

Strategic Allocation of Irrevocable and Durable Benefits

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Abstract: *The logic behind redistribution theories is that incumbents target benefits to build and sustain linkages with voters. However, a recent literature shows that some benefits can have a countervailing effect in environments plagued by clientelism: by permanently boosting voters' incomes, irrevocable and durable benefits might reduce their dependence on incumbents. This article explains how parties strategically allocate these benefits when trading off the income effect relative to the standard electoral rewards of redistribution. The theory highlights a previously unstudied rationale to target opposition areas: to weaken voters' dependence on machines. The framework is tested with administrative data on the allocation of cisterns by state governments across Brazilian semi-arid municipalities, where clientelism is rampant. States favor areas governed by copartisans, but only where local clientelistic mobilization is weak. Where it is strong, states favor municipalities led by the opposition, while avoiding their own local strongholds.*

Verification Materials: The materials required to verify the computational reproducibility of the results, procedures and analyses in this article are available on the American Journal of Political Science Dataverse within the Harvard Dataverse Network, at: <https://doi.org/10.7910/DVN/UMP7YP>.

Political parties employ a diversified portfolio of strategies to win elections (Calvo and Murillo 2019; Diaz-Cayeros, Estévez, and Magaloni 2016; Garay 2016), which often includes the targeted redistribution of resources. The typical explanation behind the success of this strategy emphasizes how material rewards are used to create and sustain ties with voters (Golden and Min 2013). However, a recent literature on developing countries has uncovered a countervailing policy effect: *irrevocable* and *durable* benefits that generate permanent income gains can also break the dependence of voters on incumbents. This is the case of an urban titling program in Mexico (Larreguy, Marshall, and Trucco

2018); water cisterns in Brazil (Bobonis et al. 2019); entrepreneurial grants in Uganda (Blattman, Emeriau, and Fiala 2018); or access to financial services in the Philippines (Hite-Rubin 2015).

These findings have direct implications for parties competing in political environments plagued by clientelism,¹ which is pervasive and particularly effective among the poor.² On the one hand, parties might target irrevocable and durable benefits to create or even strengthen voters' loyalties when linkages are based on norms of reciprocity (Finan and Schechter 2012; Lawson and Greene 2014),³ or if the benefits provide a strong signal of ex-ante commitment (Gottlieb et al.

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¹Clientelism is a nonprogrammatic form of targeted redistribution where benefits are (implicitly or explicitly) conditional on voters extending electoral support to patrons (Stokes et al. 2013). I use the term political machine to refer to political groups that mobilize voters using clientelism (Stokes 2005).

²One of the explanations for this pattern is that the poor has a higher marginal utility for these benefits. Other reasons behind the relationship between clientelism and poverty are discussed in Hicken (2011) and Stokes et al. (2013).

³Machines often keep voters dependent with valuable, but revocable and perishable benefits (Weitz-Shapiro 2014). However, not all clientelism require monitoring and punishment. Relationships between patrons and clients are often sustained by repeated interactions that might accommodate ex-ante irrevocable gifts (Diaz-Cayeros, Estévez, and Magaloni 2016).

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2019), or simply to benefit from retrospective voting.⁴ On the other hand, the benefit's permanent income effect⁵ might change both the "reservation value" of voters (Zarazaga 2016) and the terms of future clientelistic exchanges, which could erode the grasp of machines on the electorate. While these joint effects make these benefits particularly attractive to nondominant parties, they present a trade-off to established political machines. In this context, how do incumbents allocate these benefits across constituencies?

This article builds on this evidence, and answers this question proposing a theory for the spatial allocation of irrevocable and durable benefits, formalized in the appendix (supporting information). Rather than focusing solely on building linkages with voters, politicians here also take into account the benefit's potential for distancing voters from machines.⁶ I frame this argument within a context where a central government allocates benefits across constituencies governed by either aligned or opposed local politicians. These local politicians also control the clientelistic mobilization capacity of their parties in the area, and use it to raise votes in higher level elections. Thus, alignment and local mobilization capacity jointly determine the attractiveness of each constituency for these benefits, based on the trade-off between electoral rewards and the income effect. This logic offers a few simple predictions: (1) central incumbents distribute more benefits to constituencies controlled by aligned politicians, where electoral gains are likely higher, as long as their mobilization capacity is weak; (2) as local mobilization capacity increases, the income effect poses a higher risk to the clientelistic activity of local politicians. Thus, central incumbents increasingly target constituencies controlled by the opposition, while avoiding their own. This prediction is a sharp departure from the pattern of targeting core constituencies often displayed by machines with other benefits (Diaz-Cayeros, Estévez, and Magaloni 2016; Gonzalez-Ocantos and Oliveros 2019; Stokes et al. 2013); and (3) this strategy is more likely in areas where benefits are more valuable.

I test these hypotheses in Brazil, with previously unused administrative data from a water cisterns program

implemented in the semi-arid, which is an ideal setting for a few reasons. First, Bobonis et al. (2019) show that these 16,000 liter cisterns not only improve the welfare of recipients, but also reduce both voters' dependence on clientelism and the electoral support for local incumbents. The authors use a randomized implementation of cisterns by a NGO across 40 semi-arid municipalities to precisely measure the causal effect of these benefits on clientelism.⁷ The present article, instead, focuses on how cisterns were allocated by state governments across 1,130 municipalities, which are among the poorest in Brazil due to both adverse weather and lack of investment in infrastructure. The cisterns program is also unique among other federal policies implemented by PT for two reasons: (i) it was originated by the non-profit sector, which led NGOs to play an important role in the implementation and selection of beneficiaries; and (ii) despite the rigid programmatic eligibility criteria within municipalities, both NGOs and state governments had ample autonomy for the cross-municipal allocation.

Second, clientelistic politics are ubiquitous in the region, and characterized by the presence of subnational machines with different levels of mobilization capacity across states and municipalities (Hidalgo 2012). What is more, the typical clientelistic relationship in the semi-arid is born out of the voter's poverty: voters typically demand goods and favors from local incumbents, which supply them in exchange for public displays of electoral support (Nichter 2018). In this context, the income effect of cisterns is likely to influence both the frequency and the terms of these exchanges. Clientelism, however, is only effective when machines have resources to allocate. Brazil's decentralized spending system gives mayors ample leeway to control budget resources, and to use them in these clientelistic exchanges (Nichter 2018). This makes mayors important brokers for their parties in congressional elections (Novaes 2018). In this context, the party alignment between mayor and state government is a good proxy for the state party's access to local resources for clientelism.

Third, Brazil also provides a good proxy for the local mobilization capacity of parties, as the Electoral Courts disclose the number of formal party members for each municipality over time. Brazil's party membership (10% of the adult population) is among the highest in the democratic world, which is an apparent paradox in a "party-averse" environment (Samuels and Zucco 2014). Party recruitment patterns suggest that, rather than being

⁴In this case the party-voter link would not be of a clientelistic nature.

⁵I highlight that irrevocable and durable benefits could improve the welfare of voters either through higher income or through a reduction in income volatility. The case of cisterns discussed in this paper likely does both.

⁶Larreguy, Marshall, and Trucco (2018) show that these countervailing effects played a role in how voters responded to an urban titling program in Mexico. The authors, however, do not assess the strategic allocation of that program.

⁷The authors do not focus on the strategic allocation of these goods. They use experimental evidence from a randomized implementation.

justified by ideological linkages, membership is driven by the interaction between voters and local party candidates, brokers and activists, which is consistent with a context where voters need to show explicit displays of attachment to local machines. Even though some party members are indeed brokers (*cabos eleitorais*), many more were themselves attracted by material rewards. I show that local party membership is highly correlated with self-reported vote buying, and with the ability of incumbent mayors to broker votes in statewide congressional elections.

Thus, the empirical strategy focuses on how cisterns are allocated across municipalities by state governments in 2003–12, based on the two variables that determine the strength of local machines in municipalities: the state-mayor alignment, and the mayor's local party membership. The estimates are obtained with both panel regressions and a regression discontinuity design on close mayoral races.

