allen Hicken. 2022. "Voting in Clientelistic Social Networks: Evidence from the Philippines." *Comparative Political Studies* .

Read, Benjamin. 2012. *Roots of the state: Neighborhood organization and social networks in Beijing and Taipei*. Stanford University Press.

Reis, Elisa Pereira. 1988. "Mudança e continuidade na política rural brasileira." *Dados* 31(2):202–218.

Rizzo, Tesalia. 2019. "When Clients Exit: Breaking the Clientelistic Feedback Loop." Working Paper.

URL: *https://www.dropbox.com/s/mg56bfukhqm15fr/*
Rizzo-WhenClientsExit_Draft_MostRecent.pdf?dl=0

Rojo, Guadalupe, Subhash Jha and Erik Wibbels. 2015. "Political Networks, Clientelism and Public Goods: Evidence from Slums in Udaipur,India." Available on author website.

URL: *https://sites.duke.edu/wibbels/files/2014/10/Rojo_Jha_*
Wibbels.pdf

Rueda, Miguel R. 2017. "Small aggregates, big manipulation: Vote buying enforcement and collective monitoring." *American Journal of Political Science* 61(1):163–177.

Sampson, Robert and Corina Graif. 2009. Neighborhood Networks and Processes of Trust. In *Whom Can We Trust?: How Groups, Networks, and Institutions Make Trust Possible*, ed. Karen S. Cook, Margaret Levi and Russell Hardin. Russell Sage Foundation pp. 182–216.

Shami, Mahvish. 2012. "Collective action, clientelism, and connectivity." *American Political Science Review* 106(3):588–606.

Smith, Amy Erica. 2016. "Talking It Out: Political Conversation and Knowledge Gaps in Unequal Urban Contexts." *British Journal of Political Science* pp. 1–19.

Spater, Jeremy and Erik Wibbels. 2019. "Social density, clientelism, and targeted pork." *Unpublished Manuscript* .

URL: *https://drive.google.com/file/d/1Wk5Qg-fUO-WpsihwcV_*
GpsJtjfvilQnl/view

Stokes, Susan C. 2005. "Perverse accountability: A formal model of machine politics with evidence from Argentina." *American Political Science Review* 99(03):315–325.

Stokes, Susan C, Thad Dunning, Marcelo Nazareno and Valeria Brusco. 2013. *Brokers, Voters, and Clientelism: The Puzzle of Distributive Politics*. Cambridge University Press.

Sullivan, Caroline. 2002. "Calculating a water poverty index." *World development* 30(7):1195–1210.

Taddei, Renzo, Ana Laura Gamboggi, Carlos Abraão Moura Valpassos, Carolina Neri Vidaurri, Chandra EF Morrison, Elisângela Maria de Oliveira Sousa, Érika Mesquita, Fernando Briones Gamboa, Rita Pestana, Vitor Popinsky et al. 2010. "Depois que a chuva nao veio." *Respostas sociais às secas no Nordeste, na Amazonia e no sul do Brasil. Fortaleza, Brasil: FUNCEME/CIFAS* .

Teixeira, Elenaldo Celso, ed. 2008. *Sociedade Civil na Bahia: Papel Político das Organizações*. Salvador: EDUFBa.

Tendler, Judith. 1997. *Good Government in the Tropics*. Johns Hopkins University Press.

Tsai, Lily L. 2007. "Solidary groups, informal accountability, and local public goods provision in rural China." *American Political Science Review* 101(02):355–372.

Vieira, Márcia Paula Chaves. 2012. Poder Legislativo do Ceará: Geografia do voto e Ação Política na Assembleia Legislativa. Master's thesis Universidade Federal do Ceará.

WHO. 2015. *Progress on sanitation and drinking water: 2015 update and MDG assessment*. World Health Organization.

Young, Sera L, Godfred O Boateng, Zeina Jamaluddine, Joshua D Miller, Edward A Frongillo, Torsten B Neilands, Shalean M Collins, Amber Wutich, Wendy E Jepson and Justin Stoler. 2019. "The Household Water InSecurity Experiences (HWISE) Scale: Development and validation of a household water insecurity measure for low-income and middle-income countries." *BMJ Global Health* 4(5):e001750.

Zarazaga, Rodrigo. 2014. "Brokers beyond clientelism: A new perspective through the Argentine case." *Latin American Politics and Society* 56(3):23–45.

Bloc Voting for Electoral Accountability

Online Appendix

March 27, 2022

Contents

1 Supplementary Tables and Figures

1.1 Survey Variables and Summary Statistics

- *Association Member* is a binary variable that is 1 if respondent reports that they themselves or someone else in their household is a member of the community / neighborhood association and 0 if not.

- *Community Trust in Others* is a binary variable that is 1 if respondent reports that people in the community are very trustworthy or trustworthy, and 0 if not very trustworthy or not at all trustworthy.

- *Elites Attend Assoc. Meetings* is a binary variable that is 1 where wealthy families (with land, businesses, or other professions) actively attend meetings and participate in association activities, and 0 where they somewhat or do not attend or participate.

- *CC Member Lives in Community* is a binary variable that is 1 where respondents report that a current or past city council member lives in the community, and 0 if not.

- *Vote Perceived Secret* is a binary variable that is 1 where respondents report that though the vote is secret, it is not at all probable or not very probable that someone could discover their vote, and 0 if very probable or somewhat probable.

- *Leader Propose Ideas* is a binary variable that is 1 if respondent reports that the association president proposes topics for association meetings, and 0 if members propose topics.

- *Leader Constant Person or Family* is a binary variable that is 1 if respondent reports that the association president has tended to be the same person or from the same family, and 0 where families trade off or many different people rotate through.

- *More Than One Association* is a binary variable that is 1 where an association leader in the community responded that there was more than one community association, and 0 if not.

- *Distance to City Center (km, ln)* is the natural log of the distance from the community, based on the GPS coordinates of the community's well collected in the survey, to the mayor's office in the urban center of the municipality, based on coordinates in Google Maps.[1]

- *Household Assets Index* is a z-score of the sum of the following services and household assets as reported by respondents: cellphone, land-line phone, car, washing machine, microwave, motorcycle, bathroom in home, computer or tablet, internet, refrigerator, television, electricity, public sanitation, septic tank, trash collection, and paved road.[2]

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[1]I use **pointDistance** from **raster** package in R.

[2]I use a household assets index instead of self-reported income for a number of reasons, though the survey did ask about income. Some respondents may have inflated their reported income to seem less poor. Others may have reduced

- *Male* is a binary variable that is 1 if the respondent was male, and 0 if female.
- *Age* is a continuous variable for the respondent's age in years as reported by the respondent.

Figure A.1: Share of Rural HH with Piped Water in Home
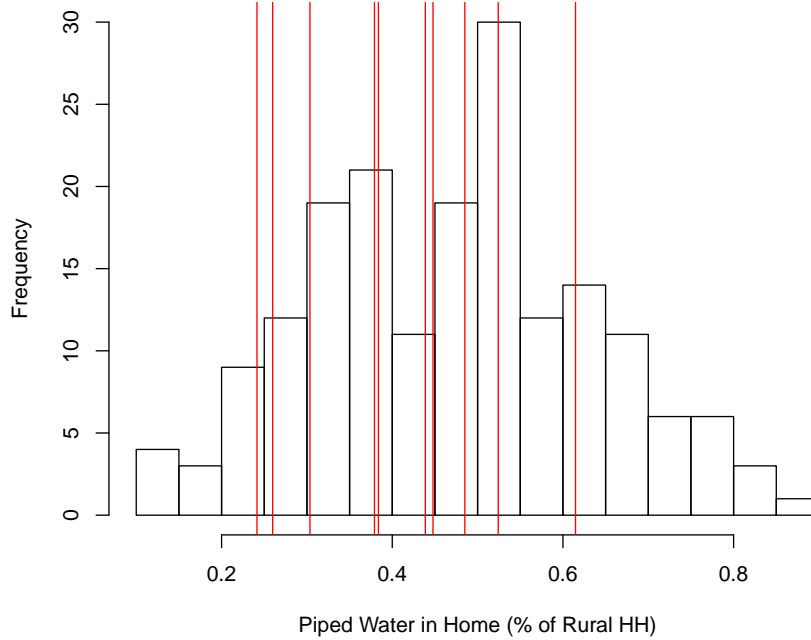
Note: Includes 184 municipalities in Ceará. Data from 2010 Census. Municipalities in household survey sample are marked in red.

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their reported income for fear of losing access to government programs, since the government proposed changing cut-offs for welfare benefits around the time of the survey.

Figure A.2: Bloc Voting in Survey Sample
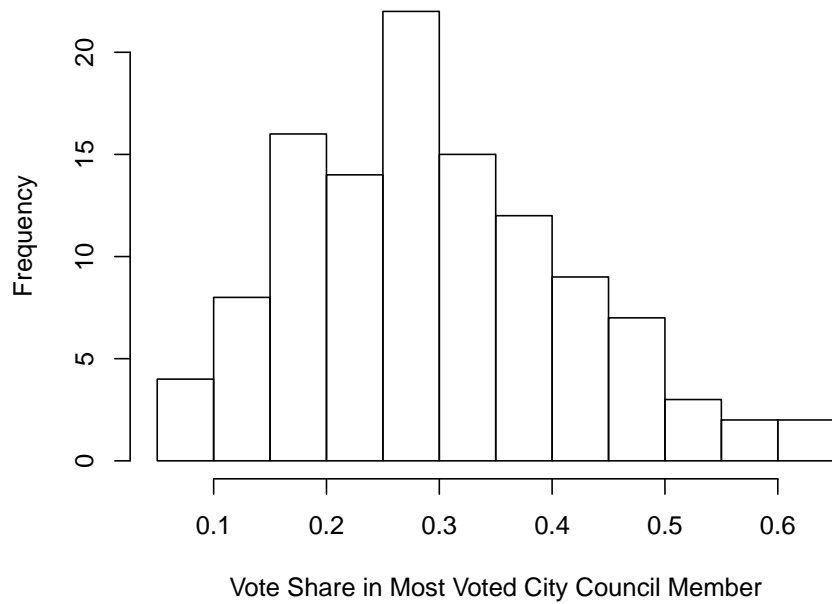
Note: Includes 120 communities in survey sample. Data from 2016 municipal election from TRE.

Figure A.3: Voting and Share at Polling Station   Figure A.4: Voting and Polling Station Size
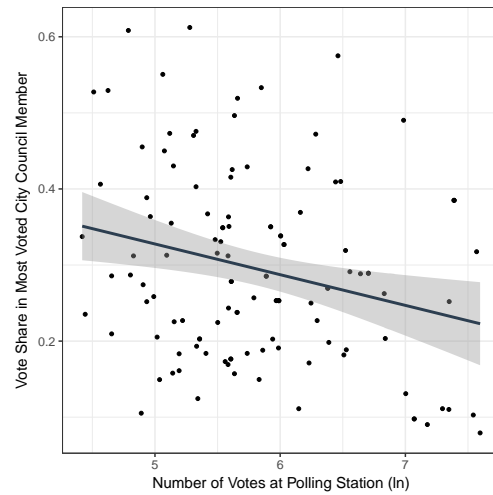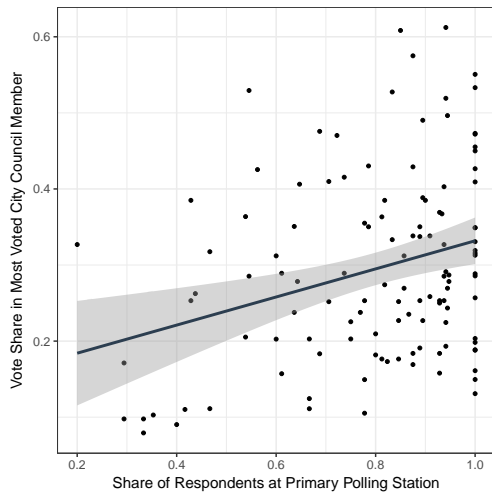
Note: Includes 120 communities in full sample. Data from 2016 municipal election from TRE.

