How Programmatic Policies Impact Clientelism: Evidence from Snow Subsidies in Japan*

Amy Catalinac†
Taishi Muraoka‡

Abstract

In many democracies, incumbents use government resources to influence how people vote and try to hold recipients accountable for those votes, a practice known as 'clientelism'. How clientelism is impacted by programmatic policies has been the subject of much recent work. We study this question in Japan, where Liberal Democratic Party (LDP) incumbents cultivate clientelistic exchanges with the municipalities in their districts and also confer large, programmatic benefits upon a group of 'heavy-snowfall' municipalities. Leveraging the exogenous assignment of the 'snow subsidy' and our ability to capture the clientelistic exchanges with data, our analyses reveal evidence that programmatic policies reduce the cost of exiting a clientelistic relationship, which increases the 'price' of beneficiaries' votes. Incumbents respond by paying this price, meaning they funnel even more resources toward beneficiaries. Thus, programmatic policies can lead to a concentration of resources on beneficiaries, with deleterious consequences for everyone else.

*We thank Nisha Bellinger, Bruce Bueno de Mesquita, Christina Davis, Lucia Motolinia, Megumi Naoi, Yoshikuni Ono, Daniel M. Smith, Frances Rosenbluth, Hikaru Yamagishi, and participants of the NEWJP conference, August 26-27 2019, Dartmouth College, for helpful suggestions. We also thank Yutaka Tsujinaka and Choe Jae Young for generously sharing data.

†Assistant Professor, New York University. Email: amy.catalinac@nyu.edu.

‡U.S.-Japan Postdoctoral Fellow, Harvard University. Email: tmuraoka@wcfia.harvard.edu.

1 Introduction

All over the democratic world, incumbents use government resources to influence how people vote. When incumbents also have a means of holding voters accountable for their votes, clientelism tends to ensue. Why some countries exhibit more clientelism than others, and why others have been able to transition away from clientelism are questions of enormous substantive importance. Beyond having access to goods and at least a modicum of monitoring ability, other factors thought to grease the wheels of the clientelistic exchange include voter demand for the goods supplied, either by incumbents or their intermediaries (e.g. Rizzo, 2019; Holland, 2017; Nichter, 2018; Hagopian, Gervasoni and Moraes, 2009; Stokes et al., 2013; Magaloni, 2006; Kitschelt and Wilkinson, 2007; Calvo and Murillo, 2004), political institutions that encourage incumbents to cultivate personal votes (Golden and Picci, 2008; Hicken, 2007; Scheiner, 2006; Carey and Shugart, 1995; Ramseyer and Rosenbluth, 1993; Ames, 1995), and businesses that can afford to look the other way (Kuo, 2018). We join recent work on clientelism that examines the effects of 'programmatic' policies, the defining feature of which, in contrast to 'clientelistic' ones, bestow benefits on people irrespective of how they vote (Larreguy, Marshall and Trucco, 2015; Stokes et al., 2013; Magaloni, Diaz-Cayeros and Estvez, 2007). We ask: how does conferring a programmatic policy onto some voters but not others impact clientelism?

As this work has made clear, programmatic policies are not solely the preserve of the more developed democracies where clientelism has largely been subdued, but are also adopted by governing parties that rely more heavily on clientelism. By and large, these studies have focused on the question of whether programmatic policies such as conditional cash transfers, grant programs, or vouchers for low-income families produced downstream electoral benefits for incumbents (e.g. Imai, King and Rivera, 2019; Blattman, Emeriau and Fiala, 2018; Conover et al., 2018; Dionne and Horowitz, 2016; Layton and Smith, 2015; Tobias, Sumarto and Moody, 2014; Zucco, 2013; Linos, 2013; Labonne, 2012; Pop-Eleches and Pop-Eleches, 2012; Manacorda, Miguel and Vigorito, 2011; Diaz-Cayeros, Estevez and Magaloni, 2009). As Larreguy, Marshall and Trucco (2015) point out, however, evidence that a programmatic policy increased an incumbent's vote share in a subsequent election does not necessarily tell us much about its effects on clientelism. It is certainly possible that votes increased because the programmatic policy had succeeded in creating a 'programmatic bond' between incumbent and beneficiary and beneficia-

ries were rewarding incumbents for their governing capacity or ideological stance. But it is also possible that incumbents, concerned that voters receiving the programmatic policy might decide to exit the clientelistic relationship, had plied them with even more clientelistic goods. Whereas the former would be evidence the policy had weakened clientelism, the latter is evidence of the reverse. Our evidence is consistent with the latter explanation.