In a nutshell, the findings align with the theory: states target more cisterns to municipalities controlled by aligned mayors where mobilization capacity is weak. This suggests that cisterns provide better electoral returns under copartisan mayors without mobilization capacity, and it is in line with the literature on intergovernmental transfers (Arulampalam et al. 2009; Berry, Burden, and Howell 2010; Brollo and Nannicini 2012; Solé-Ollé and Sorribas-Navarro 2008; Curto-Grau, Solé-Ollé, and Sorribas-Navarro 2018).⁸ However, the attractiveness of aligned constituencies steeply decreases as mobilization capacity increases: where mayors are strong, states target the opposition over their own, which I interpret as the result of the income effect of these goods. Finally, the allocation pattern is more intense where cisterns are more valuable (municipalities with dryer-than-usual weather).

Two placebo tests also provide additional evidence of the mechanism. First, as expected, I find no evidence of this allocation pattern on cisterns that were distributed by NGOs. Second, I also find no evidence that the federal government exercised political criteria in the program, which is in line with the PT's stance in other federal policies such as *Bolsa Família* (Zucco 2013).

Finally, an alternative explanation for these findings is that party memberships simply reflect the preferences of the local electorate (instead of mobilization capacity), and states target areas where they are weak with the sole intent of building new ties with voters, without considering the income effect of the benefit. To address this, I discuss a additional empirical exercises that are more consis-

tent with this article's theory that states allocate cisterns to both build and break voter-party ties.

First, I estimate the allocation pattern of other discretionary transfers from states to municipalities. Mayors have ample leeway to make these resources revocable and conditional on electoral support (Nichter 2018). Thus, if states really prefer to target areas where they are weak, we should expect the same pattern with these transfers, which is not the case: states strongly favor aligned mayors, moreso when local mobilization capacity is high. I also use both individual and municipality-level data on party recruitment to show that cisterns do not effectively increase the memberships of state parties that deliver them. On the contrary, they are (albeit weakly) associated with beneficiaries distancing themselves from all parties. These results should not be surprising in a program where NGOs play a significant role in delivering the goods, and in trying to curb credit claiming attempts. Finally, the performance of the mayor's party congressional candidates shows that cisterns are associated with a loss of electoral power by local incumbents with strong mobilization capacity, which is consistent with the experimental findings in Bobonis et al. (2019).

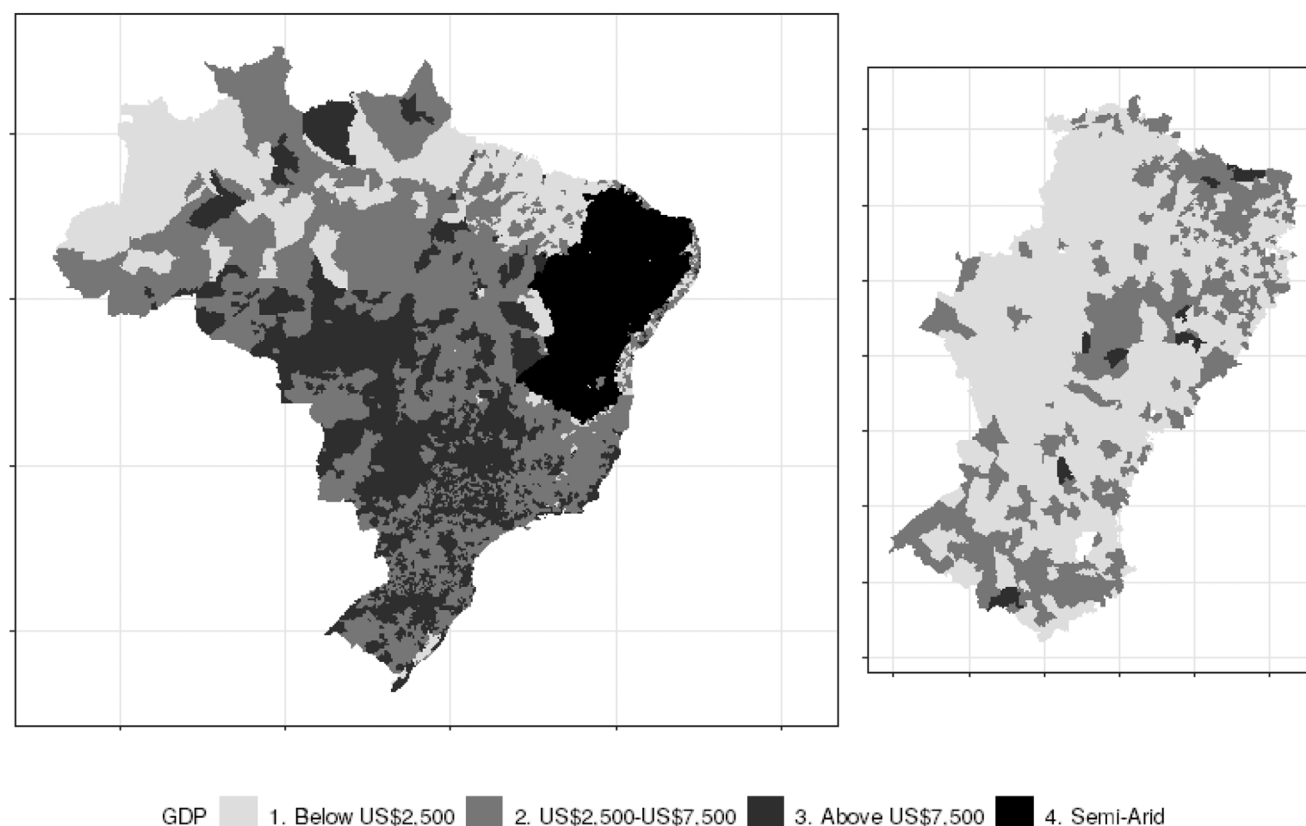
Water, Poverty and Clientelism in the Semi-Arid

The semi-arid in Northeastern Brazil encompasses 24 million people in 1,133 municipalities and 9 states, with per capita GDP three times as low as the rest of the country (Figure 1). The region's long dry seasons make it susceptible to frequent and severe droughts. These droughts, combined with the absence of sufficient infrastructure for water storage and distribution, are responsible for chronic poverty, famine, social unrest, and mass migration waves (Lemos et al. 2002). Not surprisingly, climate-driven vulnerability plays a significant role in supporting clientelism in the area. Although governments have historically poured funds to alleviate the impact of droughts, these resources have often been captured by local elites (Bedran-Martins and Lemos 2017).

Clientelism is pervasive in Brazil. Between 2000 and 2009, nearly 700 elected politicians have been prosecuted and ousted for vote buying. Surveys indicate that between 10% and 28% of voters in the country have experienced the practice, which is also more common in the Northeast (LAPOP 2014; Sugiyama and Hunter 2013; TSE 2014). Water distribution with tanker trucks is not the only form of clientelistic exchange in the semi-arid,

⁸None of this previous work focused on the distribution of irrevocable and durable benefits, or on the mobilization capacity of local governments.

FIGURE 1 2012 Per Capita GDP in Brazil



Note: The semi-arid region is on the right side chart. 2012 per capita GDP in US\$.

but it is fairly common.⁹ In the severe drought of 2012, for example, the federal government put its own tanker truck operation under the control of the armed forces to “avoid the clientelistic use of the resource” (President Dilma Rousseff).¹⁰ Also in 2012, the Supreme Electoral Court (TSE) investigated several accusations of vote buying with water,¹¹ and a prominent regional NGO ran a campaign called “Don’t exchange your vote for water.”¹²

One Million Cisterns and Local Clientelism

In this context, the cisterns program (CP) was first conceived by ASA (*Articulação no Semi-Arido Brasileiro*), an

organization that oversees more than 3,000 small regional NGOs in the semi-arid, which proposed it as a partnership to the recently elected Left-wing President (Lula, PT, 2002). In 2003, PT embraced CP with a target to deliver one million cisterns to the region. Each cistern is concrete-built to hold 16,000 liters of rainfall water, and to support a family of six for up to eight months. Once built, they are not easily removed or damaged,¹³ and they have been shown to improve health, reduce missing days at work and school, and reduce time spent in search for water (Bobonis et al. 2019; Vaitsman and Paes-Souza 2007).