Table A.1: Summary Statistics for Bloc Voting Analysis

Statistic	N	Mean	St. Dev.	Min	Max
Vote Share in Most Voted CC Member	120	0.295	0.123	0.079	0.612
Community Trust in Others*	120	0.656	0.161	0.200	1.000
Share Resp. at Polling Station	120	0.715	0.200	0.154	1.000
Elites Attend Assoc. Meetings*	120	0.434	0.295	0.000	1.000
CC Member Lives in Community*	120	0.095	0.229	0	1
Vote Perceived Secret*	120	0.676	0.145	0.312	1.000
More Than One Association	120	0.150	0.359	0	1
Leader Proposes Ideas*	120	0.776	0.170	0.200	1.000
Leader Constant Person or Family*	120	0.597	0.318	0.000	1.000
Total Votes at Polling Station (ln)	120	5.815	0.773	4.419	7.597
Distance to City Center (km)	120	18.133	9.434	2.406	50.279
Household Assets Index*	120	−0.061	0.948	−1.736	2.876
Herfindahl Index	120	0.165	0.083	0.044	0.396
Two CC Concentration Ratio	120	0.466	0.160	0.154	0.772

Note: Asterisk indicates variable collected at individual level.

Table A.2: Summary Statistics for Water Analysis

Statistic	N	Mean	St. Dev.	Min	Max
Water Index*	1,990	0	0.484	−2.497	0.959
Vote Share in Most Voted CC Member	1,990	0.296	0.123	0.079	0.612
Household Assets Index*	1,990	0	1.592	−5.592	5.091
Association Member*	1,990	0.641	0.480	0	1
Male*	1,990	0.461	0.499	0	1
Age*	1,990	46.799	13.588	18	70
Herfindahl Index	1,990	0.167	0.083	0.044	0.396
Two CC Concentration Ratio	1,990	0.469	0.159	0.154	0.772

Note: Asterisk indicates variable collected at individual level.

Table A.3: Water Security Index

Concept	Measure	Operationalization
Access	Water piped in household	Binary
	Access to water cistern	Categories (0-3)
	Satisfaction with overall community water access	Scale (1-5)
Security	Days without water in the last month (reverse coded)	Categories (0-4)
	Reliance on emergency water truck in last year (reverse coded)	Binary
Quality	Satisfaction with water quality	Scale (1-5)

Note: The z-score is a standardized measure that transforms a variable's value for each observation into the number of standard deviations away from the mean observed value. The index calculates the mean z-score value among all water access variables for each observation. $WaterIndex_{ijm} = \frac{\sum_{V=1}^{N}(\frac{X_{Vicm} - \bar{X}_{Vicm}}{\sigma_{X_{Vicm}}})}{N}$ where X_{Vicm} is the value of variable X_V for individual i in community c in municipality m. $N = 6$ in the list of water access variables above. The mean and standard deviation of the variable are calculated for the full sample.

Table A.4: Difference between Leaders and Members

| | Leaders | | Members | | | | |
	Mean	SD	Mean	SD	Diff	Diff SE	Stat Sig
Age	48.19	11.59	46.44	13.07	1.75	0.79	**
Male	0.58	0.49	0.46	0.5	0.11	0.03	***
Education Series	1.92	1.21	1.32	1.1	0.6	0.08	***
Bolsa Familia Recipient	0.47	0.5	0.52	0.5	-0.06	0.03	*
Sum of Services	2.28	0.72	2.17	0.73	0.11	0.05	**
Sum of Household Assets	6.48	1.92	5.61	1.76	0.88	0.12	***
Large Landowner	0.08	0.28	0.05	0.21	0.03	0.02	**
N	303		908				

Note: Leaders includes anyone who is a current or past member of the association board. *p<0.1; **p<0.05; ***p<0.01.

1.2 Regression Tables – Bloc Voting

Table A.5: Bloc Voting – Community Level

	Dependent variable:	
	Vote Share in Most Voted CC Member	
	(1)	(2)
Community Trust in Others	0.137**	−0.265
	(0.064)	(0.226)
Share Resp. at Polling Station	0.088	−0.293
	(0.059)	(0.214)
Leader Proposes Ideas	0.076	0.070
	(0.064)	(0.063)
Leader Constant Person or Family	−0.042	−0.038
	(0.031)	(0.031)
Elites Attend Assoc. Meetings	0.053	0.059
	(0.037)	(0.036)
CC Member Lives in Community	0.127**	0.126**
	(0.052)	(0.051)
Vote Perceived Secret	−0.103	−0.091
	(0.071)	(0.071)
More Than One Association	−0.038	−0.033
	(0.029)	(0.029)
Total Votes at Polling Station (ln)	−0.037**	−0.036**
	(0.015)	(0.015)
Distance to City Center (km, ln)	0.046**	0.046**
	(0.021)	(0.021)
Household Assets Index	0.013	0.014
	(0.014)	(0.014)
Community Trust in Others * Share Resp. at Polling Station		0.573*
		(0.309)
Municipal Fixed Effects	Yes	Yes
Observations	120	120
R^2	0.430	0.450
Adjusted R^2	0.315	0.332
Residual Std. Error	0.102	0.101

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

Note: Community mean values calculated using full sample but removing missing values.

Table A.6: Bloc Voting – Community Level with Alternative Measures

	Dependent variable:					
	Vote Share in Most Voted CC Member		Herfindahl Index		Two CC Concentration Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)
Community Trust in Others	0.137**	−0.265	0.068*	−0.179	0.064	−0.314
	(0.064)	(0.226)	(0.040)	(0.142)	(0.078)	(0.275)
Share at Main Polling Station	0.088	−0.293	0.034	−0.200	0.067	−0.291
	(0.059)	(0.214)	(0.037)	(0.135)	(0.071)	(0.261)
Leader Proposes Ideas	0.076	0.070	0.043	0.040	0.059	0.053
	(0.064)	(0.063)	(0.040)	(0.040)	(0.077)	(0.077)
Leader Constant Person or Family	−0.042	−0.038	−0.009	−0.007	0.010	0.013
	(0.031)	(0.031)	(0.020)	(0.019)	(0.038)	(0.038)
Elites Attend Assoc. Meetings	0.053	0.059	0.030	0.034	0.054	0.060
	(0.037)	(0.036)	(0.023)	(0.023)	(0.044)	(0.044)
CC Member Lives in Community	0.127**	0.126**	0.108***	0.108***	0.191***	0.190***
	(0.052)	(0.051)	(0.033)	(0.032)	(0.063)	(0.063)
Vote Perceived Secret	−0.103	−0.091	−0.042	−0.035	−0.039	−0.028
	(0.071)	(0.071)	(0.045)	(0.044)	(0.086)	(0.086)
More Than One Association	−0.038	−0.033	−0.024	−0.021	−0.038	−0.033
	(0.029)	(0.029)	(0.018)	(0.018)	(0.035)	(0.035)
Total Votes at Polling Station (ln)	−0.037**	−0.036**	−0.029***	−0.028***	−0.062***	−0.061***
	(0.015)	(0.015)	(0.010)	(0.010)	(0.018)	(0.018)
Distance to City Center (km, ln)	0.046**	0.046**	0.045***	0.044***	0.104***	0.103***
	(0.021)	(0.021)	(0.013)	(0.013)	(0.026)	(0.026)
Household Assets Index	0.013	0.014	0.012	0.013	0.031*	0.033*
	(0.014)	(0.014)	(0.009)	(0.009)	(0.017)	(0.017)
Community Trust in Others * Share at Main Polling Station		0.573*		0.351*		0.538
		(0.309)		(0.195)		(0.377)
Municipal Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	120	120	120	120	120	120
R^2	0.430	0.450	0.505	0.521	0.504	0.514
Adjusted R^2	0.315	0.332	0.405	0.418	0.404	0.410
Residual Std. Error	0.102	0.101	0.064	0.063	0.123	0.123

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

Note: Community mean values calculated using full sample but removing missing values.

1.3 Regression Tables - Water

Table A.7: Water Access

	Dependent variable:			
	Water Service Index			
	(1)	(2)	(3)	(4)
Vote Share in Most Voted CC Member	0.178	−0.157		
	(0.190)	(0.251)		
Most Voted CC Won			0.024	0.022
			(0.045)	(0.057)
Association Member	0.136***	−0.015	0.135***	0.133***
	(0.027)	(0.063)	(0.027)	(0.050)
Male	−0.045**	−0.046**	−0.044**	−0.044**
	(0.020)	(0.020)	(0.020)	(0.020)
Age	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Household Assets Index	0.011	0.011	0.012	0.012
	(0.011)	(0.011)	(0.011)	(0.011)
Rural Area	−0.086***	−0.084***	−0.085***	−0.085***
	(0.029)	(0.029)	(0.028)	(0.028)
Assoc. Leader	−0.105***	−0.105***	−0.106***	−0.106***
	(0.037)	(0.037)	(0.037)	(0.037)
Water Operator	0.091**	0.094***	0.090**	0.090**
	(0.036)	(0.036)	(0.036)	(0.036)
Landowner	0.032	0.035	0.028	0.029
	(0.054)	(0.054)	(0.053)	(0.053)
Vote Share in Most Voted CC Member x Association Member		0.509**		
		(0.218)		
Most Voted CC Won x Association Member				0.003
				(0.057)
Municipal Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	Community	Community	Community	Community
Observations	1,990	1,990	1,990	1,990
R^2	0.123	0.127	0.122	0.122
Adjusted R^2	0.115	0.118	0.114	0.114
Residual Std. Error	0.455	0.454	0.455	0.456

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

Table A.8: Water Access – Herfindahl and Two CC Concentration Ratio

			Dependent variable:	
			Water Service Index	
	(1)	(2)	(3)	(4)
Herfindahl Index	0.178	−0.378		
	(0.281)	(0.355)		
Two CC Concentration Ratio			0.161	−0.055
			(0.148)	(0.179)
Association Member	0.136***	−0.009	0.137***	−0.023
	(0.027)	(0.051)	(0.027)	(0.071)
Male	−0.045**	−0.046**	−0.045**	−0.046**
	(0.020)	(0.020)	(0.020)	(0.020)
Age	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Household Assets Index	0.011	0.011	0.010	0.010
	(0.011)	(0.010)	(0.011)	(0.010)
Rural Area	−0.086***	−0.083***	−0.086***	−0.085***
	(0.029)	(0.029)	(0.029)	(0.029)
Assoc. Leader	−0.105***	−0.105***	−0.104***	−0.104***
	(0.037)	(0.037)	(0.037)	(0.037)
Water Operator	0.090**	0.094***	0.091**	0.093***
	(0.036)	(0.036)	(0.036)	(0.036)
Landowner	0.030	0.035	0.032	0.036
	(0.054)	(0.054)	(0.054)	(0.054)
Herfindahl Index x Association Member		0.865***		
		(0.302)		
Two CC Concentration Ratio x Association Member				0.340**
				(0.154)
Municipal Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	Community	Community	Community	Community
Observations	1,990	1,990	1,990	1,990
R^2	0.122	0.127	0.124	0.127
Adjusted R^2	0.114	0.119	0.116	0.118
Residual Std. Error	0.455	0.454	0.455	0.454

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

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1.4 Regression Tables – Long Run Voting

Table A.9: Voting Behavior Over Time Across Electoral Sections

		Dependent variable:		
			Vote Share in Most Voted CC Member	
	Pooled	Previous Most Voted CC Ran	Previous Most Voted CC Ran	Previous Most Voted Did Not Run
	(1)	(2)	(3)	(4)
Vote Share in Most Voted CC Member (lag)	0.730***	0.763***	0.747***	0.646***
	(0.007)	(0.007)	(0.019)	(0.011)
Previous Most Voted CC Member Ran	0.011***			
	(0.001)			
Most Voted CC Member Won (lag)		−0.022***	−0.027***	
		(0.002)	(0.004)	
Number Votes at Section	−0.0001***	−0.0001***	−0.0001***	−0.0001***
	(0.00001)	(0.00001)	(0.00001)	(0.00002)
Number of Votes in Mun (log)	0.007	−0.017	−0.016	0.048
	(0.024)	(0.026)	(0.026)	(0.038)
Number Effective CC Cand in Mun (log)	−0.086***	−0.093***	−0.092***	−0.074***
	(0.006)	(0.007)	(0.007)	(0.010)
Number of Sections in Mun (log)	−0.002	0.006	0.005	−0.022
	(0.022)	(0.024)	(0.024)	(0.033)
Vote Share Most Voted (lag) * Most Voted Won (lag)			0.021	
			(0.020)	
Observations	46,770	29,986	29,986	16,758
R^2	0.674	0.728	0.728	0.583
Adjusted R^2	0.672	0.726	0.726	0.578
Residual Std. Error	0.084	0.079	0.079	0.090

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

Note: Includes municipal fixed effects, election year fixed effects, and clustered standard errors at municipal level.