We adopt an approach we feel is better suited to producing a definitive, generalizable answer to the question of how programmatic policies impact clientelism. We take a democracy where clientelistic exchanges between members of the ruling party and voters occur and can be captured empirically. Then we study what happens to those exchanges when some of the voters embedded in them receive a programmatic policy. Japan is an especially useful case in this regard. In Japan, members of the ruling party cannot observe how individuals vote, but they can observe how municipalities vote. This monitoring capacity, together with access to an enormous pool of resources from which they can generate goods designed to disproportionately benefit some municipalities over others, enables them to cultivate clientelistic exchanges with the municipalities in their districts (Catalinac, Bueno de Mesquita and Smith, 2019; Saito, 2010; Horiuchi and Saito, 2003).

Helpfully, at least for our purpose, the Japanese government also introduces programmatic policies, where eligibility is also a function of the municipality. One is a 'snow subsidy'. Legislated under the Liberal Democratic Party (LDP)-led government in 1962, the subsidy provides a range of benefits to assist municipalities experiencing heavy snowfall minimize damage to their economies and the livelihoods of their residents. The subsidy is allocated to municipalities whose average amount of cumulative snowfall, as reported by local weather stations during the preceding thirty-year period, exceeds $5,000$ cm (164 feet). In addition to being allocated at the same level at which the clientelistic exchange occurs, the use of snowfall as the criteria governing eligibility generates a set of municipalities for whom assignment to the snow subsidy is exogenous. We exploit this exogeneity below to draw valid causal inferences about its effects.

We construct a comprehensive new data set comprising vote shares, discretionary transfers, subsidy eligibility, and geographic, demographic, and fiscal features of the universe of 3,000+ Japanese municipalities in existence between 1980 and 2006. Our empirical strategy, which also relies on survey data (Pekkanen, Tsujinaka and Yamamoto, 2014) and analyses of candidate election manifestos, has three components. First, we use fixed effects regressions and a geo-

graphic regression discontinuity (GRD) design to demonstrate that in districts comprised only of municipalities that receive the subsidy and only of municipalities that do not receive the subsidy, respectively, discretionary transfers (called 'national treasury disbursements' or NTD) flow to municipalities on the basis of vote share. But in 'mixed' districts, where subsidy-eligible municipalities coexist with their subsidy-ineligible counterparts, this clientelistic exchange is disrupted and subsidy-eligible municipalities receive the lion's share of transfers. Second, we present evidence that this is because the snow subsidy has made the votes of beneficiaries 'swingier', or, from the perspective of the LDP incumbent, costlier to obtain than the votes of otherwise-similar non-beneficiaries. Third, we present evidence that our results are not explained by other differences between subsidy-eligible and -ineligible municipalities in the same district or by the possibility that incumbents are distributing more transfers to subsidy-eligible municipalities to mitigate against a negative effect of the snow subsidy.

Our study makes several contributions. For scholars interested in how to rid a system of clientelism (e.g. Stokes et al., 2013), our results suggest that giving some voters a programmatic policy will likely just increase the amount of government resources being exchanged for votes. Because programmatic policies increase the price of beneficiaries' votes, incumbents will steer even more funds to those beneficiaries. This could be stopped if the introduction of the programmatic policy was accompanied by a curtailing of the kind of government resources that could be appropriated for this purpose. If incumbents were unable to pay the higher price of beneficiaries' votes, beneficiaries might start evaluating candidates on alternative metrics such as policy positions. But the fact that incumbents have already cultivated clientelistic exchanges suggests they *do* have access to such resources, so will simply accelerate the volume provided in the face of an increase in cost of a vote. In this way, a programmatic policy introduced to benefit a needy group of people, such as residents of heavy-snowfall municipalities, leads to a far greater concentration of government resources on those people than was perhaps imagined by the architects of the policy.[1] This has particularly deleterious consequences for non-beneficiaries, who find themselves being represented by an incumbent who devotes an even larger chunk of time, and an even larger chunk of government resources to vote-buying, but for the benefit of others.

[1] Although, it is possible that architects of programmatic policies *know* they are likely to have this effect, which is why they advocate for it. This is a question for future research.