The program’s roots in the nonprofit sector make it unique among other contemporaneous policies implemented by PT, in two significant ways. First, the federal administration had a more limited role when compared to policies such as *Bolsa Família* (BF). The effort was mostly led by the NGOs that had the expertise for both the construction of cisterns and the training of

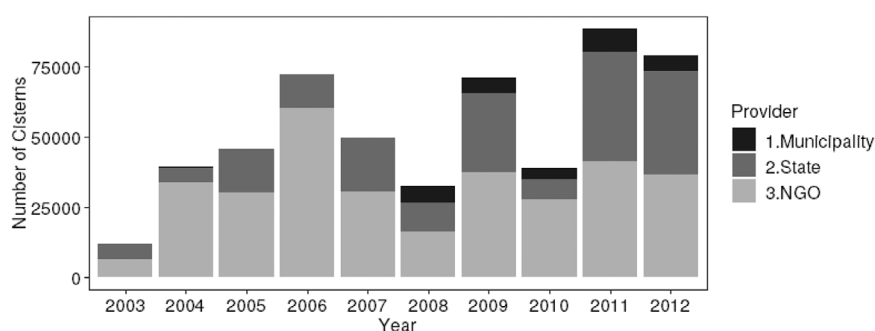
⁹In Portuguese: “Piauí: chantagem eleitoral para entregar água,” <http://bit.ly/373XQHw>.

¹⁰In Portuguese: “Programas no Nordeste combatem efeitos da seca e do clientelismo, diz Dilma,” <http://bit.ly/2X4cPwf>.

¹¹In Portuguese: “Justiça Eleitoral apura troca de água por votos no semiárido do Nordeste,” <http://goo.gl/FgwXFv>.

¹²In Portuguese: “Não troque seu voto por água,” <http://bit.ly/2X6jGpi>.

¹³See Figure A.8 in the supporting information. In a severe drought, the cistern might not store enough water for irrigation of crops, but it can sustain the consumption needs of the household.

FIGURE 2 Number of Cisterns by Provider

Note: In the semi-arid municipalities.

beneficiaries. Second, CP carried an explicit motivation to undermine the pervasive clientelism in the region (Andrade and Cordeiro Neto 2016; Mortara 2017). Although PT's administration had recognized that this motivation was also present in BF,¹⁴ this was one of the main selling points of CP: ASA's coordinator Naidison Baptista openly stated that the program "cut the roots of clientelism in the Northeast," as people "do not get in line to receive water anymore."¹⁵ Accordingly, there is experimental evidence that cisterns indeed reduced the household's dependence on local politicians (Bobonis et al. 2019). This makes these goods particularly effective against the type of clientelism prevalent in the semi-arid, where poverty often leads voters to initiate the relationship with incumbents, due to their access to public resources, and where demands are then met with public goods "using political criteria, given that the number of requests often exceeds available resources" (Bobonis et al. 2019).

The Involvement of State Governments. CP was first structured around the organizational capacity of NGOs. The implementation involved three actors: the funding entity, the intermediary, and the executor. The federal government was the funding entity in most cases.¹⁶ The role of intermediary, first occupied by ASA, was to negotiate funding for packages of cisterns for larger areas of the semi-arid, and to hire executors for the local implementation. Once cisterns were assigned to a municipality, the executors conducted the selection of beneficiaries and the construction. States and municipalities, originally alienated, were increasingly interested in this source of resources. To meet this demand, the federal government allowed them to become intermediaries, while keeping its original role as funding provider. The politicization of

the program is clear (Figure 2): after a few years, states were building as many cisterns as NGOs.¹⁷ This inclusion was likely due to the government's desire to quickly expand the program, which moved at a slow pace: many NGOs could only manage small projects, and only half the planned cisterns were built by 2012. In sharp contrast, BF was created in 2003, but quickly expanded to 3mn beneficiaries in the semi-arid by 2006. However, even for state-led projects, the vast majority of executors were still NGOs,¹⁸ and some states even made this a requirement.¹⁹

As intermediaries, states had ample autonomy to allocate cisterns across municipalities—as documented by an internal program evaluation by the federal government (D'Alva and Farias 2008, 33)—and so did the NGOs. Although CP had a well-defined eligibility criteria, in the same mold as other contemporaneous federal policies,²⁰ this was set at the household level

¹⁴See "Bolsa Família varreu o clientelismo do país, afirma Dilma," <https://glo.bo/2SgDeG8>.

¹⁵In "Presente de Dilma azeda o Natal no Semiárido," <http://bit.ly/2WM0TPO>, in Portuguese.

¹⁶Other players were not precluded from contributing, but the central government carried the bulk of the financial burden.

¹⁷Very few cisterns were built by municipalities. Given that most possessed neither the expertise nor the administrative capacity to manage such projects, the government preferred to focus on partnerships with states (Mortara 2017).

¹⁸See examples in Sergipe (<http://goo.gl/MNPVqa>), Bahia (<http://goo.gl/Vvr2qF>, <http://goo.gl/MwqEZT>), Pernambuco (<http://goo.gl/MSmyVK>), or Ceara (<http://goo.gl/vDosc6>).

¹⁹See some of the procurement documents: <https://bit.ly/2wSo4iI>, <http://bit.ly/34qrDrW> and <https://bit.ly/346LaOP>.

²⁰Among other things, beneficiaries should be in *Cadastro Único*, they should also be the most vulnerable rural households, and priority was given to female-led households with children. This can be found in the procurement documents cited above.

(and not by municipality).²¹ What is more, even if there were municipal coverage limits, the slow program expansion in 2003–12 allowed states to discriminate across municipalities while still meeting the individual criteria.

At the municipal level, however, there was little scope for political criteria. In addition to the hurdles coming from the eligibility rules, the executor was the entity responsible for beneficiary selection, and these NGOs made an extended effort to keep the program apolitical (Andrade and Cordeiro Neto 2016). However, this did not stop politicians from attempting to capture the credit for cisterns. There are multiple press reports showing mayors, members of congress, and state bureaucrats personally delivering the goods to voters.²² What is more, state governors also used their role in CP to support their pro-poor stance in politics. Bahia's governor Jacques Wagner highlighted that cisterns "free the population from the well known politics of tanker trucks." Ceará's governor Camilo Santana emphasized the role of cisterns in "emancipating" poor households from the bondage of poverty.²³ Also in Bahia, the traditional right-wing political machine (DEM) even presented a formal complain to the electoral courts arguing the the state governor (PT) illegally distributed cisterns during the electoral period.

In the supporting information (p. 13), I also show quantitative evidence that the federal government did not influence the allocation of cisterns using political criteria, i.e., I show that the allocation is not driven by the alignment of mayors with PT or coalition partners, which is in line with the administration's stance in other poverty alleviation policies. PT had a weak clientelistic presence in poor, rural municipalities. Thus, it is not surprising that it would rather focus on the programmatic delivery of widespread pro-poor benefits than on trying to compete with well established machines on the same grounds.

²¹There was a general guideline that cisterns should reach municipalities with a high rain deficit and a low human developed index, in the Brazilian context. However, all semi-arid municipalities fall within these categories.

²²Examples in the states of CE: <https://bit.ly/3568NYw> , PE: <https://bit.ly/2Y0AVea> , BA: <https://bit.ly/3cDsZU7> , and AL: <https://bit.ly/2zpYbb5>.

²³See <http://goo.gl/N5RX9h> and <http://goo.gl/vDosc6>, in Portuguese.

Subnational Machines and Party Membership

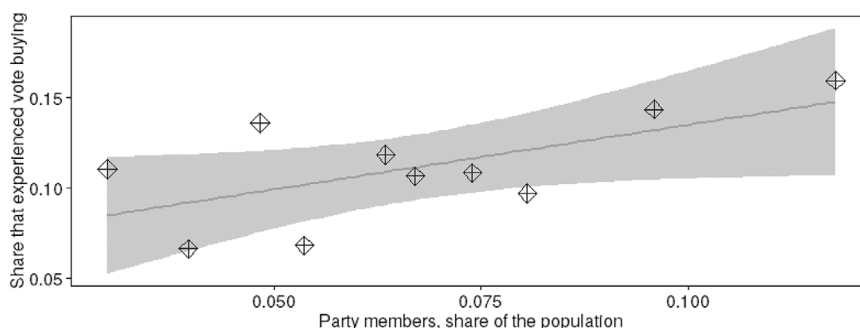
Brazil's recent democratic experience has been characterized by the existence of subnational political machines operating with different degrees of power in states (Hidalgo 2012).²⁴ The 1988 constitution ratified a significant decentralization in the policy responsibilities of the public sector. This process strengthened the position of "regional party machines," allowing them to autonomously finance and run public policies (Borges 2011), and to curtail electoral competition "by mobilizing citizens through vote buying" (Montero 2012), especially in the poor Northeast.