Table A.10: Loyalty to Most Voted CC Candidate

	Dependent variable:	
	Same Top CC Candidate	
	(1)	(2)
Vote Share in Most Voted CC Member (lag)	1.339***	1.195***
	(0.034)	(0.056)
Most Voted CC Member Won (lag)	−0.052***	−0.099***
	(0.014)	(0.023)
Number Votes at Section	0.001***	0.001***
	(0.0001)	(0.0001)
Number of Votes in Mun (log)	−0.273*	−0.268*
	(0.142)	(0.143)
Number Effective CC Cand in Mun (log)	−0.135***	−0.133***
	(0.041)	(0.041)
Number of Sections in Mun (log)	0.270**	0.262**
	(0.126)	(0.126)
Vote Share Most Voted (lag) * Most Voted Won (lag)		0.190***
		(0.061)
Observations	29,986	29,986
R^2	0.193	0.193
Adjusted R^2	0.188	0.188
Residual Std. Error	0.447	0.447
Note:	*$p<0.1$; **$p<0.05$; ***$p<0.01$	

Note: Limited to sections where previous most voted CC candidate ran for office. Includes municipal fixed effects, election year fixed effects, and clustered standard errors at municipal level.

1.5 Conjoint Survey

Competition:
  (Baseline = Low Competition)
  High Competition
Constant:
  (Baseline = Leadership Turnover)
  Constant Leadership
Endorsement:
  (Baseline = No Political Endorsement)
  Political Endorsement
Participation:
  (Baseline = Weak Participation)
  Strong Participation
Responsiveness:
  (Baseline = Weak Responsiveness)
  Strong Responsiveness
Participation:Responsiveness:
  (Baseline = Weak Participation:Weak Responsiveness)
  Strong Participation:Strong Responsiveness
Endorsement:Participation:
  (Baseline = No Political Endorsement:Weak Participation)
  Political Endorsement:Strong Participation
Competition:Participation:
  (Baseline = Low Competition:Weak Participation)
  High Competition:Strong Participation
Constant:Participation:
  (Baseline = Leadership Turnover:Weak Participation)
  Constant Leadership:Strong Participation
Endorsement:Responsiveness:
  (Baseline = No Political Endorsement:Weak Responsiveness)
  Political Endorsement:Strong Responsiveness
Competition:Responsiveness:
  (Baseline = Low Competition:Weak Responsiveness)
  High Competition:Strong Responsiveness
Constant:Responsiveness:
  (Baseline = Leadership Turnover:Weak Responsiveness)
  Constant Leadership:Strong Responsiveness
Competition:Endorsement:
  (Baseline = Low Competition:No Political Endorsement)
  High Competition:Political Endorsement
Constant:Endorsement:
  (Baseline = Leadership Turnover:No Political Endorsement)
  Constant Leadership:Political Endorsement
Competition:Constant:
  (Baseline = Low Competition:Leadership Turnover)
  High Competition:Constant Leadership
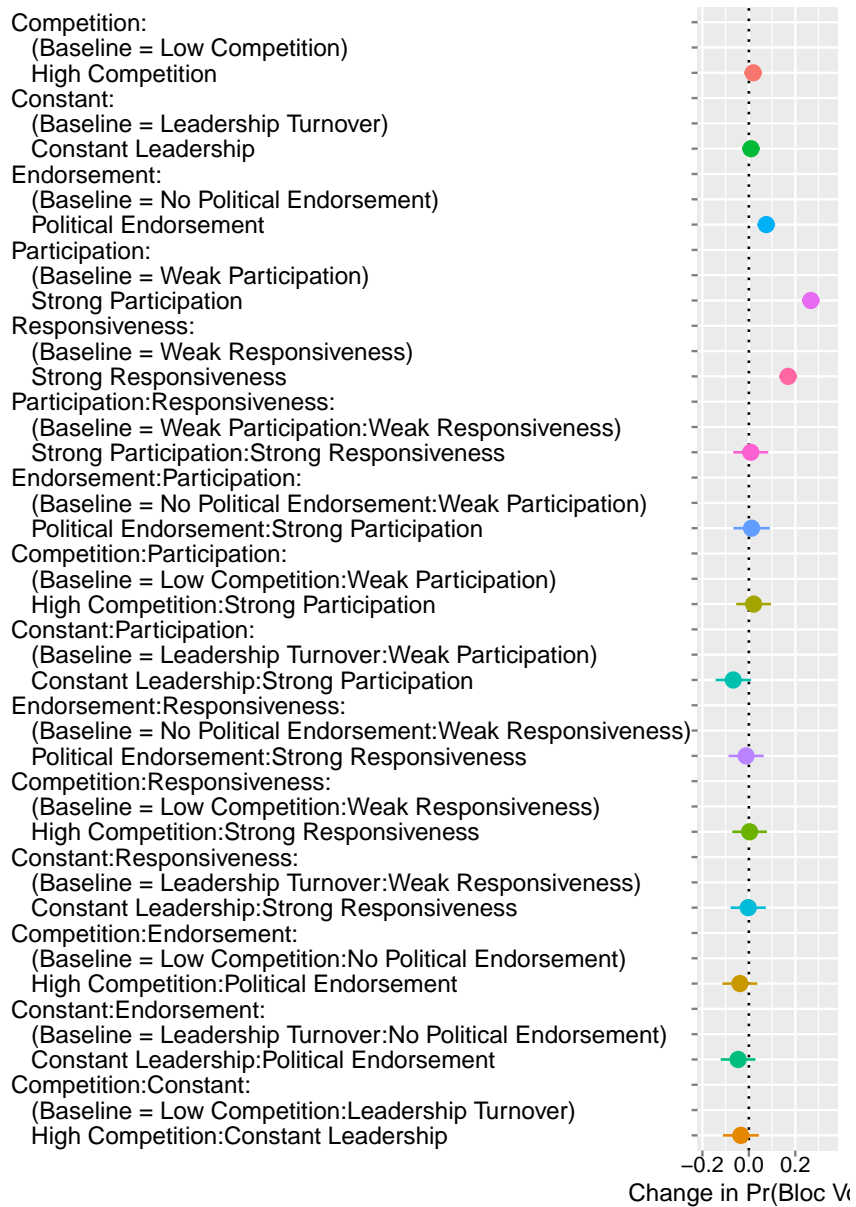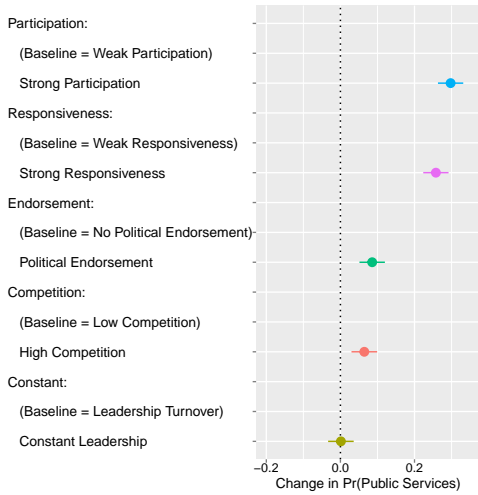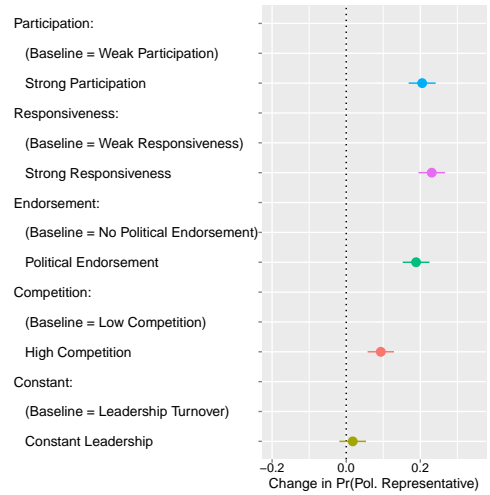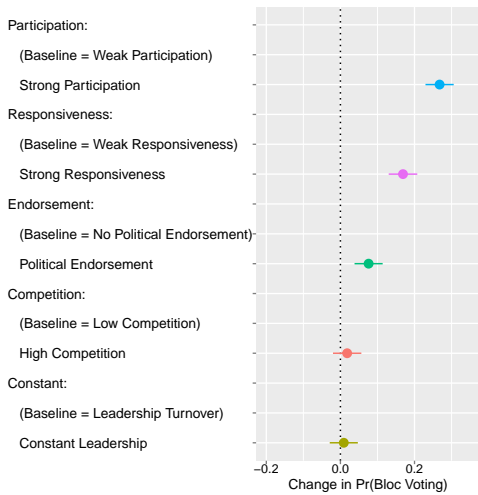
−0.2 0.0 0.2
Change in Pr(Bloc V(

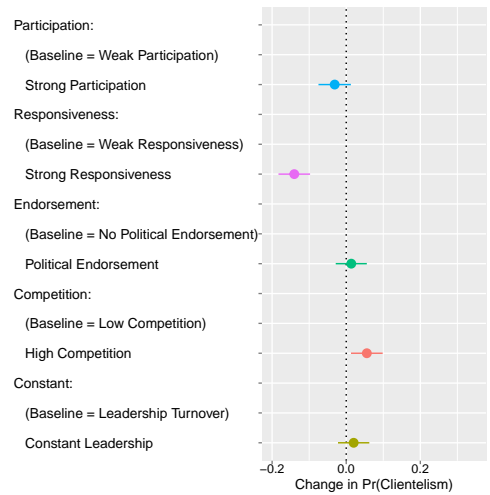Figure A.5: Interaction Effects of Community Association Features, ACIE on Bloc Voting

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(a) Public Service Access

(b) Political Representative

(c) Bloc Voting

(d) Clientelism

Figure A.6: Direct Effects of Community Association Features, AMCE Model

1.6   2016 Survey

I conduct similar analysis using data from a smaller household survey implemented two to three weeks *before* the 2016 municipal election. I designed and implemented this original survey in 104 small communities in Ceará with 415 respondents. The sample included communities with and without associations in rural and urban areas. Due to limited funding, I opted to run the survey in a large number of communities with fewer respondents per community to maximize sub-municipal variation.

Table A.11: 2016 Survey – Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Water Index	403	−0.002	0.25	−0.68	−0.18	0.17	0.55
Association Exist and Satisfaction Index	415	1.07	1.11	0	0	2	3
Vote Share in Most Voted CC Member, 2012	415	0.27	0.16	0.05	0.14	0.37	0.74
Vote Share in Most Voted CC Member, 2016	381	0.25	0.14	0.04	0.14	0.31	0.72
Total Votes for CC Cand. at Polling Station, 2012	415	453.39	401.64	39	183.5	532	2,160
Total Votes for CC Cand. at Polling Station, 2016	381	574.27	512.94	46.00	233.00	696.00	2,436.00
Current Mayor Lives There	415	0.08	0.27	0	0	0	1
Past Mayor Lives There	415	0.04	0.20	0	0	0	1
Current CC Lives There	415	0.22	0.42	0	0	0	1
Past CC Lives There	415	0.12	0.33	0	0	0	1
Landowners Relationship with Politicians	415	0.66	1.00	0	0	2	3
Rural	415	0.81	0.39	0	1	1	1
Male	415	0.32	0.47	0	0	1	1
Sum of Household Assets	415	5.67	2.08	1	4	7	11

Table A.12: 2016 Survey – Vote Concentration and Community Variation

	Dependent variable:
	Vote Share in Most Voted CC Member, 2016
Assoc. Exist and Satis. Index	0.018*
	(0.009)
Rural	0.077**
	(0.034)
Polling Station Votes for CC 2016 (log)	−0.0001**
	(0.00002)
Leadership Same Person/Family	0.020
	(0.020)
Members Propose Ideas	−0.020
	(0.019)
Landowner Rel. to Politician	0.001
	(0.005)
Current Mayor Lives	−0.058**
	(0.029)
Past Mayor Lives	−0.052*
	(0.027)
Current CC Lives	0.051***
	(0.019)
Past CC Lives	0.001
	(0.015)
HH Assets	−0.004
	(0.003)
Observations	381
R^2	0.403
Adjusted R^2	0.374
Residual Std. Error	0.111 (df = 362)

Note:	Includes Municipal fixed effects. Standard errors clustered at community level.
	*p<0.1; **p<0.05; ***p<0.01

Table A.13: 2016 Survey – Water Access and Vote Concentration

	Dependent variable:
	Water Access Index
Vote Share in Most Voted CC Member, 2012	0.434***
	(0.104)
Assoc. Exist and Satis. Index	0.024
	(0.017)
Rural	0.056
	(0.059)
Polling Station Votes for CC, 2012 (log)	−0.027
	(0.027)
Leadership Same Person/Family	−0.021
	(0.037)
Members Propose Ideas	−0.035
	(0.041)
Landowner Rel. to Politician	0.013
	(0.010)
Current Mayor Lives	0.136**
	(0.055)
Past Mayor Lives	0.041
	(0.045)
Current CC Lives	−0.019
	(0.033)
Past CC Lives	−0.025
	(0.036)
HH Assets	0.014***
	(0.005)
Observations	403
R^2	0.247
Adjusted R^2	0.209
Residual Std. Error	0.220 (df = 383)

Note: Includes Municipal fixed effects. Standard errors clustered at community level.