For scholars working on the effects of programmatic policies, our study presents an alternative interpretation of some of their results. If programmatic policies are found to increase electoral support for the incumbent (e.g. Dionne and Horowitz, 2016; Larreguy, Marshall and Trucco, 2015; Zucco, 2013; Linos, 2013), then our study suggests this may be because an incumbent carefully plied beneficiaries with more clientelistic goods with a view to offsetting a perceived *decline* in their propensity to support her. Thus, it is the programmatic policy *in tandem* with the other goods that may be bringing about the higher vote share, not the programmatic policy by itself. In contrast, when the programmatic policy is not found to increase support for the incumbent (e.g. Imai, King and Rivera, 2019), we suggest this may be because incumbents were able to calibrate the exact amount of extra goods necessary to bring up beneficiaries' level of support to that of non-beneficiaries. If a programmatic policy is found to increase electoral support for the incumbent in the election(s) immediately after its introduction but not later on (e.g. Bechtel and Hainmueller, 2011), this may be because uncertainty over the 'price' of beneficiaries' votes will be greatest immediately after a policy's introduction. In these first few election(s), incumbents may "offshoot" and supply a surfeit of goods, which results in higher vote shares among beneficiaries. Over time, they would presumably readjust the volume provided, resulting in the 'evening out' of vote shares. Further, if a programmatic policy is found to increase support for incumbents in some tier of election but not in other tiers (e.g. Blattman, Emeriau and Fiala, 2018; Labonne, 2012), we suggest that variation in access to discretionary goods across incumbents might explain this.

For Japanese politics scholars, our study joins a nascent literature on the effects of government-enacted programmatic policies (Ramseyer and Rasmusen, 2018; Smith and Harada, 2018). We show that at least in mixed districts, government subsidies to rectify inequality can bring about an even greater concentration of resources on recipients than may have been imagined by those introducing the policy. In Japan, those who suffer the most from the snow subsidy are people in 'mixed' districts who do not live in a 'heavy-snowfall' municipality. Despite facing extremely similar circumstances to their neighbors in heavy-snowfall municipalities, they see those neighbors receiving many more resources. If their municipality happened to be located in a district where no municipality received the subsidy, these non-beneficiaries could obtain more government resources by increasing their support for the incumbent. Efforts to this end will bear less fruit in districts where non-beneficiaries co-exist with beneficiaries.

2 Theory

We begin with definitions. What distinguishes 'clientelism' from other modes of distributive politics is when incumbents have goods to distribute *and* a capacity to monitor whether those on the receiving end of those goods hold up their end of the bargain (Nichter, 2018; Gans-Morse, Mazzuca and Nichter, 2014; Stokes et al., 2013; Golden and Min, 2013; Hicken, 2011; Stokes, 2007). Whereas one might think that the secret ballot and laws guarding against electoral corruption would pose a near-insurmountable challenge to monitoring, in practice savvy incumbents have come up with workarounds, even in developed democracies. These include changing the behavior to be monitored from, for example, vote shares to turnout (e.g. Nichter, 2008; Larreguy, Marshall and Querubin, 2016), or switching the target of the exchange from the individual, whose votes cannot be observed, to the lowest unit at which vote tallies can be observed, which can be precincts, municipalities, or polling booths (e.g. Catalinac, Bueno de Mesquita and Smith, 2019).[2]

For a 'good' to be used in a clientelistic exchange, it must be something the incumbent can bestow on the target and remove in the event the target under-performs in a given election, where under-performance could mean staying home on election day or failing to vote for the incumbent. This property is called 'conditionality' (Stokes et al., 2013, 13) or 'contingency' Hicken (2011). When the target of the exchange is the individual, such goods can be cash benefits or jobs. When the target is a municipality, a conditional good might be government transfers to fund projects.[3] 'Programmatic' goods, on the other hand, are non-conditional. Once bestowed, they cannot be (easily) removed should the target fail to hold up her end of the bargain (Stokes, 2007; Magaloni, Diaz-Cayeros and Estvez, 2007).[4]

There is a large literature on clientelism in comparative politics. Numerous studies tackle questions such as which factors make clientelism more (or less) likely (e.g. Nichter, 2018; Holland, 2017; Kuo, 2018), what causes breakdowns in clientelism (e.g. Rizzo, 2019; Larreguy, Marshall and Querubin, 2016; Stokes et al., 2013; Hagopian, Gervasoni and Moraes, 2009), how clientelism

[2]The target of a 'clientelistic' exchange is usually presumed to be the individual (e.g. Stokes et al., 2013, 7). But Smith, Bueno de Mesquita and LaGatta (2017) explain why, under some conditions, it could be a group.

[3]Stokes et al. (2013) treats pork-barreling as a mode of distributive politics that is non-programmatic but also non-conditional. We emphasize that when the target of a clientelistic exchange is a municipality, money for projects can be used conditionally (incumbents can provide funds one year and not the next). Even when those funds are used for 'irreversible' projects such as infrastructure, whose benefits continue after funds are stopped, it is reasonable to assume that the promise of more funds will keep municipalities interested.