Successful machines rely on having resources to distribute, and the means to effectively mobilize, target and monitor voters. In Brazil, these two dimensions often depend on the party's ability to (i) control the office of mayor in the municipality (resources); and to (ii) control an effective local network of brokers (*cabos eleitorais*) to target and monitor voters (mobilization). In poor municipalities, local economic activity is mostly driven by the public sector, and local taxes play a minimal role in financing municipal budgets. Mayors, however, are responsible for most public spending in education, health, and infrastructure, and obtain these resources from the federal and state governments in the form of transfers. Because demand for public goods in these areas widely surpasses the supply, local incumbents can selectively provide access to goods and services that should be otherwise universal. Thus, clientelistic relationships tend to trump the appeal of programmatic policy promises, and poor voters often demand goods and favors in exchange for electoral support (Nichter 2018).²⁵ Not surprisingly, mayors are in a disproportionately strong position to influence higher level elections and act as brokers for their parties (Brollo and Nannicini 2012; Novaes 2018). Accordingly, I assume that a state incumbent controls local resources in municipalities governed by aligned (copartisan) mayors.

I use the size of party membership rolls as a proxy for the underlying ability of parties to mobilize voters in each municipality. Brazil's rate of party affiliation is now around 10% of the voting population, one of the highest across democracies. This is an apparent

²⁴This is strikingly different from other Latin American countries where the practice was monopolized by national dominant machines, as in Argentina (Stokes 2005; Weitz-Shapiro 2012), or Mexico (Magaloni 2006).

²⁵Examples are private distribution of goods such as gasoline, cement, medicine, and water; or selective access to services as medical visits.

FIGURE 3 Party Membership and Self-Reported Exposure to Vote Buying

Note: Source: The AmericasBarometer by the Latin American Public Opinion Project (LAPOP), <http://www.LapopSurveys.org>. The dependent variable is the share of respondents that were offered goods or services for their vote in the 2010 election.

paradox in a ‘party-averse’ political environment (Samuels and Zucco 2014), where voters rarely even recognize parties’ ideologies.²⁶ Nevertheless, the recruitment pattern sheds some light on the dynamics behind local membership (Figure A.6, supporting information): parties significantly expand their ranks (only) in the year before the municipal election, which suggests that recruitment is predominantly a local phenomenon, driven by the interaction between voters and local party candidates, brokers and activists. Thus, my assumption is that, while the true clientelistic mobilization capacity of parties is unobserved, it should be closely related to the (observed) number of supporters that have joined the party.

This proxy is highly correlated with a self-reported measure of vote buying across municipalities, as shown by the America’s Barometer survey (LAPOP 2014).²⁷ The 2014 wave includes a specific question about vote buying in the 2010 election cycle (national and state elections): whether or not the voter was offered goods or services in exchange for a vote. The survey compiles data from 106 municipalities, where the average share of voters that experienced vote buying was 11%, and the rate of party membership was 7%. Figure 3 shows a positive, strong and statistically significant correlation between local party membership and the self-reported measure of vote buying in (see the OLS regression in the supporting information, Table A.4). This correlation is also coherent with an electoral environment where, due to the

secret ballot, clients often need to provide visible displays of support to the patron as a form of commitment (Nichter 2018). In other words, it is likely that the membership rolls includes many voters that have been themselves “bought” by the local party machine.

Finally, Figure 4 illustrates the joint importance of these two variables in the success of subnational party machines in Brazil. Congressional elections are arguably one of the best ways to assess the brokerage of mayors for their parties, for two reasons. First, the election is proportional and all parties compete, which is not the case of gubernatorial races. Second, this is a very valuable election, as the number of congressional seats determines the party’s access to campaign resources.²⁸ The plot shows the gain in vote shares between 2002 and 1998 (at the municipal level) for congressional candidates of parties with incumbent mayors in the region, compared to a control group formed by parties with a similar membership size that did not control the mayor in their municipalities.²⁹ The pattern is evident: when both parties have few members, incumbency alone does not boost the vote shares of the mayor’s party. However, where both parties command large memberships, mayoral incumbency significantly boosts the party’s performance in these elections.

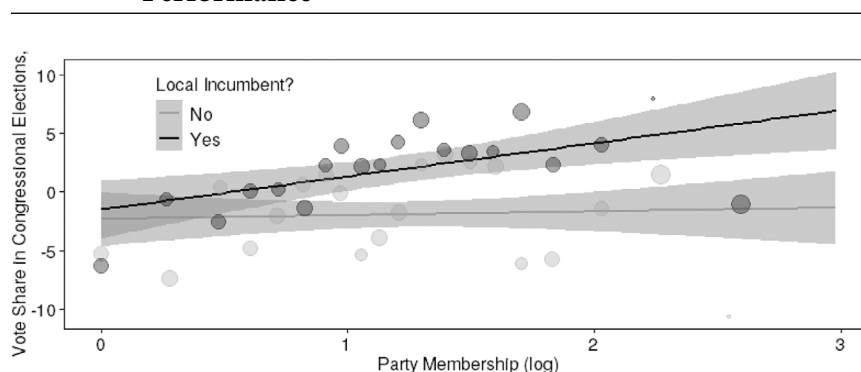
²⁶Partisans of PT, and to a lesser extent PSDB, constitute exceptions to this rule.

²⁷I thank the Latin American Public Opinion Project (LAPOP) and its major supporters (the United States Agency for International Development, the Inter-American Development Bank, and Vanderbilt University) for making the data available.

²⁸One of the main sources of financing for parties in Brazil is public funds, which are allocated according to their congressional seats.

²⁹The control group is obtained by finding a one-to-one match for every party-municipality pair that had a mayorship in 2002, from other municipalities in the semi-arid, and parties that did not control the mayor. Observations are matched based on both party membership size and the performance in the 1998 election.

FIGURE 4 Mayoral Incumbency, Party Membership and Electoral Performance



Note: Only municipalities in the semi-arid. The Y-axis shows vote shares of congressional candidates in 2002, in the municipality, after adjusting for the party's vote share in 1998 (i.e., the 2002 shares are regressed on the 1998 shares). The dark color shows parties that had a mayor in the period. The lighter color shows parties without a mayorship (control group).

Hypotheses: Electoral Rewards and Income Effects

In keeping with the Brazilian context, the theory focuses on state incumbents that allocate cisterns across municipalities, based on both the partisanship of the mayor and on her mobilization capacity. The allocation framework also takes into consideration the two potentially countervailing effects of cisterns coming from electoral rewards and the income effect, which are discussed below.

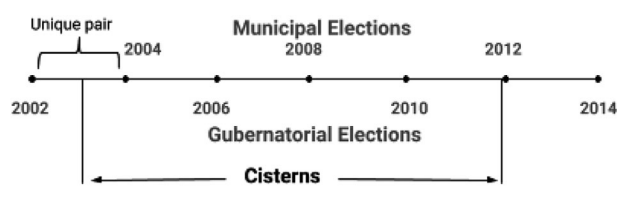
Extensive work shows that voters reward incumbents for delivering valuable benefits, even when the distribution is unconditional. Retrospective voting “plays a key role in democratic accountability” (Healy and Malhotra 2013), as it allows voters to sanction or reward politicians for their performance. Recent work in developing countries also shows that voters reward incumbents for reasons such as cash transfers (Zucco 2013), credit claiming over foreign investment (Cruz and Schneider 2017), or past economic performance (Campello and Zucco 2016). It is also possible that even irrevocable benefits can be used to fuel clientelistic loyalties that are based on norms of reciprocity (Finan and Schechter 2012; Lawson and Greene 2014; Mares and Young 2016), or if voters see the good as a signal to commit to further attractive policies (Gottlieb et al. 2019). Although I remain agnostic about the nature of the behavioral mechanisms behind these electoral gains, I assume that they should be higher in aligned municipalities, given that opposition mayors might capture a share of the credit for cisterns for their own parties. I highlight that, despite the various attempts of politicians to claim credit over cisterns, the attribution from the perspective of voters is likely divided between

the main stakeholders in the program (Mortara 2017). Even for cisterns delivered by states, the “face” of the program is still the executor NGO, and the good is stamped with the “brand” of the federal government.