*p<0.1; **p<0.05; ***p<0.01

2   Additional Literature on Community Associations

Community associations exist through Latin America. They are known as *associação comunitária* or *associação de moradores* in Brazil, *junta de acción comunal* in Colombia, *sociedad vecinal* or *sociedad de fomento* in Argentina, *junta de vecinos* in Chile, and *asociación de vecinos* in Peru and Venezuela (Collier and Handlin, 2009). Similar associations exist in China, Cuba, India, Indonesia, Japan, Mexico, South Korea, and Taiwan, the United Kingdom, and the United States, among others (Auerbach, 2017; Read, 2012; Taylor, 2011).

Many studies document the relationship between neighborhood associations or other neighborhood-based collective groups and politicians. Scholars have noted this in Argentina (Szwarcberg, 2015; Zarazaga, 2014; Auyero, Lapegna, and Poma, 2009; Garay, 2007); Brazil (Koster and Eiró, 2021; Montambeault, 2015; Lopes, 2005; Braga and Barreira, 1991; Abers, 1998; Perlman, 1979; Gay, 1990; Medeiros, 2012; Teixeira, 2008); Colombia (Holland and Palmer-Rubin, 2015); Ecuador (Burgwal et al., 1995); India (Björkman, 2014; Auerbach, 2017); Mexico (Tosoni, 2007; Holzner, 2004; Shefner, 2001); and Uruguay (Canel, 2012).

For additional studies of community associations in Brazil, see Abers (1998); Ansell (2014); Montambeault (2015); Lopes (2005); Perlman (1979); Gay (1990). For work on social organizations and other NGOs in Brazil, see Teixeira (2008); Avritzer (2007); Reis (2013); Lopez and Barone (2013); IBGE (2012).

3   Conjoint Experiment Procedures

Conjoint or choice experiments typically present respondents with two profiles of a product, person, or situation, with variation on a number of characteristics. In this study, the profiles represent the community association in two different hypothetical communities.

I identified five features of a community association that are typical, but also vary, in this context: 1) active participation in association meetings, 2) leadership that is responsive to community members, 3) endorsement of a local political candidate by the association president, 4) high competition for the position of association president, and 5) turnover in the association leadership. All combinations are plausible and were included in the experiment, which led to 32 unique profiles. In a given pair of randomly selected profiles, as few as one feature may differ, or as many as all five features may differ. The order of the features was the same for all respondents.

Conjoint experiments have a complex design that is difficult to implement in rural field settings with low education or illiterate populations. To overcome these challenges, I created pictogram booklets that were paired with a consistent verbal script. I worked with a local graphic designer to create the pictograms and piloted them in a similar rural community in the study site to evaluate comprehension. I carefully designed the pictograms to be appropriate for the context. In the figure, the association president is represented with a sash, since in Brazil, the sash is symbolic of the president. Association meetings are represented by people sitting in chairs, which is typical of these types of meetings. In each full profile, the drawing of the association meeting in the background of dimension 3 is consistent with the random selection of dimension 1. The political candidate is represented with a tie, and large flags are common during electoral campaigns. The

selection of brown for the politician was intentional; since there are no parties with brown as their color, the politician would not be associated with an actual political party.

In executing the conjoint experiment, first the enumerator read a preface, translated here:

Now let's talk about two different communities. They aren't real, they are just make-believe in order to discuss some situations with you. After we talk about these two communities, we will answer some questions about them. To help, I will show you some images and read a description about each community. These images represent characteristics of these communities.
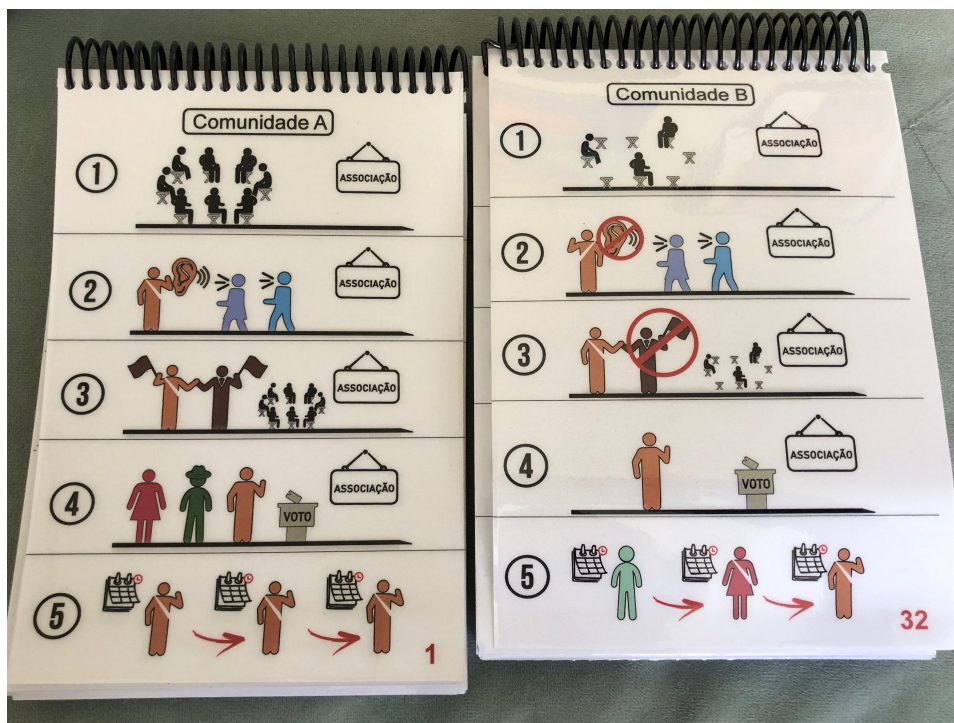
Figure A.7: Sample Profiles

Then, the tablet randomly selected two profile numbers, and the enumerator turned the booklets to the appropriate profile pages. The enumerator handed the respondent the two physical booklets, as in Figure A.7.

As the respondent held the two booklets on his or her lap, the enumerator read the text (Table A.14) of the profiles' options so that respondents had consistent interpretations of the pictograms. Finally, the enumerator asked the respondent four follow-up questions, including: "In your opinion, in municipal elections, which of these communities would organize to vote for just one candidate?" [3]

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[3]See pre-registration at [REDACTED FOR ANONYMOUS SUBMISSION] for more details and all outcome questions.

Dimension	Value 1	Value 2
1: Community Participation	Community members participate a lot in the community association. They attend meetings and give their opinions.	Community members in general don't participate much in the community association. Few people attend meetings and they don't give their opinions.
2: Leadership Responsiveness	The association president listens if/when community members have ideas to improve the community.	The association president does not listen if/when community members have ideas for the community.
3: Political Endorsement	In the last municipal election, the association president supported a city council candidate to the association and invited him to speak about his candidacy at an association meeting.	In the last municipal election, the association president didn't support a city council candidate to the association and didn't invite politicians to speak at the association.
4: Leadership Competition	When the community had its last election for association president, three people ran for office.	When the community had its last election for association president, only one person ran for office.
5: Constant Leadership	The same person has been president of the association for a long time.	Different people from different families have been president of the association over time.

Table A.14: Conjoint Verbal Script

4 Brazilian Elections

Brazilian municipalities, similar to counties in the US context, have an elected mayor and city council that serve four year-terms. Mayors are eligible for two consecutive terms, while city council members do not have term limits. Municipal elections for mayor and vice-mayor (executive) and city council members (legislative) take place every four years. They are staggered by two years from state and federal elections. The first-round (and second-round for mayor, if applicable) municipal election occurs on the same day in all municipalities in Brazil.[4]

One mayor is elected to represent the whole municipality, and multiple city council members are elected at-large via open-list proportional representation. The entire municipality is the multi-member district for all city council members, so candidates can target specific communities or seek votes throughout the municipality; similarly, citizens can vote for any candidate because they are not confined within zones or wards. See Ames (1995*a*) and Mainwaring (1991) for more details on Brazil's electoral system.

The median municipality in Ceará had 53 candidates for 13 city council seats in 2016. In Ceará, 9 of 183 municipalities, excluding the capital, had more than 200 candidates for city council for between 15-23 seats. The maximum number of available seats per municipality is determined by the population, and the actual number of available seats is determined by municipal law. There is no minimum number. For example, a municipality with 80,001-120,000 residents is permitted 17

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[4]Mayors are elected via plurality rule in municipalities with fewer than 200,000 voters, and via majority rule with runoffs in municipalities with more than 200,000 voters.

council members, but the municipality may choose to have just 16 because of financial constraints (Fernandes, 2010).

City council members are the closest and most accessible politician to most Brazilian citizens, especially those in rural areas. Since the mayor's attention is focused on running the municipality as a whole, a city council member is the primary way for citizens to raise concerns, request services, and gain access to the mayor and politicians in other levels of government. City council candidates select a nickname for campaigning, and many emphasize service to the community with names like as "João of the water truck" or "Adriano of the ambulance."

Local candidates for mayor or city council are often part of a larger broker networks. They may be expected to use their electoral base to get votes for specific state or federal candidates in the elections two years later, who will reward them with access to government resources (Novaes, 2017; Avelino, Biderman, and Barone, 2012; Vieira, 2012; Medeiros, 2012).

What is the process for voting in Brazil? The country is divided into electoral zones that generally correspond to municipal boundaries, though large municipalities may be divided into multiple zones and small municipalities may be combined into one zone (*zona eleitoral*). An electoral judge is assigned to each zone, and the judge is responsible for dividing the zone into electoral sections. An electoral section (*seção*) has a minimum of 50 voters and a maximum of 500 voters in the capitals and 400 voters in the rest of the country.[5] Each section is assigned to a specific voting machine (*urna*) at a specific polling station (*local de votação*). Electronic vote machines require voters to input numeric codes for each candidate: a two-digit party code for the mayor, and a five-digit code for city council members made up of the two-digit party code in front of the three-digit personal code. Only one candidate per party can run for mayor.

Voting is mandatory in Brazil for literate individuals ages 18 to 70, and it is optional for those who are illiterate, over 70, and ages 16 and 17. To register to vote, citizens must go in person to an electoral office and bring an official identification card, military status for men between 18-45, and proof of address; most municipalities have an electoral office in the city center.

Voters can request exemptions due to illness or travel; voters without exemptions who do not vote must pay a modest fine at the electoral office. While the fine is modest, even for most rural citizens, transportation to the electoral office from a rural community is challenging and often expensive. Citizens who do not pay the fine are prevented from participating in civil service exams or public bidding processes, working in the government, obtaining a passport, enrolling in a public university, or obtaining loans from state banks. Elections occur on Sundays, so most citizens do not need to request time off from formal employment. See more details in Cepaluni and Hidalgo (2016).

Voters can also submit blank or null ballots; voters select the option "blank" in the voting machine or type any number that does not correspond to a candidate to submit a null vote. Blank votes are generally seen as expressing a preference for none of the candidates, while a null vote could be an error. Nevertheless, many Brazilians also see null votes as a stronger expression of protest voting. Neither blank or null votes count towards candidate totals but are reported.