[4]In some studies, goods must satisfy other criteria to be classified as 'programmatic'. We discuss these below.

operates in a given country (e.g. Golden and Picci, 2008; Magaloni, 2006; Scheiner, 2006), and under what conditions might incumbents eschew clientelism altogether in favor of providing programmatic goods (e.g. Stokes et al., 2013; Magaloni, Diaz-Cayeros and Estvez, 2007). Related studies examine the effects of programmatic policies on outcomes related to electoral support for incumbents (e.g. Imai, King and Rivera, 2019; Conover et al., 2018; Dionne and Horowitz, 2016; Zucco, 2013; Manacorda, Miguel and Vigorito, 2011; Diaz-Cayeros, Estevez and Magaloni, 2009). The puzzle motivating most of these latter studies, sometimes left implicit, is why incumbents who rely on a clientelistic exchange of goods and votes to win elections would ever *voluntarily* choose to introduce a programmatic good, which is untied to electoral support, on voters. Whereas the preponderance of studies do find evidence that the programmatic policies under investigation increased incumbent vote shares, usually their findings are more nuanced, with effects at some level of election and among some incumbents, but not at other levels and among other incumbents (Imai, King and Rivera, 2019; Blattman, Emeriau and Fiala, 2018; Correa and Cheibub, 2016; Pop-Eleches and Pop-Eleches, 2012; Labonne, 2012; Tobias, Sumarto and Moody, 2014; Linos, 2013). Even if programmatic policies *were* found to produce an electoral bump for the incumbent, to imply that incumbents introduced the policy for the purpose of realizing that bump presumably would require an explanation for why they did not try to realize the bump with clientelism. If incumbents are using government resources to buy votes, then presumably they could distribute more resources and buy more votes.

Given the consensus that programmatic policies are associated with richer, healthier citizens, who are better able to hold their elected officials accountable rather than the other way around (Stokes, 2005), rigorous study of the factors that could move the needle in a clientelistic political system is important. With that in mind, we ask the following question: taking an incumbent who has cultivated a clientelistic relationship with her voters, what happens in the event some of those voters are eligible for a programmatic policy? Does this reduce an incumbent's reliance on clientelism, facilitating movement toward a more programmatic political system, or does it merely accelerate her reliance on clientelism?

At least two answers can be gleaned from this vast literature. One is that bestowing a programmatic policy onto voters embedded in clientelistic relationships will, all else equal, decrease the cost of beneficiaries' exit from this relationship (e.g. Stokes et al., 2013; Magaloni, 2006; Kitschelt and Wilkinson, 2007; Calvo and Murillo, 2004). Our reasoning is as follows.

Voters in a clientelistic relationship have a need for the goods supplied. Because programmatic policies make beneficiaries better off, they alleviate this need relative to otherwise-similar non-beneficiaries. This decreases the cost of beneficiaries' exit from a clientelistic relationship. If this is the case, incumbents interested in continuing to rely on clientelism to win elections will find they have to pay *more* for the votes of beneficiaries than for the votes of otherwise-similar non-beneficiaries.[5] Magaloni (2006), for example, found that under authoritarian rule in Mexico, incumbents who used clientelism to get elected ended up distributing more goods to voters with a more credible exit option. This leads to the following hypothesis:

> **Hypothesis I**: Programmatic policies impact clientelism by *increasing* the cost of a beneficiary's vote relative to an otherwise-similar non-beneficiary.

An entirely different logic is articulated in Layton and Smith (2015). Because the programmatic policies these authors studied were designed to alleviate need, they had the effect, the authors argue, of reducing the costs associated with voting and supporting the incumbent. Beneficiaries of the programmatic policy were more inclined to vote because of the new income they had access to, which helped "deal with the immediate and opportunity costs of going to the polls, from bus fares to time away from work", and because of the greater familiarity with the bureaucracy they had obtained through the process of applying for and receiving the programmatic policy. Beneficiaries were more inclined to vote for the incumbent, on the other hand, because the programmatic policy had created a psychological attachment to "the state and national politics" (Layton and Smith, 2015, 859-60). A related study of vote-buying in Paraguay found that politicians tend to target individuals who are 'reciprocal', defined as those who 'experience pleasure in increasing the material payoffs of the politician who has helped them' (Finan and Schechter, 2012, 864). If incumbents know to target programmatic policies at 'reciprocal' individuals, then their introduction may also reduce the cost of beneficiaries' votes, from the perspective of the incumbent. This leads to the converse of Hypothesis I. In other words:

> **Hypothesis II**: Programmatic policies impact clientelism by *decreasing* the cost of a beneficiary's vote relative to an otherwise-similar non-beneficiary.

[5]Incumbents in this situation are unlikely to decide to ignore beneficiaries altogether and concentrate on securing the votes of the (cheaper) non-beneficiaries because any attempt to secure reelection by courting a *subset* of the electorate has the effect of increasing the *value* of this subset's votes, which increases their cost. Incumbents who do this may end up worse off.