There is also a vast literature showing that clientelism is more efficient when voters are poor.³⁰ The prevailing explanations for this pattern emphasize the effect of poverty either on the “clients’ assessment of the value of a clientelist offer” or on the “capacity of patrons to provide clientelist benefits” (Hicken 2011). While both mechanisms are likely at play in the Brazilian semi-arid, recent work has emphasized the demand argument: Nichter (2018) shows that the clients themselves often demand targeted benefits from incumbents, and Bobonis et al. (2019) show that cisterns reduce the probability of households engaging in such exchanges. Two features of this income effect are relevant for the present theory. First, it is uncorrelated with the mayor’s alignment status, by design, i.e., in isolation, the income effect affects clientelistic activity of all parties. Second, it should be more relevant in areas where mayors have higher mobilization capacity. I use these two concepts to derive three testable predictions for the allocation of cisterns across municipalities. In the appendix (supporting information), I also develop a simple probabilistic voting model that formally generates the hypotheses described below.

H1: The marginal effect of alignment is positive when mobilization capacity is at its weakest. States distribute relatively more cisterns to municipalities under a weak aligned mayor, where party memberships are (very) small. This implies that, where mayors do not have any

³⁰See reviews in Hicken (2011) and Gonzalez-Ocantos and Oliveros (2019).

FIGURE 5 Timeline of Events

Note: Timing of state and municipal elections in the sample.

mobilization capacity, states allocate cisterns solely based on their electoral rewards.

H2: The marginal effect of alignment is decreasing in mobilization capacity. As party memberships increase, the relative importance of the income effect on clientelism increases, and states target more the municipalities governed by strong opposing mayors, while avoiding their own.

H3: These two patterns are more extreme where cisterns are more valuable to voters. The allocation pattern above is more likely to happen in municipalities affected by lower-than-average rain.

Testing the Hypotheses

These hypotheses are tested with municipality-level data on the number of cisterns delivered by states in the semi-arid in 2003–12, with data provided by the Ministry of Social Development (MDS). Brazil's electoral calendar determines that gubernatorial and municipal elections always happen in two-year intervals (Figure 5). Thus, every municipality has a potentially new state-mayor alignment status every two years.³¹ I test this allocation framework using the five 2-year periods in 2003–12.

A mayor is aligned with the state government when they both belong to the same party. In page 11, I discuss the results under an alternative definition of alignment that also includes other parties in the state government coalition. The mayors' mobilization capacity is measured by the share of local voters that are members of her party. This variable is updated after every municipal electoral cycle (2000, 2004, and 2008), in order

³¹Election results were obtained from the Supreme Electoral Court (TSE). Municipal elections follow the plurality system in one round in all but one municipality in the semi-arid. Campina Grande (PB), Feira de Santana and Vitória da Conquista (BA) have the runoff system, and are thus excluded from the sample. I only include municipal elections that had more than one candidate (97%), and exclude elections won by parties created after 2002 (PRB), or canceled by the courts.

to reflect the mayor's most current party membership.³² Figure A.4 (supporting information) has a map with the mobilization capacity of the three largest parties in the region (MDB, PSDB, and DEM), and PT; measured in 2000 before the start of the program.

The main outcome variable is coded as the number of cisterns delivered per 100 rural households (rhs) in a municipality, each 2-year period. On average, states built 2.2 cisterns/100 rhs, per municipality-period. The value of a cistern to voters in any given municipality is based on weather patterns: cisterns should be more effective in locations that are suffering from a more severe dry season.³³ The construction of other relevant variables is described in Table A.3 (supporting information).

Empirical Strategy

The combined effects of alignment and party membership are estimated using equation 1.

$$y_{it} = \beta_0 + \beta_1 a_{it} + \beta_2 c_{it} + \beta_3 a_{it} c_{it} + \delta_i + \delta_t + \epsilon_{it} \quad (1)$$

where y_{it} denotes the cisterns/100 rhs in municipality i , period t . The mayor's party membership is given by c_{it} ,³⁴ and alignment by a_{it} . Municipality and time effects (δ_i and δ_t) are also included.³⁵ Table 1 provides a framework to interpret the coefficients in light of the theoretical hypotheses.

The marginal effect of alignment (MEA) on the distribution of cisterns is given by $\beta_1 + \beta_3 c_{it}$. Thus, β_1 measures the MEA precisely where the mayor's mobilization capacity is at its weakest ($c_{it} = 0$), and it is expected to be positive (H1). This coefficient can be interpreted as the marginal increase in cisterns coming solely from the electoral rewards captured by states when the goods go to aligned mayors. As the mobilization capacity of mayors increase, the income effect starts to play a more significant role in the allocation, leading the MEA to decrease (H2). This necessarily implies that $\beta_3 < 0$, and that $\beta_1 + \beta_3 c_{it}$ becomes negative for large enough party

³²Membership rolls are provided by TSE.

³³Weather data comes from the climate unit in the University of East Anglia, which provides monthly rain data for the period 1971–2012, for a grid of 0.5 degrees in latitude and longitude. Rain levels for each municipality are estimated matching grids with the coordinates of the city center.

³⁴Due to outliers, I estimate the effects using the log-transformation of the variable. I use the inverse hyperbolic sine transformation, $\log(y + (y^2 + 1)^{1/2})$, in order to accommodate zero values.

³⁵I include the contemporaneous (2-year period) precipitation as a control. Nevertheless, the results are not sensitive to this inclusion.

TABLE 1 Coefficients and Expected Distribution of Cisterns

	$a_{it} = 0$	$a_{it} = 1$	Difference
$c_{it} = 0$	β_0	$\beta_0 + \beta_1$	β_1
$c_{it} > 0$	$\beta_0 + \beta_2 \times c_{it}$	$\beta_0 + \beta_1 + (\beta_2 + \beta_3) \times c_{it}$	$\beta_1 + \beta_3 \times c_{it}$
Difference	$\beta_2 \times c_{it}$	$(\beta_2 + \beta_3) \times c_{it}$	$\beta_3 \times c_{it}$

Note: I highlight that this table illustrates the interpretation of the coefficient β_0 for a regression that does not include municipality and period fixed-effects. Only in this case the intercept reflects the average baseline number of cisterns in an unaligned municipality with weak mobilization capacity. Given that the results in Table 2 come from equation 2, which includes fixed effects, the intercept has no interpretation, and I only report the marginal effects (β_1 , β_2 and β_3).

memberships. Finally, within the opposition group, states are expected to deliver more cisterns to mayors that command large memberships ($\beta_2 > 0$).

Panel Data Results and Discussion

The results obtained with this analysis are presented in Table 2. Column (1) shows a simple regression without the interaction with c_{it} . Column (2) shows the main and preferred specification from equation 1, and the remaining columns show alternative specifications, as follows: (3) defines mobilization capacity as a binary variable;³⁶ (4) uses the mobilization capacity measured in the 2000 municipal election for all parties (i.e., before the cisterns program);³⁷ and (5) defines alignment ($a_{it} = 1$) based on co-partisanship between mayors and any of the parties in the state government coalition.

³⁶Mobilization capacity here is a dummy that assumes value of one when c_{it} is above the median for that state and 2-year period.

³⁷The time dimension in this case comes solely from the changes in the party of the mayor over time.

H1: Municipalities with weak aligned mayors receive 1.8 cisterns (per 100rhs) more than weak opposition mayors per period. This is a significant increase relative to the sample average of 2.2 state cisterns delivered every period. This result is robust across specifications, and suggests that states allocate cisterns with the expectation that they might elicit electoral support in (weak) aligned locations.