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[5]See Electoral Code Article 117 and amendment by Law 6996/1982 Article 11. Each section has a reception table (*mesa receptora*) overseen by six people appointed by the electoral judge in advance in a public hearing.

Each voter has a voting card (*título eleitoral*) with a voting ID number that is assigned to a voting section (*seção*); each section is assigned to a voting machine within a polling station. Voters (or others) can access their polling station location with their name, date of birth, and mother's name on the state election board website. Voters are assigned to an electoral section at the polling station that is closest to their residence (considering distance and transportation options) and within their judicial or administrative district (Electoral Code Article 46.1). To transfer their section to another location, voters must bring an official identification card and proof of residence within the last three months; they should also bring their voting card if they have it. Voters can only transfer sections if there has been at least one year since registering to vote or their last transfer, if they've spent a minimum of three months in the new residence, and if they are in good standing with the Electoral Board.

Votes are totaled and publicly reported at the level of voting machine, which may consist of one or more electoral sections. The electoral results report the number of votes for each candidate at that machine and note which section voted there or which sections are being aggregated, if applicable. In rural areas, polling stations tend to have only one section and one voting machine; they tend to be in active or deactivated schools, though occasionally use health clinics, churches, and community association centers. A polling station may host multiple sections and multiple voting machines, and polling stations are selected by the electoral judge. Preference is given to public buildings, though private buildings are also used if necessary.

Brazilian municipal elections were held on October 2, 2016, and electoral data is publicly available online from the Ceará state electoral agency: *Tribunal Regional Eleitoral*. See `http://apps.tre-ce.jus.br/tre/eleicoes/resultados/2016/`. I aggregate all sections at the polling station. Electoral results are reported at the section-level, though some sections are aggregated together in the reporting.

Most rural polling stations have only one section, though some have more sections if the rural polling station serves a larger population. Politicians and leaders can monitor each section that is reported separately and often know the section number of the voters that they monitor. In the household survey, we asked respondents which polling station they voted at and chose not to ask for their section number. Asking for their section number, while not sensitive, could suggest that we worked for local politicians instead of being independent researchers. In the median community, respondents reported three different polling stations. The full survey has 104 unique polling stations, since some neighboring communities voted at the same polling station.

Figure A.8: Community-Level Concentration of Vote by Municipality
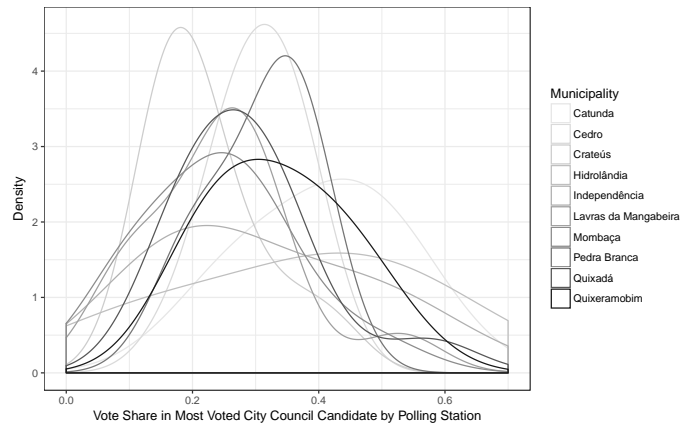
Note: Includes 120 communities in full sample. Data from 2016 municipal election from TRE.

Figure A.8 demonstrates the wide range of concentration of voting by polling station, where values range from $8 - 61\%$ and the median polling station gave 28% of its votes to the most voted candidate at the polling station. Crateús has the lowest mean vote concentration of 22% among communities in the sample, while Catunda has the highest with 40%. A community in Crateús that gave 30% of its votes to its most voted candidate is seen by politicians as having relatively high coordination, while a similar community in Catunda would be seen as having low coordination. This empirical finding is important to my theory, which I incorporate by including municipal fixed effects.

Scholars have used different types of indices to capture vote regionalization and spatial dispersion of voting at the state-level in Brazil; see Avelino, Biderman, and Peres da Silva (2011); Ames (1995*b*); Samuels (2002); Pereira and Rennó (2001); Davidian, Silva, and Mesquita (2012); Silva and Davidian (2013). Future research could explore how concentration and dispersion of vote bases at the sub-municipal level shape bloc voting strategies and outcomes.

5 Fieldwork and Theory Development

I spent most of 2016-2017 (18 months total) living in Brazil and conducting fieldwork. I am fluent in Portuguese, and I conducted qualitative interviews, wrote and oversaw original household surveys in rural communities, and designed, launched, and managed a large-scale field experiment.

My theory emerged from extensive observation and consultation with rural residents, leaders, and politicians. I was able to develop the nuances in my theory through rigorous micro-level fieldwork that was sensitive to local conditions, and I sought to learn from local residents instead of imposing outside ideas upon them. With the support of my advisors, I started with two contacts in Rio de Janeiro in January 2016. Through countless meetings in Rio and in Ceará's capital of Fortaleza, I created a strong research network of faculty and students at multiple universities, bureaucrats at state agencies, and civil society leaders.

In my fieldwork, I aimed to apply the theories I learned through close reading of the literature to the complexities and realities of rural Northeast Brazil. I wanted to ask big questions about politics and society, and I went to the field to probe my assumptions, change my mind, and learn new ways of seeing complex relationships between community groups and local politicians. During interviews, respondents often asked why I traveled all the way to their isolated community to speak with them. I explained that I could sit at home in the United States reading books about politics and society in Brazil, but I could never learn as much as I could by visiting their homes and asking them about their personal experiences. They agreed that this was probably true!

I developed and tested my theory through an iterative process, where in-depth interviews informed what concepts I wanted to test and what data to look for. I derived my theory from interviews with a smaller sample of communities, and then I tested the hypotheses on a much larger, wider sample. Instead of maximizing the number of individuals in interviews and surveys, which would have been logistically easier, I visited a large number of communities to better understand community-level variation. I provide more detail about this process below.

2016: Exploratory Interviews and Small Pre-Election Household Survey

I began my fieldwork with interviews in the state capital and rural communities, which enabled me to revise the theory that I had outlined in my dissertation proposal. Drawing heavily on the collective action and distributive politics literatures, I identified in the proposal a typology of "horizontal" vs. "vertical" communities. The dimensions refer to the social and power relationships within rural communities and their community associations. My proposal defined the types as follows: horizontal groups tend to have higher inter-household trust and regular leadership turnover in their community associations; vertical groups tend to have weaker inter-household trust and monopolistic, constant leadership in their community associations.

In my proposal, I predicted that horizontal groups were more likely to pursue non-clientelistic strategies, such as pooling their communal resources to fix wells and buy water independently and/or appeal to politicians for non-contingent provision of public services through collective protest. On the other hand, I predicted that vertical groups were more likely to pursue clientelistic strategies of bloc voting in exchange for contingent service provision. I expected that clientelistic strategies would be more effective in municipalities with high competition; as such, vertical groups would have higher service provision than horizontal groups in municipalities with high political competition for mayor. The opposite would be true in municipalities with low competition.

To explore my proposed theory, I visited 27 different rural communities in four different municipalities in April 2016. I selected the municipalities based on variation in mayoral electoral competition in 2012 elections and regional water access. I selected pairs of neighboring municipalities (one with high and one with low margin of victory for mayor in 2012) in the central and southern regions of the state. The central region has low rainfall and intense water scarcity, while the southern region has higher rainfall and a more robust groundwater aquifer.

Within each municipality, I selected communities that would provide variation in concentration of votes at the community polling station for city council members in 2012. I was interested in seeing whether horizontal or vertical communities (which I could not identify prior to visiting them) were more likely to pursue bloc voting, and whether bloc voting was associated with public

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service access. Within communities, I selected households based on a random walk from the center of the rural community (usually a church or soccer field), and many residents directed me to the community association leader via a snowball sampling process.

My research coordinator[6] and I conducted the interviews together in Portuguese. We deliberately kept the questions very open-ended and tried to make the interviews feel more like a conversation. We did not necessarily ask each question in each interview, or we asked questions in differing orders, depending on the flow of the conversation. As these were my first visits to rural communities in Ceará, my main goal was to learn from local residents about their lives.

I designed a semi-structured interview guide with four key modules: 1) general household information to ease into the conversation (occupation, length of time in community, relationship to neighbors, basic demographics), 2) water sources to learn about water access and begin with an objective, non-sensitive topic (main sources, maintenance, responsibility, drought relief), 3) social relationships and community associations (activities, meetings, leadership, elections for leadership, endorsement of municipal political candidates or candidacy of association leadership), which eased into 4) political topics (campaigns, candidate actions and platforms). Most respondents talked about municipal politics and elections before the association module and certainly by the political module, and we perceived that these topics were interrelated in a complex way.

I quickly learned that communities did not fit easily into the typology from my proposal. Back in our hotel room in the evening, my research coordinator and I would try to classify the communities that we had visited that day. Many communities had constant leadership over time, with the same person or family leading the association. My proposal typology would have classified them as "vertical" communities prone to elite capture, and it would have predicted that vertical communities had lower public service access. However, I found that in most cases, having constant leadership seemed to be *good* for public service access, since the person had strong connections and a knowledge of bureaucratic processes. In most cases, this person was re-elected by very active community members for doing a good job. I felt that I could no longer compress community activity and leadership characteristics into a single dimension.

I also found that the dichotomy of "clientelistic" or "non-clientelistic" strategies did not clearly map onto bloc voting behavior. I was surprised to find that many respondents reported choosing to coordinate their voting behavior and intentionally using their bloc vote to have more power in their relationships with politicians. In many cases, they perceived it to give them more agency in local politics, rather than take it away. Not only that, but the use of bloc voting as an intentional strategy was especially prevalent in communities with high trust and participation in the association! While the factors that I had previously identified - trust and associational activity, leadership turnover, political ties through bloc voting - did seem to be key factors, the stories that rural residents told me about their communities suggested that they worked in very different ways than my proposal had predicted. I felt that I could no longer define bloc voting within a clientelistic framework.

I spent the next few months digesting the information from my interviews and revising my theory. I drew on my interview experiences to write a survey instrument that could capture the

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[6]She had recently completed her bachelor's degree in social work at a university in Fortaleza, Ceará, and she used qualitative interviews for her undergraduate thesis. We met through a mutual friend who was a Ph.D. candidate at the Federal University of Ceará studying political science and was her undergraduate advisor.

concepts of community organizing, leadership, political relationships, voting behavior, and public service access in a more precise way and test their relationships at a larger scale. With my research coordinator and three research assistants, I piloted the household survey in August 2016. I then revised the sampling strategy and survey instrument based on our field observations during the pilot, and the three assistants from the pilot survey acted as team leaders for three teams of three enumerators.

Before the municipal elections (that would take place on October 2, 2016), my research coordinator and I traveled with the research teams to manage implementation of my original household survey in 104 different communities in early September 2016 ($n = 415$ respondents). I stayed back at the hotel in the municipal center during the day so that my presence as a foreign researcher would not bias the survey findings, and I made observations about the campaign posters and activities in the municipal center during the day and night. I collected pamphlets and photographed campaign flags and candidate numbers painted on walls. My research assistants and I observed many different campaign rallies and speeches and chatted with city residents at restaurants in the evenings.

2017: Interviews to Refine Theory and Large Household Survey

My observations during the electoral period and analysis of the survey data introduced additional questions and puzzles, and I conducted more interviews in 7 communities in one municipality in April 2017 to help revise my theory. These interviews were primarily for the field experiment, and I again conducted the interviews in Portuguese with my research coordinator's assistance.

Due to the focus of the experiment, the interviews and sampling strategy were based on groundwater resource management.[7] Still, community associations were a key part of the experiment, since I had learned in 2016 that they were primarily responsible for water management and accessing development programs. I didn't need to ask about politics; most rural residents or association leaders brought up the involvement (or lack of involvement) of candidates or elected officials – primarily city council members – in maintenance of their water resources and access to programs.

With a more clearly defined theory and set of concepts, I redesigned and oversaw the implementation of a larger original household survey in 120 communities during June – August 2017 ($n = 1990$ respondents). This survey was the baseline survey for the field experiment, and I describe the sampling strategy and data collection in detail in a later section.