3 Case of Japan

For scholars interested in clientelism, Japan, a developed parliamentary democracy with free and fair elections and relatively low income inequality, might seem a strange place to look. In the majority of countries with such characteristics, incumbents are members of disciplined parties that contest elections with promises of programmatic policies and then support the implementation of those policies after elections. Clientelism might not be *absent*, but it is thought to play a much smaller role. In Japan, however, a single party, the Liberal Democratic Party (LDP), has emerged victorious from all but two of the 21 House of Representatives (HOR) elections held between 1955 and today.[6] The HOR is the more-powerful of Japan's two Houses, electing the prime minister, signing treaties, passing the budget, and having the last word on legislation. The LDP's electoral victories, including at the local level (Scheiner, 2006), have enabled it to exercise near-continuous control of the central government and all of its resources. The party's dominance, combined with institutions such as an electoral system that pit LDP incumbents in the same district against each other and a means of counting votes that enable incumbents to discern where their votes were coming from within a district set the stage for the cultivation of electoral strategies in which clientelism has played a central role (e.g. Horiuchi, Saito and Yamada, 2015; Saito, 2010; Hirano, 2006; Horiuchi and Saito, 2003; Fukui and Fukai, 1996; Ramseyer and Rosenbluth, 1993). Helpfully, the LDP has also introduced programmatic policies. Below we explain in detail why Japan is a near-perfect setting in which to investigate the impact of programmatic policies on clientelism.

3.1 How Clientelistic Exchanges are Cultivated

It is thought that three conditions facilitate the cultivation of clientelistic exchanges: incumbents have goods to distribute, those goods are valued by voters, and incumbents can monitor how votes are cast (e.g. Nichter, 2018; Stokes, 2005). As we mentioned, the LDP has been in control of the central government for all but four of the past 64 years. While 60% of taxes paid by Japanese people are collected by the central government, the vast majority of services individuals receive are provided for either by their municipality (of which they were approximately 3,300 before

[6] It has governed in coalitions with (usually one) smaller party since 1994. After losing the 2009 election, it won the 2012 election and has controlled government since. It was also out of power between 1993 and 1994 after seven parties were able to form a coalition in the wake of the 1993 election.

2001, after which mergers whittled the number down to 1,800) or prefecture (of which there are 47), or both. Every year, the central government redistributes approximately 45% of its revenue from taxation to municipalities and prefectures to help pay for the services they provide, which include – in the case of municipalities – road construction, health care, sewerage, clean drinking water, and waste disposal (Scheiner, 2006). Municipalities are afforded next to no discretion in the taxes they are allowed to levy on residents and also face heavy restrictions on their ability to borrow. As a result, the typical municipality raises 33% of its needed revenue from taxation and depends upon the central government for about the same amount (Saito, 2010; Fukui and Fukai, 1996; Yamada, 2016). Of the funds received by the central government, about half is decided by a need-based formula, which incumbents cannot easily influence (McMichael, 2017), and half comes from a pool of discretionary funds the government makes available each year (Yamada, 2016; Horiuchi and Saito, 2003). Referred to as 'national treasury disbursements' (or 'NTD'), the latter are awarded to municipalities for the purpose of financing specific projects, many of which are in construction.

Besides supplying residents with many fixtures of their everyday life, municipalities play an important role in elections. Japan's Public Office Election Law stipulates that votes are to be counted at the level of the municipality, which means that the number of votes cast for candidates and parties is also available at this level. In practice, this means that ballot boxes in polling stations across a municipality are transported to a central location (often one) and counted there. It also stipulates that wherever possible, the borders of districts used to elect Members of Japan's HOR be drawn *around* the borders of municipalities.[7] This means that even though voters have the secret ballot, which means that the incumbent cannot easily discern how an *individual* voted, she *can* observe how a municipality voted. In the case of Japan, then, the conditions for clientelism are satisfied: incumbents control resources, municipalities depend upon those resources, and incumbents can monitor the amount of electoral support they receive from those municipalities.

Decades of research in Japanese politics characterizes the single-minded focus of LDP incumbents on securing pork-barrel projects for their constituents (e.g. Christensen and Selway, 2017; Krauss and Pekkanen, 2010; Pempel, 2010; Tamada, 2009; Catalinac, 2015; Ramseyer and

[7]Concretely, the number of municipalities that were split into more than one district was either 3 or 4 (out of a total of 3,300 municipalities) in elections under Japan's old electoral system, used until 1994. In 1996 and 2000, the first two elections held under the new system, it was 15 (out of the same total).