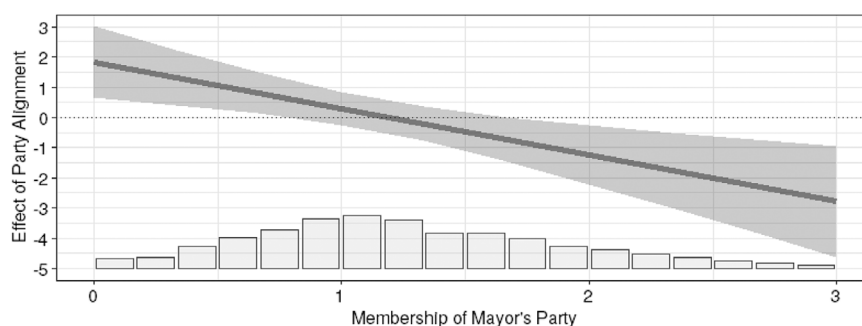
H2: Figure 6 shows that the marginal effect of alignment ($\beta_1 + \beta_3 \times c_{it}$) falls with mobilization capacity. For roughly the first 45% of the sample, it remains positive, implying that weaker aligned mayors benefit more from electoral rewards than they lose from the income effect of cisterns ($\beta_1 > \beta_3 c_{it}$). However, β_3 is negative and highly significant across specifications. Thus, the MEA declines steadily as mobilization capacity increases and the income effect of cisterns dominates the effect of electoral rewards. In a municipality where c_{it} is at the upper quintile, voters under strong aligned mayors receive 1 less cistern (per 100 rhs) than their strong opposition counterparts (down from 1.8 more cisterns when $c_{it} = 0$).

The results also suggest that the income effect is more relevant in the allocation within the aligned group.

TABLE 2 Distribution of Cisterns by State Governments

Dependent Variable: Cisterns	(1)	(2)	(3)	(4)	(5)
Aligned (a)	-0.033 (0.270)	1.838* (0.600)	0.647 [†] (0.338)	1.945* (0.459)	1.321* (0.391)
Membership (b)		0.407 (0.307)	0.103 (0.236)	0.596* (0.235)	0.717* (0.293)
Aligned * Membership (c)		-1.539* (0.478)	-1.304* (0.442)	-2.301* (0.516)	-1.304* (0.247)
(b) + (c)		-1.132* (0.442)	-1.201* (0.461)	-1.705* (0.395)	-0.587 [†] (0.319)
Observations	5292	5292	5292	5292	5292

Note: [†] $p < 0.1$, * $p < 0.05$. Standard errors are clustered by municipality and presented in parenthesis. All regressions include fixed effects for time and municipality, and control for contemporaneous rain level. Columns (1), (2) and (5) use the log-linear variable for c_{it} . Column (3) codes mobilization capacity as a binary variable. Column (4) uses the 2000 size of party memberships. Column (5) codes alignment based on all parties in the state government coalition.

FIGURE 6 State Cisterns: Marginal Effect of Alignment

Note: Confidence intervals at 95%. The bars show the density of the sample. Only for the purpose of presentation, the plot does not show values above 3 in the x -axis, 1% of the sample.

Even though β_2 is positive across specifications (as expected), it is lower in magnitude and has less statistical power than β_3 . One possible explanation for this is found in column (5). Given that governors are often supported by a coalition of multiple parties, there are cases in which a mayor from a coalition party might be “aligned” with the governor without being a copartisan. Column 5 shows the estimation under this broader definition of state-mayor alignment, and here β_2 is higher in magnitude and statistically significant. This strongly suggests that the weak β_2 in the main specification captures the fact that state governors also avoid strong mayors from coalition partners in the allocation of cisterns (in addition to their own).³⁸

The appendix in the supporting information also shows two placebo tests of the theory. First, I estimate equation 1 with the number of cisterns distributed by NGOs, which allocated nearly twice as many cisterns as state governments in 2003–12. Accordingly, there is no reason why their allocation should follow the pattern presented by states. Table A.7 and Figure A.5 in the supporting information show that this is indeed the case. Second, Table A.6 shows that the federal government had little influence in the cross-municipal allocation of cisterns within states (p. 8), and that it did not impose political criteria for the allocation (p. 9). Here, I again es-

timate equation 1, but alignment is now coded based on the mayor’s co-partisanship with PT, and with parties of the federal coalition. Again, the MEA is statistically indistinguishable from zero for all values of mobilization capacity.

H3: The allocation framework should also be stronger in areas where cisterns are more valuable. Table 3 provides evidence to this extent. It has the estimates obtained with equation 1, but also interacting all the relevant coefficients with a binary variable that indicates whether the municipality had above-median precipitation during each 2-year period. The results are much stronger for the municipalities that experienced drier-than-usual weather (column 1). For this group, β_3 is negative and stronger in magnitude, and β_1 is

TABLE 3 Heterogeneity in the Distribution of Cisterns

	Low Rain (1)	High Rain (2)	Difference (3)
Aligned (a)	3.076* (0.926)	0.611 (0.736)	−2.465* (1.188)
Membership (b)	0.255 (0.331)	0.572† (0.347)	0.317 (0.275)
Aligned * Member. (c)	−2.335* (0.638)	−0.786 (0.580)	1.549* (0.779)
(b) + (c)	−2.080* (0.615)	−0.214 (0.522)	1.866* (0.730)
Observations	5292	5292	5292

Note: † $p < 0.1$, * $p < 0.05$. Standard errors are clustered by municipality and presented in parenthesis. All regressions include fixed effects for time and municipality. All coefficients come from a single regression, where the high-rain dummy is interacted with the variables that measure alignment and party membership (a_{it} , c_{it} and $c_{it} \times a_{it}$).

³⁸The preferred definition of alignment in this paper is based on the party of the state governor for the following reason: these governing coalitions are not binding in any other electoral dimension. They are neither repeated in mayoral elections nor in legislative elections, and coalition members actually compete against each other for congressional seats. In this context, mayors are also more likely to broker votes for their own parties instead of coalition members. Thus, state governors are also more likely to avoid allocating cisterns to their own aligned partisan machines when compared to coalition partners. The drop in the magnitude of β_3 in column 5 suggests that this is likely the case.

positive and also of higher value when compared to column 2.³⁹

Regression Discontinuity Results

The estimates have explored so far the variation across municipalities in both party alignment and mobilization capacity. I use a regression discontinuity design (RDD) to show that these results are also robust to potential bias coming from time-municipality specific confounders. The RDD compares municipalities where an aligned candidate barely won the election (treatment), to municipalities where she barely lost (control),⁴⁰ thus providing a quasi-random assignment of party alignment to municipalities. I estimate this effect for two different groups of municipalities, divided according to the size of the mayor's party. As usual, the estimation fits a local linear regression on each side of the discontinuity, as shown in equation 2.

$$y_{it} = \beta_0 + \beta_1 a_{it} + \beta_2 mv_{it} + \beta_3 a_{it} mv_{it} + (\beta_4 + \beta_5 a_{it} + \beta_6 mv_{it} + \beta_7 a_{it} mv_{it}) c_{it} + \epsilon_{it} \quad (2)$$

where mv_{it} is the running variable, alignment is given by a_{it} , and c_{it} is the binary version of the mobilization capacity variable.⁴¹ Here, β_1 shows the effect of alignment for the weak-machine sample, and $\beta_1 + \beta_5$ shows the same effect for the strong-machine sample.

Table 4 shows the estimated coefficients for different bandwidths. Other tables and plots containing the usual validity checks for the RD design are included in the appendix (supporting information).⁴² The signal of the coefficients perfectly matches those obtained with the panel analysis, with minor differences in the statistical power of the estimates. As before, municipalities under aligned mayors receive slightly more cisterns than voters under the opposition when machines are weak.⁴³ The re-

³⁹The only coefficient that does not line up with the prediction is β_2 , although the estimated difference in β_2 has much less statistical power.

⁴⁰The strategy here is close to Brollo and Nannicini (2012), which compares mayoral candidates aligned and unaligned with the party controlling the presidency.

⁴¹This is the same specification used in column 3 of Table 2. Both the interpretation and presentation of RDD estimates are more intuitive when the treatment effect is interacted with a discrete variable.

⁴²They include the McCrary test, the balance of covariates around the discontinuity, and the results for different polynomial specifications, and results including covariates.

⁴³Because membership is measured discretely here, this coefficient is likely also capturing some of the income effect of cisterns, which might explain the imprecision in the estimate.