While the survey teams were in the field, I returned to 18 rural communities for additional interviews in August 2017. Unfortunately, the logistics proved to be more complicated than before. During previous interview trips, I traveled with my research coordinator; we became good friends, and I kept costs low by sharing a room, car, and often even meals with her. However, she was very busy acting as research coordinator and enumerator for one of the survey teams as they implemented the household survey in rural communities in other parts of the state. I did not

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[7]We selected the municipality because it was the location of the regional headquarters of the state water agency and a large municipality with water scarcity. We selected communities that used a well and had a community association, which we identified with the help of staff from the regional state water agency; within communities we selected households based on a random walk from the center of the rural community.

have the resources to hire someone to accompany me during the travel and interviews, since their transportation, lodging, food, and stipend would have been prohibitively expensive.

I was fortunate that my interviews could overlap for a week with another colleague's research trip to a few different municipalities in the rural interior of Ceará. His research focused on municipal politics, so his interviews were in urban areas, and I conducted interviews alone in the rural areas. To increase the chances of having a safe, successful trip on a moto-taxi by myself, I asked the hotel owners for personal recommendations of moto-taxi drivers, and I made sure that the drivers were aware that I was traveling with a companion. Still, given the costs and safety concerns, I limited the number of days of interviews and the number of interviews per community.

My interview research design was very creative in identifying a sample in a data-poor environment while also respecting the logistical and financial challenges of rural research. My colleague and I selected municipalities that were appropriate for both of our research projects, and my main criteria was that they were located in the dry, central part of the state. I again selected the communities to have variation in public precinct-level voting behavior in the recent October 2016 municipal election. I created a sample of possible communities that was stratified by number of voters, concentration of voting, and whether the top voted candidate won or lost.

Transportation to rural areas is very expensive, since it takes an hour or longer on single-track roads in mountainous areas to reach many communities. With a limited budget, I maximized my resources by creating the sample of communities then discussing the list with moto-taxi drivers to identify routes that were accessible and that would allow me to visit many different types of communities within the same day. Once in the community, I selected households via random walk and selected leaders via snowball sampling.

These interviews helped me to observe how rural residents and association leaders viewed the relationship between community organizing and access to public services. I asked about relationships within the community (trust between neighbors), the association (participation, activities, leadership selection), and voting behavior (association leader endorsing candidates, campaign activities in community). I again tried to keep the interviews more conversational in order to understand how residents thought about their own communities and see what factors they raised independently as being important for getting access to public services.

In the interviews, I became aware of the specific way that many rural residents perceived bloc voting. Residents in many different communities used a particular phrase about "having a representative" or "having a city council member."[8] Residents either said that they did have a representative and described which candidate received the most votes in their community, or they said that they did not have a representative and that residents gave their votes to many different candidates. Even in the communities that did not coordinate their votes, most respondents told me unprompted that bloc voting was a strategy that other communities used to get access to resources.

In field diaries at the end of each day, I attempted to triangulate the responses from residents within each community and consider the variation that I saw between neighboring communities. I researched electoral results to compare to the statistics that rural residents cited about their community's polling station. I sought to draw tighter theoretical connections about the relationship between community organizing, bloc voting, and public service access.

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[8]In Portuguese, the specific quotes are "*ter um representante*" or "*ter um vereador*."

I went back to the state capital and spent the last couple months of my time in Brazil talking with bureaucrats at state agencies for water management, agriculture and rural extension, social development, health, and mapping and statistics. I learned more about their programs and tried to identify geocoded data of sub-municipal public service provision.[9] I returned to the US in late 2017. I studied the field diaries and transcripts of the interviews, returned to the academic literature, and had numerous conversations with my colleagues and mentors.

Personal Participation and Ethical Considerations

It is challenging, and often impossible, to observe community-level variation in social and political relationships with administrative data. Studying these topics requires deep knowledge of local conditions and time and effort dedicated to learning from local residents. I had to be creative with the interview research design in a data-poor environment, and the surveys took many months (over three months for the household survey) due to the logistical challenges involved with reaching very rural communities to identify the sample and implement the survey.

My research involved significant personal participation in research design and implementation. I was deeply aware of my status as an outsider during interviews and surveys, and I sought to balance the bias that my presence would introduce with my desire and need to learn from local residents. I took the time to adapt my academic/urban Portuguese language skills to the rural environment and learn local vocabulary and slang. I felt strongly about being actively involved and carefully designing the semi-structured interview guides and household surveys to meet a number of important goals: the question wording accurately captured the concepts I hoped to measure; respondents understood the questions the same way that I did; and respondents felt respected during the interview or survey and were not left feeling inadequate or bad about themselves.

I therefore was very active in the field. I conducted interviews myself, participated in the pilot survey, and managed teams in the field. I traveled with the teams to rural communities to pilot the survey with the enumerators, and each night we met in my hotel room and discussed each question as a group to get as close as possible to meeting the above goals. I often traveled with the teams while they implemented the surveys, though I stayed back at the rural hotel during the day because my presence would have biased the survey results.

During interviews and survey data collection, I was concerned with respondent confidentiality. I took multiple precautions with data collection and storage (password-protected tablets and data storage, among others) and conducted standard IRB procedures with the enumerators and respondents. In addition, I emphasized repeatedly the importance of respecting respondents and their experiences. While it was natural to discuss the day's work over dinner at a restaurant in town, it was also essential that my research assistants and I respect interview confidentiality. We limited dinner conversation to general observations about the day's work and logistics, and we only discussed specific issues or challenging situations when we returned to the privacy of the hotel room. Even though the data and topics were not sensitive, I wanted to respect the respondents and honor the trust that they showed in allowing us into their homes and sharing their personal experiences.

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[9]I was not able to obtain specific datasets but did learn about some promising avenues of future work.

Residents of many rural communities have generously shared their time and knowledge with me, and it is important to me to be honest with them about the impact of their contribution. Many respondents asked if we would be able to directly or indirectly help their community, and the honest answer was no. I hope that my research will ultimately inform public policies that can improve service provision, but any positive impact will be very indirect. I repeatedly advised enumerators to be honest about this and state very clearly that we did not work with local politicians or the government in any way and that the data collection was only for research purposes.[10]

Many respondents also asked if they could learn about the results of the research, and we said that we hoped to present the findings in the future but that we did not know when or where this would take place. My research coordinator and I will return to universities in the state capital of Ceará and regional universities in rural areas to share our experiences and results.

I also work with my research teams to mutually support each other in our professional development and goals. During all of these projects, I trained teams of Brazilian students, and we learned together how to conduct interviews, household surveys, and field experiments. Many of my research assistants have since developed master's or Ph.D. projects and published articles that focus on insights they obtained while we were doing interviews or surveys in rural areas,[11] and I continue to learn from their research and experiences.

6 Survey and Interview Methodology

Survey and interview respondents did not receive compensation. All respondents gave oral informed consent before participating in the interview or survey, and they were free to decline participation or stop the interview or survey at any time. No study involved deception of any kind. Data are anonymous. All studies received IRB approval at the PIs' universities.

Surveys took place in 2017 and 2019 in 120 communities spread across 10 municipalities as part of a field experiment about community water resource management. The following text is taken from the Pre-Analysis Plan for the field experiment (REDACTED).

Between June and September 2017, we conducted baseline surveys in 120 communities from 10 municipalities in the interior of Ceará. We first defined a sampling frame consisting of municipalities from Ceará's four water basins: Acaraú, Sertão de Cratéus, Banabuiú, and Salgado. Water basins differ in geological and geographic characteristics such as distance to state capital, access to major rivers, groundwater salinity, hydrogeology, aquifer characteristics, and the regional office

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[10]The field experiment, of which the household survey was part, did involve providing tangible benefits to the communities. We provided water-level measurement devices for community wells to treated communities; during the endline survey, we provided the same device to control communities.

[11]For example, Gomes Pereira and Coelho (2017) study the sociological and symbolic meaning of water and water scarcity in funeral rituals in the semi-arid region of Ceará. They observed that residents left water bottles at grave sites for their relatives, and they returned to some of the same municipalities and conducted additional interviews. They write, "The water assumes a higher votive value when offered to the dead, considering its importance among the living in the locality, who face water scarcity every day. The death at the side of the road gives rise to common graves with crosses or small tombs in honor of the dead. In these graves, the people of the village put water bottles in an attempt to quench a thirst that, according to them, is 'an eternal thirst.'"

of the state water agency COGERH to which they report. Off of the sampling frame, we drew a random sample of 10 municipalities, stratifying on water basin and subject to the following criteria:

1. **Geological:** Municipalities should be situated over the state's crystalline geological zone, which is the dominant geological zone. Crystalline soil limits interference between different wells and is characterized by small wells as the principal groundwater source. These sources are vulnerable to overuse due to the unknown, though often small, water deposits.

2. **Governance:** Municipalities should be situated inside the state's official semi-arid zone, so that they are under the same environmental and climate limitations.

3. **Size:** Municipalities should have medium to large population and geographic area relative to the other 150 municipalities. This criterion maximizes the number of communities with active associations and the distance between selected communities to reduce spillovers.

Municipal selection factors ensured that municipalities were subject to similar climate and hydrogeological conditions. The final municipality list is: Catunda, Cedro, Crateús, Hidrolândia, Independência, Lavras da Mangabeira, Mombaça, Pedra Branca, Quixadá, and Quixeramobim.

For each municipality, we restricted the sample of potential communities to (i) localities where the association is moderately or very active; and (ii) there was at least one functioning well used by community members. To collect this information, two research assistants traveled to each of the 10 municipalities in May 2017 and spoke with local experts from the municipal government or from civil society organizations. These experts provided a list of all registered community associations in the municipality. Research assistants then independently verified the information provided by experts and ruled out any localities that did not meet (i) and (ii) and were not neighbors (and therefore subject to high spillovers and likelihood of the same operator serving both communities). The remaining list entered the pool of potential research sites, from which we randomly drew a list of about 30 communities, where possible depending on the number of total communities, broken down into three groups: (1) group one containing a list of the 12 communities to be surveyed; (2) group two containing six communities to be surveyed in case any of the first 12 localities did not meet criteria (i) or (ii) after on-site visit and verification; (3) group three containing the remaining communities in case all others did not meet the community or well criteria. The total number of localities varies depending on the size of the municipality and the number of communities that fit the criteria of (i) and (ii). In total, we have surveyed 120 communities at baseline, with an average of 16 households participating in the survey in each community.

We deployed enumeration teams for baseline research in Summer 2017. The teams had at least one water resources student/professional and at most three social sciences students/professionals. Enumerators were in the field between June and September 2017. For the intervention, we will employ seven teams of one social sciences and one water resources student or young professional. They will revisit the 80 communities selected for T1 or T2 during a 30-day period in May-June 2018. Finally, the same strategy used for baseline research will be employed for endline data collection. The endline data collection dates are pending, and we will update the PAP with this information once it is decided.

Table A.15: Communities Surveyed by Municipality

Catunda	6
Cedro	12
Crateús	15
Hidrolândia	9
Independência	15
Lavras da Mangabeira	12
Mombaça	12
Pedra Branca	12
Quixadá	12
Quixeramobim	15
Total	120

While these in-person surveys are more expensive and time-intensive, they are critical to collecting household-level information about water use and community members' perceptions of access that is otherwise unavailable. In most rural communities, a local citizen serves as the water "operator" to manage an existing community water system, such as a communal well or piped network from a local well into households. We include a separate survey module with the water operator in each community to capture any pre-existing water management information in each community.

There are four main groups of people that we surveyed in each community: households in the larger cluster of houses, the "populated area"; dispersed households and landowners, the "rural area"; community association leaders; and water operators or other water expert(s).

At baseline, we visited one community per day and surveyed an average of 16 people across these four groups – though in all communities at least two of these respondents were the CA leaders and water operator.[12] When communities had a cluster of more than 20 houses, the enumeration team followed a random walk pattern to select households. First, they started off from a prominent community center, usually a small church/chapel, and walked in different directions for up to two minutes (community size allowing). After the initial walk, they sampled the first house available and from then on they skipped two houses before next survey. In cases where there were houses on both sides of the road, they would each survey their right-hand side first and then alternate sides.[13] For the rural area, they would identify dispersed houses on the drive in/out of the community and ask families where to find remaining households who were also members in the CA.