Rosenbluth, 1993; Curtis, 1971). In the words of Fukui and Fukai (1996, 269), their 'performance in pork barrel politics made or broke their political careers'. Japan's unusual electoral system—single non-transferable-vote in multi-member districts ('SNTV-MMD')—was identified as another factor enhancing the lure of the pork barrel (Ramseyer and Rosenbluth, 1993). Because it required the LDP to run more than one candidate in each district, same-district LDP politicians were unable to rely on their party label and had to cultivate personal sources of appeal, of which pork-barreling was one. Several studies suggest that LDP incumbents tied the provision of pork-barrel projects to electoral loyalty in a manner that was clientelistic: Scheiner (2006), for example, describes how municipalities' dependence on the central government forced municipal politicians to ally with LDP HOR incumbents, trading their ability to mobilize votes for those incumbents in HOR elections for help securing funding for projects. Saito (2010), on the other hand, posits that LDP politicians took advantage of the fact that there was little danger the party would lose its majority to pit voters against each other in a 'vote-gathering competition' (shuhyo gassen in Japanese), where they used NTD (the aforementioned discretionary funds) to buy votes. His empirical analysis revealed that NTD flowed to districts where votes were cheaper (there were more HOR incumbents per voter) and where the party could better monitor voting (there were more local politicians). In their description of the personal support organization (koenkai) developed by former LDP Prime Minister Tanaka Kakuei, Sone and Kanazashi (1989, 110-1) describe the ingenious way in which it recorded Tanaka's vote shares across the municipalities in their district and forced them to compete against each other for the opportunity to have their pet project pushed by Tanaka.

Building upon this earlier work, as well as a game-theoretic model (Smith, Bueno de Mesquita and LaGatta, 2017), Catalinac, Bueno de Mesquita and Smith (2019) investigate exactly how these clientelistic exchanges occur. They posit that LDP incumbents use the fact that there is relatively little chance the party will lose its majority to pit the municipalities in their districts against each other in a 'tournament' over which is most supportive. In a tournament, incumbents survey election results, rank municipalities in terms of how supportive they were (for *them* personally), and offer the largest 'prize' to the most-supportive municipality, the second-largest prize to the second most-supportive municipality, and so on. The 'prizes' are NTD (the aforementioned discretionary, project-specific funds), or more accurately, assisting municipalities in their efforts to lobby for NTD. Because rewarding municipalities for 'performing' well in

elections equates to vote-buying, which runs counter to the tenets of democracy, the authors theorize that incumbents will not make their use of a tournament explicit. Their empirical analysis revealed, among other things, a robust relationship between a municipality's level of electoral support for its LDP incumbent(s) in the nine HOR elections between 1980 and 2000 and the amount of NTD it received the year after each election. Municipalities that increased their support relative to the previous election received more NTD, whereas those that slipped in support were punished with less. This is evidence that LDP incumbents cultivate clientelistic exchanges with the municipalities in their districts, whereby they make the provision of valued goods (NTD) contingent upon vote share.

3.2 Snow Subsidies

In 1962, the 'Special Measures Act Concerning Countermeasures for Heavy Snowfall Areas' (Gosetsu Chiiki Taisaku Tokubetsu Sochi Ho in Japanese, henceforth referred to as the 'Snow Act') was enacted. Originating as a private member bill bearing the signatories of 101 HOR Members, the Snow Act was one of a number of laws passed at the time that established government support for areas of Japan that were considered 'disadvantaged'.[8] As Schlesinger (1997) notes, heavy snowfall had historically presented a major obstacle to industrial development and the improvement of living standards in certain regions of Japan. It hindered economic activity, paralyzed traffic, isolated communities, and facilitated depopulation. The Snow Act aimed to minimize the scope of the damage inflicted by heavy snowfall on these places.

To this end, it established the following benefits for municipalities fitting the criteria described below for 'heavy snowfall' municipalities. First, they were to receive a larger share of central government tax revenue than non-heavy-snowfall municipalities to cover the extra costs associated with maintaining roads, buildings, and heating systems and providing their residents with education, medical infrastructure, and public livelihood assistance. These extra funds were to be paid through the need-based transfer ('local allocation tax' or LAT) mentioned above. Second, whenever these municipalities constructed roads or school buildings in conjunction with their prefectural and central governments, larger shares of the cost were to be shouldered by

[8]Others include the Mountain Villages Development Act, the Peninsular Areas Development Act, the Remote Islands Development Act, and the Special Measures Act for the Promotion and Development of the Amami Islands. The affiliations of the signatories include the LDP (75), Japan Socialist Party (25), and Democratic Socialist Party (1). Not all signatories hailed from districts containing municipalities that would eventually fit the criteria for designation.

the higher-tier governments. Third, these municipalities were granted the right to issue special local bonds when financing measures to deal specifically with heavy snowfall, such as widening roads, buying snow removal equipment such as snowplows or snow-melters, and establishing disaster-prevention measures. Fourth, their residents were granted tax benefits unavailable to their counterparts in non-heavy-snowfall municipalities, which included reduced car, income, and property tax, as well as special assistance when renovating their houses.