TABLE 4 Distribution of Cisterns by State Governments (RDD)

	(1)	(2)	(3)
Aligned (a)	1.474 [†] (0.852)	1.696 (1.248)	1.600* (0.642)
Membership (b)	2.779* (1.106)	1.845 (1.347)	2.190* (0.895)
Aligned * Membership (c)	-4.246* (1.386)	-4.924* (1.797)	-3.454* (1.123)
(a) + (c)	-2.772* (1.093)	-3.228* (1.293)	-1.854* (0.921)
Bandwidth	10.12	5.06	20.23
Observations	857	450	1365

Note: [†] $p < 0.1$, * $p < 0.05$. Standard errors are clustered by municipality and presented in parenthesis. Column (1) has the optimal bandwidth, calculated based on Calonico, Cattaneo, and Titiunik (2014). Columns (2) and (3) present the results for half and double the optimal bandwidth; respectively.

sults also show that strong aligned mayors receive less cisterns than their opposition counterparts. The effect can be seen in line (a)+(c), and it is robust across bandwidths and specifications (Table 4 and the supporting information, p. 20). Figure 7 illustrates the results.

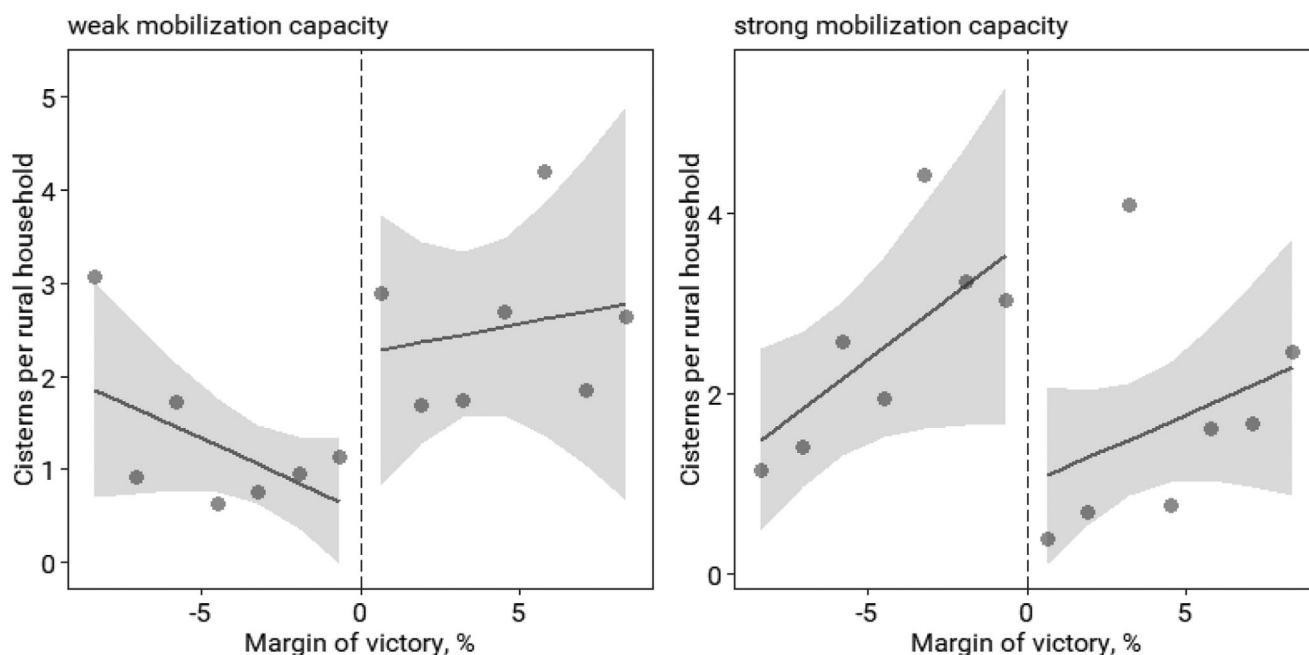
Testing an Alternative Explanation

An alternative explanation for the main findings is that memberships are a proxy for the preferences of local voters for the party (as opposed to mobilization capacity), and states target cisterns to areas where they are weaker with the sole intent to build new linkages with the electorate (i.e., without considering their potential income effect). I discuss below how five empirical exercises can help us adjudicate between this narrative and this article's allocation framework.

RDD. The RDD results already rule out a simple version of this alternative theory, where mobilization capacity is a proxy for the mayor's electoral strength, and cisterns are used by states to support aligned mayors that are weaker than their opponents. Given that it only uses the sample with municipalities that had close mayoral elections, the RDD shows that the allocation pattern is still present precisely where mayors and their opponents have, by construction, the same electoral strength.

State Mobilization Capacity. In the appendix (supporting information), I examine the heterogeneity of the

FIGURE 7 RDD: Distribution of Cisterns



Note: Aligned municipalities are always in the right side of every plot. Weak (Strong) mobilization capacity means that the mayor's party has membership size below (above) the median. Points represent the average of the outcome variables for every bin. The line represents the linear fit.

main estimates by the mobilization capacity of the state party in opposition areas – where they do not control the mayor (Table A.2, p. 11). The marginal effect of alignment on the allocation is still strong and significant when the state party membership is nearly the same across aligned and opposition municipalities. In other words, states significantly favor strong opposition mayors over strong aligned ones, even when the state's mobilization capacity is also high in the unaligned location. This shows that the allocation of cisterns cannot be simply explained by states targeting areas where their mobilization capacity is weak. On the contrary, their focus on the mobilization capacity of the opposition mayor is more consistent with the allocation of benefits that could undermine opposing machines.

Other State Transfers. Here I examine the allocation of discretionary budget transfers from states to municipalities.⁴⁴ Brazilian mayors heavily rely on resources from higher levels to meet their budget needs. Although most of these funds are allocated by predetermined formulas, states have discretion to sign funding agreements with

municipalities (*convênios*).⁴⁵ Control over local budgets is key to the party's ability to raise votes in congressional elections, and these resources are often used in exchange for political support. Thus, if states simply prefer to target weak areas in the semi-arid, we should observe the same allocation pattern with these funds. However, Figure 8 shows that states rather target these funds to areas where they are strong, consistent with the systematic pattern observed for other clientelistic machines in Latin America (Gonzalez-Ocantos and Oliveros 2019). Not only they are allocated to aligned mayors,⁴⁶ but the MEA significantly increases in the mayor's party membership.⁴⁷

Cisterns and Party Recruitment. The results so far suggest that cisterns are not allocated to reinforce existing party loyalties. However, if irrevocable and durable goods are more effective in creating new ties with voters (than budget resources, for example), this could explain the targeting of both weak-aligned and strong-opposition mayors. In this case, if mobilization

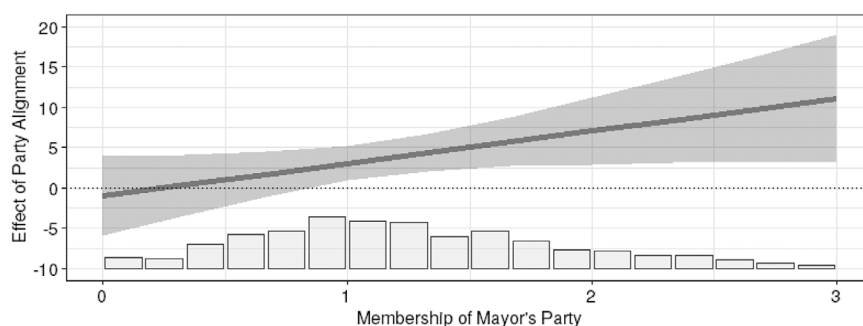
⁴⁴States provide around 14% of municipal revenues. Discretionary transfers represent R\$0.2mn/year (2.1% of the budget).

⁴⁶This is also in line with Brollo and Nannicini (2012) that show how discretionary federal transfers are targeted based on the alignment of mayors with PT coalition partners.

⁴⁷Table A.5 (supporting information), shows the coefficients estimated with equation 1.

⁴⁴This data was obtained from FINBRA (<http://www.tesouro.fazenda.gov.br/contas-anuais>), and it is only available for 61% of the municipality-period pairs in the sample.