For community association leaders, the enumeration team used a snowball sampling approach and asked citizens in public areas who the association leaders were and where they lived. They first sought out the president, but if the president was unavailable, they sought out other members of the

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[12]It is not unusual that CA leader and operator are the same person, in which case we surveyed the same individual for both community and well information. Only rarely there were more than one water operator in community, in which case we interviewed at least the most knowledgeable operator.

[13]Since they were walking in opposite directions, this process ensures no bias from house construction and sunlight patterns.

leadership (vice-president, treasurer, secretary, etc.). This was surprisingly easy, given the small size of the communities and that community members are very familiar with association positions and where people live and work. Association leaders were eager to participate and share their experiences, especially since they were sought out as being leaders in their communities. Water experts were surveyed the same way, and teams assigned their water resources expert to speak to operators and visit well(s) to collect the relevant hydrologic information.

Prior to survey participation, the enumerators read a recruitment and consent script on the information sheet, offered a copy of the information sheet/consent form, and obtained oral consent. The research presents no more than minimal risk, and written consent is uncommon in this setting, so oral consent is both more culturally appropriate and less invasive for this study. Subjects were in their own homes and the consent process and resulting survey only captured the head of household's opinions; in a small number of cases, other family members were present during the interview but were asked (and complied) not to interfere with the answers. All survey elements were conducted in Portuguese.

The endline survey followed the same structure.

Table A.16: Interview Methods Appendix: Rural Stakeholders

Number	Interviewee	Date	Source	Format	Length	Recording	Selection	Community
1	Poor urban HH	17-Apr-16	Random walk	Semi-structured	1 hour, 28 mins.	Audio recorded	A	1A: Outskirts of urban zone
2	Water truck driver	17-Apr-16	Snowball	Semi-structured	11 mins.	Audio recorded	A	1A: Outskirts of urban zone
3	Private water salesman	17-Apr-16	Snowball	Semi-structured	41 mins.	Audio recorded	A	1A: Outskirts of urban zone
4	Poor rural HH	18-Apr-16	Random walk	Semi-structured	50 mins.	Audio recorded	A	1B: Rural district
5	Water system operator	18-Apr-16	Snowball	Semi-structured	12 mins.	Audio recorded	A	1C: Rural community
6	Poor rural HH	18-Apr-16	Random walk	Semi-structured	18 mins.	Audio recorded	A	1D: Rural community
7	Poor rural HH	18-Apr-16	Random walk	Semi-structured	41 mins.	Audio recorded	A	1E: Rural district
8	Association President	18-Apr-16	Snowball	Semi-structured	1 hour, 17 mins.	Audio recorded	A	1E: Rural distict
9	Rural extension worker	19-Apr-16	Water Basin Meetings	Open-ended	20 mins.	Notebook after	A	1F: Community meeting
10	Community member	19-Apr-16	Water Basin Meetings	Open-ended	15 mins.	Notebook after	A	1F: Community meeting
11	COMDEC staff	20-Apr-16	Targeted	Open-ended	1 hour, 48 mins.	Audio recorded	A	2A: Municipal center
12	Mayor	20-Apr-16	Targeted	Semi-structured	52 mins.	Audio recorded	A	2A: Municipal center
13	Poor rural HH	21-Apr-16	Random walk	Semi-structured	16 mins.	Audio recorded	A	2B: Rural community
14	Poor rural HH	21-Apr-16	Random walk	Semi-structured	43 mins.	Audio recorded	A	2B: Rural community
15	Poor rural HH	21-Apr-16	Random walk	Semi-structured	1 hour, 6 mins.	Audio recorded	A	2C: Rural community
16	Pres. of Federation of Assoc.	21-Apr-16	Snowball	Semi-structured	52 mins.	Audio recorded	A	2D: Rural community
17	Poor rural HH	21-Apr-16	Snowball	Semi-structured	28 mins.	Audio recorded	A	2E: Rural community
18	Taxi driver	21-Apr-16	Snowball	Open-ended	30 mins.	Notebook after	A	2F: Municipal center
19	Poor rural HH	22-Apr-16	Random walk	Semi-structured	36 mins.	Audio recorded	A	1B: Rural district
20	Water truck coordinator	22-Apr-16	Snowball	Semi-structured	32 mins.	Audio recorded	A	1B: Rural district
21	Poor rural HH	22-Apr-16	Random walk	Semi-structured	15 mins.	Notebook during	A	1B: Rural district
22	Association President	22-Apr-16	Snowball	Semi-structured	27 mins.	Audio recorded	A	1B: Rural district
23	COMDEC staff	25-Apr-16	Targeted	Open-ended	2 hours, 8 mins.	Audio recorded	A	3A: Municipal center
24	Poor rural HH	26-Apr-16	Random walk	Semi-structured	1 hour, 13 mins.	Audio recorded	A	3B: Rural community
25	Middle class rural HH	26-Apr-16	Random walk	Semi-structured	59 mins.	Audio recorded	A	3C: Rural community
26	Poor rural HH	26-Apr-16	Random walk	Semi-structured	15 mins.	Audio recorded	A	3C: Rural community
27	Poor rural HH	26-Apr-16	Random walk	Semi-structured	1 hour, 23 mins.	Audio recorded	A	3D: Rural community
28	Poor rural HH	26-Apr-16	Random walk	Semi-structured	20 mins.	Audio recorded	A	3E: Rural community
29	Association President	26-Apr-16	Snowball	Semi-structured	37 mins.	Audio recorded	A	3E: Rural community
30	Poor rural HH	26-Apr-16	Random walk	Semi-structured	14 mins.	Audio recorded	A	3F: Rural community
31	Poor rural HH	27-Apr-16	Random walk	Semi-structured	48 mins.	Audio recorded	A	4A: Rural community
32	Poor rural HH	27-Apr-16	Random walk	Semi-structured	19 mins.	Audio recorded	A	4B: Rural community
33	Poor rural HH	27-Apr-16	Random walk	Semi-structured	51 mins.	Audio recorded	A	4B: Rural community
34	Middle class rural HH	27-Apr-16	Random walk	Semi-structured	33 mins.	Audio recorded	A	4C: Rural community
35	Poor rural HH	27-Apr-16	Random walk	Semi-structured	18 mins.	Audio recorded	A	4D: Rural community
-	Poor rural HH	27-Apr-16	Random walk	Semi-structured	Declined		A	4E: Rural community
36	Poor rural HH	27-Apr-16	Random walk	Semi-structured	20 mins.	Notebook during	A	4E: Rural community
37	Poor rural HH	27-Apr-16	Random walk	Semi-structured	40 mins.	Notebook during	A	4F: Rural community
38	Poor rural HH	28-Apr-16	Random walk	Semi-structured	22 mins.	Audio recorded	A	3G: Rural community
39	Poor rural HH	28-Apr-16	Random walk	Semi-structured	10 mins.	Audio recorded	A	3H: Rural community
40	Poor rural HH	28-Apr-16	Random walk	Semi-structured	19 mins.	Audio recorded	A	3H: Rural community
41	Poor rural HH	28-Apr-16	Random walk	Semi-structured	11 mins.	Audio recorded	A	3H: Rural community
42	Former association president	28-Apr-16	Random walk	Semi-structured	56 mins.	Audio recorded	A	3G: Rural community
43	Poor rural HH	28-Apr-16	Random walk	Semi-structured	38 mins.	Audio recorded	A	3I: Rural community
44	Poor rural HH	28-Apr-16	Random walk	Semi-structured	23 mins.	Audio recorded	A	3I: Rural community
45	Poor rural HH	28-Apr-16	Random walk	Semi-structured	24 mins.	Audio recorded	A	3I: Rural community
46	Association President	28-Apr-16	Snowball	Semi-structured	43 mins.	Audio recorded	A	3I: Rural community

Table A.17: Interview Methods Appendix: Rural Stakeholders (cont.)

Number	Interviewee	Date	Source	Format	Length	Recording	Selection	Community
47	Poor rural HH	12-Apr-17	Random walk	Semi-structured	42 mins.	Audio recorded	B	5A: Rural community
48	Poor rural HH	12-Apr-17	Random walk	Semi-structured	22 mins.	Audio recorded	B	5A: Rural community
49	Poor rural HH	12-Apr-17	Random walk	Semi-structured	17 mins.	Audio recorded	B	5B: Rural community
50	Business owner	12-Apr-17	Snowball	Semi-structured	15 mins.	Notebook during	B	5B: Rural community
51	Poor rural HH	12-Apr-17	Random walk	Semi-structured	18 mins.	Audio recorded	B	5C: Rural community
52	Association president	12-Apr-17	Snowball	Semi-structured	50 mins.	Audio recorded	B	5C: Rural community
53	Poor urban HH	13-Apr-17	Random walk	Semi-structured	22 mins.	Audio recorded	B	5D: Rural district
54	Water system operator	13-Apr-17	Snowball	Semi-structured	25 mins.	Notebook during	B	5D: Rural district
55	Water system operator	13-Apr-17	Snowball	Semi-structured	20 mins.	Notebook after	B	5E: Rural district
56	Poor rural HH	13-Apr-17	Random walk	Semi-structured	23 mins.	Audio recorded	B	5F: Rural community
57	Middle class rural HH	13-Apr-17	Random walk	Semi-structured	23 mins.	Audio recorded	B	5G: Rural community
58	Poor rural HH	9-Aug-17	Random walk	Semi-structured	23 mins.	Audio recorded	C	6A: Rural district
59	Poor rural HH	9-Aug-17	Random walk	Semi-structured	27 mins.	Audio recorded	C	6A: Rural district
60	Poor rural HH	9-Aug-17	Random walk	Semi-structured	12 mins.	Audio recorded	C	6B: Rural community
61	Poor rural HH	9-Aug-17	Random walk	Semi-structured	20 mins.	Notebook during	C	6B: Rural community
62	Poor rural HH	9-Aug-17	Random walk	Semi-structured	42 mins.	Audio recorded	C	6B: Rural community
63	Middle class rural HH	9-Aug-17	Random walk	Semi-structured	1 hour, 2 mins.	Audio recorded	C	6C: Rural community
64	Poor rural HH	9-Aug-17	Random walk	Semi-structured	25 mins.	Audio recorded	C	6D: Rural district
65	Poor rural HH	9-Aug-17	Random walk	Semi-structured	25 mins.	Audio recorded	C	6D: Rural district
66	Poor rural HH	9-Aug-17	Random walk	Semi-structured	31 mins.	Audio recorded	C	6E: Rural community
67	Association President	9-Aug-17	Snowball	Semi-structured	45 mins.	Notebook during	C	6E: Rural community
68	Poor rural HH	10-Aug-17	Random walk	Semi-structured	34 mins.	Audio recorded	C	6F: Rural community
69	Poor rural HH	10-Aug-17	Random walk	Semi-structured	17 mins.	Audio recorded	C	6F: Rural community
70	Poor rural HH	10-Aug-17	Random walk	Semi-structured	24 mins.	Audio recorded	C	6G: Rural community
71	Local leader	10-Aug-17	Random walk	Semi-structured	18 mins.	Audio recorded	C	6H: Rural community
72	Local leader	10-Aug-17	Random walk	Semi-structured	37 mins.	Audio recorded	C	6H: Rural community
73	Poor rural HH	10-Aug-17	Random walk	Semi-structured	28 mins.	Audio recorded	C	6I: Rural community
74	Poor rural HH	11-Aug-17	Random walk	Semi-structured	28 mins.	Audio recorded	C	7A: Rural district
75	Middle class rural HH	11-Aug-17	Random walk	Semi-structured	55 mins.	Audio recorded	C	7A: Rural district
76	Poor rural HH	11-Aug-17	Random walk	Semi-structured	30 mins.	Audio recorded	C	7B: Rural community
77	Poor rural HH	11-Aug-17	Random walk	Semi-structured	26 mins.	Audio recorded	C	7C: Rural community
78	Middle class rural HH	11-Aug-17	Random walk	Semi-structured	25 mins.	Audio recorded	C	7C: Rural community
79	Poor rural HH	11-Aug-17	Random walk	Semi-structured	20 mins.	Audio recorded	C	7D: Rural community
80	Poor rural HH	13-Aug-17	Random walk	Semi-structured	48 mins.	Audio recorded	C	8A: Rural community
81	Poor rural HH	13-Aug-17	Random walk	Semi-structured	31 mins.	Audio recorded	C	8A: Rural community
82	Poor rural HH	13-Aug-17	Random walk	Semi-structured	15 mins.	Audio recorded	C	8B: Rural community
83	Middle class rural HH	13-Aug-17	Random walk	Semi-structured	29 mins.	Audio recorded	C	8C: Rural community
84	Poor rural HH	13-Aug-17	Random walk	Semi-structured	17 mins.	Audio recorded	C	8D: Rural community
85	Poor rural HH	13-Aug-17	Random walk	Semi-structured	14 mins.	Audio recorded	C	8D: Rural community
86	Family of city council member	13-Aug-17	Random walk	Semi-structured	43 mins.	Audio recorded	C	8E: Rural community
87	Poor rural HH	13-Aug-17	Random walk	Semi-structured	13 mins.	Audio recorded	C	8E: Rural community