The Snow Act stipulated that a municipality could be designated a 'heavy snowfall municipality" if more than two-thirds of local weather stations had reported an annual average of more than 5,000 cm (164 feet) of cumulative snowfall for at least thirty years.[9] The Act held that municipalities could apply for this designation through their prefectural governments, with the process involving the Ministries of Land, Infrastructure, and Transport, Internal Affairs and Communications, Agriculture, Forestry, and Fisheries, and the National Land Development Council, respectively. Figure 1 presents a map of Japan, with the blue-shaded area containing municipalities that received the snow subsidy. These municipalities tend to be concentrated in the northwest. As of 1980, when our study begins, approximately 30% of Japanese municipalities are designated as heavy-snowfall municipalities. Together, these cover approximately 50% of all land in Japan.

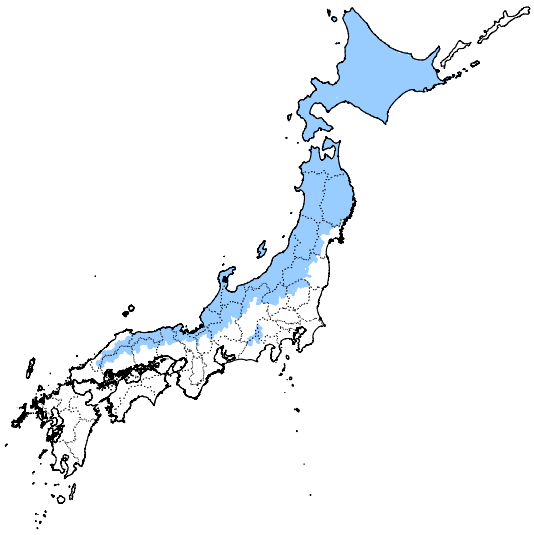
3.3 Are Snow Subsidies Programmatic?

As we mentioned above, much has been written about the criteria distributive policies must meet in order to be classified as 'programmatic'. For Stokes et al. (2013, 7-8), on the one hand, a policy must have 'formalized and public' criteria for distribution, and these criteria must actually shape the distribution of the resource. The snow subsidy satisfies both. The government outlines the criteria governing municipal eligibility on its website.[10] It also publishes the list of municipalities eligible each year, plus data on annual snowfall and amount of LAT received for the universe of Japanese municipalities. Unlike NTD, it would be extraordinarily difficult for an incumbent to make a municipality's eligibility for the snow subsidy contingent upon its electoral performance.

[9] In 1970, the government established a new designation: that of an 'especially-heavy-snowfall municipality'. To qualify for this, one half of the weather stations in a municipality must have reported an annual average of more than 15,000 cm (492 feet) of cumulative snowfall for at least twenty years. We focus on comparing heavy-snowfall municipalities with non-heavy-snowfall municipalities, meaning that the especially-heavy-snowfall municipalities are included in the first group.

[10] See http://www.mlit.go.jp/kokudoseisaku/chisei/crd_chisei_tk_000010.html.

Figure 1: The blue shaded areas display the municipalities that were, of 2016, designated as 'heavy-snowfall' municipalities under the rules of the 1962 Snow Act.



Indirect evidence that eligibility is not manipulated comes from the fact that no municipality became eligible for the subsidy over the course of our study, which begins in 1980. Similarly, no municipalities were eligible in some years but not in others.

For Imai, King and Rivera (2019), on the other hand, policies are 'programmatic' when they are enacted with cross-partisan support, no party claims exclusive credit for implementing them, and voters have no reason to believe that a new government would repeal the policy, respectively. Because Japan is a Westminster-style parliamentary system, in which elections are typically duels between programmatic parties, with opposition parties rarely supporting the policies enacted by the government after the election (Dewan and Spirling, 2011), these criteria are too restrictive. Policies can be programmatic even if they are not enacted with cross-partisan support. Further, in such countries voters will usually expect their benefits to be continued unless the parties in a new government explicitly promised to repeal those benefits during an election campaign. Thus, policies can be programmatic even if they are repealed by a new government. As it happens, however, Japan's Snow Act *was* enacted with support from opposition parties. Moreover, an exhaustive content analysis of the more than 10,000 election manifestos used by LDP candidates in elections from 1980 until 2012 revealed no instances of LDP candidates seeking to remind voters of their party's exclusive role in the passage of the Act, nor any instances in which a candidate of any party promised to repeal the benefits.[11]

[11]This collection is described in Catalinac (2015).