FIGURE 8 Discretionary Budget Transfers: Marginal Effect of Alignment



Note: Confidence intervals at 95%. The bars show the density of the sample. For the purpose of presentation, the plot does not show values above 3 in the x-axis, 1% of the sample.

capacity reflects local party support, state cisterns should increase the membership of the parties that delivered them. This is not necessarily the case if cisterns are also used to “level the electoral playing field” by distancing voters from strong machines. To explicitly adjudicate between these mechanisms, I first use a subset of individual beneficiaries of state cisterns that can be linked to the CadUnico database—the registry used to manage federal benefits.⁴⁸ CadUnico has information on millions of poor voters, allowing me to match cistern recipients to non-recipients that are very similar in many dimensions (e.g., gender, age, race, income, etc.), within a municipality. I then merge this data with the party membership rolls to check whether cisterns had an effect on future party enrollment (Figure 9). In short, beneficiaries are no more or less likely to join the mayor’s or the state government’s party after receiving a cistern. In fact, they are less likely to become formal party members, in general, when compared to non-recipients.

In the appendix (Table A.8, supporting information), I also show a similar pattern with the municipality-level correlations between state party memberships and state cisterns. I regress the 2012 local membership of all parties that held the state government in 2003–12 on the number of cisterns that they sent to each municipality (and control by the party size in 2000). Using only within-municipality variation, the correlations between party membership and cisterns are not statistically significant, and mostly negative. Overall, these two pieces of evidence are not consistent with cisterns being solely (and effectively) used to increase party-voter linkages in the semi-arid, which is not unexpected in a program

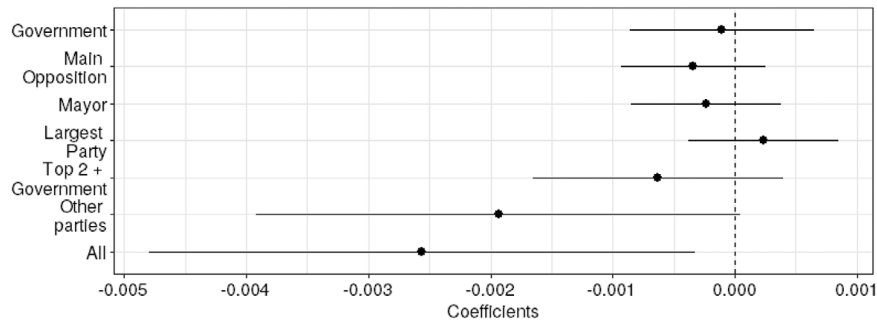
where the strong participation of NGOs at the delivery-end limits credit claiming opportunities by politicians.

Electoral Impact of Cisterns. I use the performance of the congressional candidates of the mayor’s party to show that cisterns are associated with a loss of electoral power by local incumbents with strong mobilization capacity. This measure precisely captures the ability of mayors to mobilize voters in favor of their parties at a higher level.⁴⁹ Given that cisterns are not randomly distributed, the estimates cannot be interpreted as causal effects, but rather as evidence of a correlation between cisterns and electoral results. That being said, I take a few steps to mitigate potential confounders. First, I compare the vote shares for a balanced panel of municipalities, including only two “out-of-sample” elections in 2002 (before), and 2014 (after). I also use municipality and election fixed effects to mitigate bias coming from either time-invariant municipal characteristics or time trends that might jointly affect the number of cisterns and the mayor’s brokerage ability. Finally, I aggregate the total cisterns distributed in 2003–12 from all sources (states, municipalities and NGOs—Figure 2), given that the income effect of a cistern does not depend on who delivered it, by definition. Thus, I estimate the equation below:

$$pct_{mt} = \tau_0 + \tau_1 cis_{mt} + \tau_2 c_{mt} + \tau_3 c_{mt} cis_{mt} + \eta_t + \eta_m + g_m + o_m + \theta_{mt} + \mu_{mt} \quad (3)$$

⁴⁹For the following reasons: (i) this is the most valuable legislative election in terms determining formal and informal access to campaign resources; (ii) the statewide proportional system allows me to observe vote shares for all parties, which is not the case of gubernatorial or mayoral elections; and (iii) mayors have been shown to be important party brokers in these elections due to their control over local budget resources (Novaes 2018).

⁴⁸See appendix C (supporting information) for a detailed description of the data construction process for this exercise.

FIGURE 9 Probability of Joining a Party: Cistern Beneficiaries vs. Other Poor Households

Note: Total of 76,450 observations. Regressions are estimated with municipality-period effects (i.e., the 2-years period between elections), and standard errors are clustered at the same level. Confidence intervals for a 95% level. The coefficients are the effect of receiving a cistern on future party membership for each one of the parties listed, as follows: (i) Government: state party; (ii) Mayor: mayor's party; (iii) Main opposition: mayor's party in opposition municipalities, or the runner-up in the mayoral race in aligned ones; (iv) Largest party: party with the largest membership in that municipality; (v) Top 2 + Government: party of the top 2 candidates in the last municipal election, plus the state party; (vi) Other parties: all parties not in Top 2 + government; and (vii) All: all parties.

where for municipality m , pct_{mt} is the vote share of the congressional candidates of the mayor's party in period $t \in (2002, 2014)$. The number of cisterns per hundred voters is cis_{mt} (in 2002, $cis_{mt} = 0$ for all m), c_{mt} is the mayor's mobilization capacity, g_m is a dummy that indicates whether the mayor's party held the governorship in the state in 2003–12, and o_m indicates whether the mayor's party opposes PT at the federal level. Finally, θ_{mt} is the rain level in the 12 months before the election, and η_t and η_m are fixed effects for election and municipality. Thus, τ_1 is the marginal change in vote shares coming from cisterns, and τ_3 is the change in this marginal effect as the mobilization capacity increases.

Column 1 of Table 5 shows that, on average, cisterns do not have a statistically significant effect on the mayor's

brokerage ability. Column 2 shows, as expected, that mayors with better mobilization also raise more votes for their parties. Column 3, however, clearly shows that the effect of cisterns is heterogeneous: while they have little effect on the brokerage of weak mayors, cisterns significantly undermine the ability of strong mayors to raise votes (i.e., the interaction is negative and significant).

Put together, all this evidence suggests that the main empirical results in this article are more consistent with states allocating cisterns in a way that could both build and break voter-party ties.

Conclusion

This article examines how state governments strategically allocate irrevocable and durable benefits across municipalities (cisterns), taking into account both the political alignment of mayors and their ability to mobilize voters through clientelism. The results show that the marginal effect of party alignment in the allocation is decreasing in the mayor's mobilization capacity, i.e., states only target their mayors over the opposition when both are weak. When they are strong, states prefer to target the opposition over their own, in sharp contrast with the pattern often observed in clientelism (Díaz-Cayeros, Estévez, and Magaloni 2016; Stokes et al. 2013) of targeting core constituencies. I interpret the findings within a novel framework where the delivery of these goods can elicit electoral

TABLE 5 Electoral Effect of Cisterns by Mobilization Capacity

	(1)	(2)	(3)
Cisterns (a)	-0.291 (0.214)		0.515 (0.327)
Membership (b)		7.043* (1.145)	8.646* (1.276)
Cisterns * Membership (c)			-0.625* (0.222)
Observations	2260	2260	2260

Note: $^{\dagger} p < 0.1$, $^* p < 0.05$. Standard errors are clustered by municipality and presented in parenthesis. The regressions use the log-linear version of c_{mt} .

rewards, but also undermine the ability of (all) parties to effectively engage in clientelism, due to their income effect.

These findings have at least two implications for future research of nonprogrammatic redistribution. First, they delineate a path that leads to increased electoral competition in areas formerly dominated by monopolist machines, without emphasizing a shift towards programmatic politics. Second, they unveil an allocation strategy that is particularly useful to nondominant parties that cannot easily replicate the mobilization capacity necessary to compete against entrenched machines. More so in developing countries were nondominant parties often gain control of the central government before they win significant victories in poor, rural areas (e.g., PAN in Mexico, 2000; PT in Brazil, 2002).

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix A: Probabilistic Voting Model

Appendix B: Additional Details on the RD design

Appendix C: Party membership of individual beneficiaries of cisterns

Appendix D: Heterogeneous effects by the membership of the state party in the control group

Appendix E: Additional Tables and Figures