Table A.18: Interview Methods Appendix: Expert Interviews

Number	Interviewee	Date	Focus	Format	Length	Recording
88	Meeting with staff from state and regional headquarters of water management company (COGERH)	4-Apr-17	Rural water management		1 hour, 1 min	Audio recording
89	Former president of state meteorological agency (FUNCEME)	6-Apr-17	Rural water access	Open-ended	30 mins	Notes during interview
90	President of state meteorological agency (FUNCEME)	7-Apr-17	Rural water access and management	Open-ended	49 mins	Audio recording
91	Meeting with staff of regional water headquarters of state water management company (COGERH)	11-Apr-17	Rural water access and management	Open-ended	2 hours, 24 mins	Audio recording
92	NGO coordinator, Caritas	11-Apr-17	Rural water access and social dynamics	Semi-structured	1 hour, 39 mins	Audio recording
93	Geologist, state water management company (COGERH)	14-Jun-17	Rural water access and management	Open-ended	20 mins	Notes during interview
94	Professor of Geology who is a former manager at state water management company (COGERH)	17-Jun-17	Rural water access and management	Open-ended	47 mins	Audio recording
95	Professor of Hydrology	5-Jul-17	Drought relief and politics	Open-ended	30 mins	Notes during interview
96	Meeting with staff from water management NGO (SISAR)	24-Aug-17	Rural water access and management	Open-ended	1 hour	Notes during interview
97	Coordinator, state Institute of Statistics, Geography, and Information (IPECE)	21-Sep-17	Drought criteria and data access	Open-ended	2 hours	Notes during interview
98	Analyst, state Institute of Statistics, Geography, and Information (IPECE)	28-Sep-17	Drought criteria and data access	Open-ended	1 hour, 30 mins	Notes during interview
99	Manager, state Secretariat of Agrarian Development (SDA - Projeto Paulo Freire)	2-Oct-17	Rural water access and social dynamics	Open-ended	1 hour	Notes during interview
100	Coordinator, state Secretariat of Agrarian Development (SDA - Projeto São José)	3-Oct-17	Rural development projects	Open-ended	40 mins	Notes during interview
101	Coordinator, state Secretariat of Agrarian Development (SDA - COPPE)	3-Oct-17	Rural water cisterns program	Open-ended	30 mins	Notes during interview
102	Analyst, state Secretariat of Health	4-Oct-17	Rural health access	Open-ended	1 hour, 30 mins	Notes during interview
103	Planning Advisor, state Rural Extension and Technical Assistance agency (EMATERCE)	5-Oct-17	Drought relief program - Rural technical assistance	Open-ended	2 hours	Notes during interview
104	Coordinator, state Secretariat of Agrarian Development (SDA - COCRED)	9-Oct-17	Drought relief program - Garantia Safra	Open-ended	2 hours	Notes during interview

Table A.19: Interview Appendix: Selection Process

Process	Municipal	Community	Household	Language
A	Variation in 2012 mayor electoral competition and regional water access; Neighboring municipalities in each region of state.	Variation in concentration of votes at community polling station for city council members in 2012.	Random walk in rural village.	Portuguese with support of local RA with B.A. in social work and qualitative research training.
B	Location of regional water headquarters and large municipality with water scarcity.	Community uses well and has a community association, identified with help of regional water management staff.	Random walk in rural village.	Portuguese with support of local RA with B.A. in social work and qualitative research training.
C	Location in dry, central part of state.	Variation in concentration of voting at polling station, number of voters at polling station, and whether the most voted candidate won or lost.	Random walk in rural village.	Portuguese.

Note: Respondents were not compensated for their participation. All respondents gave oral informed consent before participating in the interview. Most interviews in rural communities were conducted in the late morning or afternoon, and most local residents were home after farming in the early morning to avoid the heat. Response rates were very high.

Bibliography

Abers, Rebecca. 1998. "From clientelism to cooperation: Local government, participatory policy, and civic organizing in Porto Alegre, Brazil." *Politics & Society* 26 (4): 511–537.

Ames, Barry. 1995*a*. "Electoral rules, constituency pressures, and pork barrel: bases of voting in the Brazilian Congress." *The Journal of Politics* 57 (02): 324–343.

Ames, Barry. 1995*b*. "Electoral strategy under open-list proportional representation." *American Journal of Political Science* pp. 406–433.

Ansell, Aaron. 2014. *Zero Hunger: Political Culture and Antipoverty Policy in Northeast Brazil*. UNC Press Books.

Auerbach, Adam Michael. 2017. "Neighborhood Associations and the Urban Poor: India's Slum Development Committees." *World Development* 96: 119–135.

Auyero, Javier, Pablo Lapegna, and Fernanda Page Poma. 2009. "Patronage politics and contentious collective action: A recursive relationship." *Latin American Politics and Society* 51 (3): 1–31.

Avelino, George, Ciro Biderman, and Glauco Peres da Silva. 2011. "A concentração eleitoral nas eleições paulistas: medidas e aplicações." *Dados-Revista de Ciências Sociais* 54 (2).

Avelino, George, Ciro Biderman, and Leonardo S Barone. 2012. "Articulações intrapartidárias e desempenho eleitoral no Brasil." *Dados-Revista de Ciências Sociais* 55 (4).

Avritzer, Leonardo. 2007. *A participação social no Nordeste*. Editora UFMG.

Björkman, Lisa. 2014. "Vote banking as politics in Mumbai." *Patronage as Politics in South Asia* pp. 176–96.

Braga, Elza Maria Franco, and Irlys Alencar Firmo Barreira. 1991. *A política da escassez: lutas urbanas e programas sociais governamentais*. Fortaleza, Ceará, Brazil: Fundação Demócrito Rocha.

Burgwal, Gerrit et al. 1995. *Struggle of the poor: neighborhood organization and clientelist practice in a Quito squatter settlement*. Centro de Estudios y Documentación Latinoamericanos (CEDLA).

Canel, Eduardo. 2012. "'Fragmented Clientelism' in Montevideo." In *Clientelism in Everyday Latin American Politics*. Springer pp. 137–158.

Cepaluni, Gabriel, and F Daniel Hidalgo. 2016. "Compulsory voting can increase political inequality: Evidence from brazil." *Political Analysis* 24 (2): 273–280.

Collier, Ruth Berins, and Samuel Handlin, eds. 2009. *Reorganizing Popular Politics: Participation and the New Interest Regime in Latin America*. Penn State Press.

Davidian, Andreza, Glauco Peres da Silva, and Lara Mesquita. 2012. "A regionalização dos votos partidários para Câmara Federal no Rio de Janeiro nas eleições de 2010." *Em Debate: Periódico de Opinião Pública e Conjuntura Política: ano 4, n. 2 (maio 2012)* .

Fernandes, Márcio Silva. 2010. Fixação do Número de Vereadores Pelos Municípios. Nota técnica Câmara dos Deputados.

Garay, Candelaria. 2007. "Social policy and collective action: Unemployed workers, community associations, and protest in Argentina." *Politics & Society* 35 (2): 301–328.

Gay, Robert. 1990. "Community Organization and Clientelist Politics in Contemporary Brazil: a case study from suburban Rio de Janeiro." *International Journal of Urban and Regional Research* 14 (4): 648–666.

Gomes Pereira, Antonio Renaldo, and Mônica de Almeida Coelho. 2017. Da Literatura ao Cotidiano: As Relações com os Mortos no Semiárido Cearense. In *Congreso Asociación Latinoamericana de Sociologia*. Montevideo, Uruguay: .

Holland, Alisha C, and Brian Palmer-Rubin. 2015. "Beyond the Machine: Clientelist Brokers and Interest Organizations in Latin America." *Comparative Political Studies* 48 (9): 1186–1223.

Holzner, Claudio. 2004. "The end of clientelism? Strong and weak networks in a Mexican squatter movement." *Mobilization: An International Quarterly* 9 (3): 223–240.

IBGE. 2012. "As Fundações Privadas e Associações Sem Fins Lucrativos no Brasil 2010." *Estudos e Pesquisas Informação Econômica* 20.

Koster, Martijn, and Flávio Eiró. 2021. "Clientelism in Northeast Brazil: brokerage within and outside electoral times." *Contemporary Social Science* pp. 1–13.

Lopes, Valmir. 2005. As lógicas da representação política: o processo de mudança de lideranças políticas em Fortaleza. 2005 PhD thesis Tese de Doutorado. Tese de doutorado, Programa de Pós-Graduação em Sociologia UFC, Fortaleza.

Lopez, Felix, and Leonardo Barone. 2013. As entidades sem fins lucrativos e as políticas públicas federais: tipologia e análise de convênios e organizações (2003-2011). Texto para Discussão 1896 Instituto de Pesquisa Econômica Aplicada (IPEA).

Mainwaring, Scott. 1991. "Politicians, parties, and electoral systems: Brazil in comparative perspective." *Comparative Politics* 24 (1): 21–43.

Medeiros, Helloana. 2012. Poder Local Versus Política Local: A Câmara Municipal de Itapipoca (1824-2012). Master's thesis Universidade Federal do Ceará.

Montambeault, Françoise. 2015. *The Politics of Local Participatory Democracy in Latin America: Institutions, Actors, and Interactions*. Stanford University Press.

Novaes, Lucas M. 2017. "Disloyal brokers and weak parties." *American Journal of Political Science* 62 (1): 84–98.

Pereira, Carlos, and Lucio Rennó. 2001. *O que e que o reeleito tem?: dinâmicas polâitico-institucionais locais e nacionais nas eleições de 1998 para a câmara dos deputados.* Instituto Universitário de Pesquisas do Rio de Janeiro.

Perlman, Janice E. 1979. *The myth of marginality: Urban poverty and politics in Rio de Janeiro.* Univ of California Press.

Read, Benjamin. 2012. *Roots of the state: Neighborhood organization and social networks in Beijing and Taipei.* Stanford University Press.

Reis, Elisa Pereira. 2013. *ONGs: novos vínculos entre a sociedade eo Estado.* 7Letras.

Samuels, David J. 2002. "Pork barreling is not credit claiming or advertising: Campaign finance and the sources of the personal vote in Brazil." *Journal of Politics* 64 (3): 845–863.

Shefner, Jon. 2001. "Coalitions and clientelism in Mexico." *Theory and Society* 30 (5): 593–628.

Silva, Glauco Peres da, and Andreza Davidian. 2013. "Identification of areas of vote concentration: evidences from Brazil." *Brazilian Political Science Review* 7 (2): 141–155.

Szwarcberg, Mariela. 2015. *Mobilizing poor voters: Machine politics, clientelism, and social networks in Argentina.* Vol. 37 Cambridge University Press.

Taylor, Marilyn. 2011. *Public policy in the community.* Macmillan International Higher Education.

Teixeira, Elenaldo Celso, ed. 2008. *Sociedade Civil na Bahia: Papel Político das Organizações.* Salvador: EDUFBa.

Tosoni, María Magdalena. 2007. "Notas sobre el clientelismo político en la ciudad de México." *Perfiles latinoamericanos* 15 (29): 47–69.

Vieira, Márcia Paula Chaves. 2012. Poder Legislativo do Ceará: Geografia do voto e Ação Política na Assembleia Legislativa. Master's thesis Universidade Federal do Ceará.

Zarazaga, Rodrigo. 2014. "Brokers beyond clientelism: A new perspective through the Argentine case." *Latin American Politics and Society* 56 (3): 23–45.