While we are the first to study the snow subsidies, when they do appear in research on Japanese politics, they tend to be seen as another good LDP incumbents can use in a conditional manner, to motivate electoral support. Saito (2010) states that more funds to plow the streets in winter means more jobs for under-employed construction workers and farmers, key LDP constituencies. A similar claim is made by (Horiuchi, Saito and Yamada, 2015, 103). The fact that former Prime Minister Tanaka Kakuei, who relied so heavily on clientelism that he earned himself a reputation as the most corrupt leader ever to be in charge in Japan, hailed from the 'snow country', is thought to lend credence to this claim. However, the fact that benefits for large groups of people (such as universal health care) also mean private benefits for some of those people (in the form of jobs, for example) does not necessarily challenge our classification of those benefits as programmatic. Indeed, most programmatic goods have these features (Noble, 2010).

4 Empirical Strategy

To evaluate our hypotheses, we put together a comprehensive new data set comprising election outcomes, discretionary transfers, snow subsidy eligibility, and other geographic, demographic, and fiscal features of the universe of 3,000+ Japanese municipalities in existence between 1980 and 2006. Data on election outcomes in the nine HOR elections held during this time came from JED-M data, which aggregates the electoral returns reported by local election commissions (Mizusaki, 2014). Data on municipalities' snow subsidy eligibility and geographical location come from the National Land Numerical Information Service and the Geospatial Information Authority of Japan.[12] Data on other fiscal and demographic variables, including the discretionary transfers (NTD) that we study, come from Nikkei NEEDs.[13] We conclude our study in the year following the 2005 HOR election because the LDP lost, and by all accounts was expected to lose, the 2009 election, which we anticipate would have impaired the ability of LDP incumbents to credibly claim to be able to tie the distribution of NTD in the year after this election to a municipality's vote share in 2009.[14]

Our empirical strategy has several components. Note that in what follows, references to the

[12] See http://nlftp.mlit.go.jp/ksj-e/index.html and http://www.gsi.go.jp/ENGLISH/index.html.

[13] A description of the data is available at http://www.nikkei.co.jp/needs/contents/regional.html.

[14] Annual amounts of NTD to municipalities is not available prior to the late 1970s. This prevents us from examining what NTD flows looked like before and after the snow subsidy was introduced.

'subsidy' refer to the snow subsidy (our programmatic policy) and references to 'transfers' refer to NTD (the discretionary transfers used as the good in the clientelistic exchange). First, we investigate how the clientelistic exchanges between LDP incumbents and the municipalities in their districts changes when some of those municipalities are eligible for the snow subsidy. This reveals that in districts where both subsidy-eligible and subsidy-ineligible municipalities coexist, which we call 'mixed districts,' subsidy-eligible municipalities receive the lion's share of NTD. Hence, the presence of the snow subsidy, which some municipalities are eligible for and others are not, seems to *disrupt* the relationship between electoral support for the LDP incumbent and post-election transfers.

The fact that transfers in mixed districts flow to subsidy-eligible municipalities is consistent with both hypotheses: LDP incumbents could be distributing more transfers to subsidy-eligible municipalities because their access to the subsidy makes the cost of votes therein more *expensive* relative to ineligible municipalities in the same district, or *cheaper*. Under the former (Hypothesis I) logic, incumbents are distributing more funds to beneficiaries in anticipation that without those extra funds, beneficiaries would be *less* likely to vote for the incumbent. This is because the subsidy has made voters less dependent on the clientelistic exchange, providing them with an 'exit option'. The extra funds are designed to offset a *decrease* in propensity to vote for the incumbent. Under the latter (Hypothesis II) logic, incumbents are distributing more funds to beneficiaries because they have decided to concentrate their vote-buying there. Because the subsidy has created a psychological attachment to the national government and its incumbents, incumbents know that beneficiaries are more inclined to support them in elections, so can be roused to the polls with less money.

To adjudicate between the two, we examine the relationship between the snow subsidy and electoral support for the LDP incumbent. If Hypothesis II is correct, then the decision to buy votes in subsidy-eligible municipalities will be reflected in higher vote shares for the LDP incumbent. If subsidy-eligible municipalities received more transfers in the *absence* of higher vote shares for the incumbent, then this is evidence for Hypothesis I (without those extra transfers, incumbents would have received vote shares that were lower than those received in subsidy-ineligible municipalities).

We conduct two tests. Our first test reveals no observable differences in the vote shares returned by subsidy-eligible and -ineligible municipalities in mixed districts, meaning that bene-

ficiaries of the snow subsidy were *not* more inclined to vote for the LDP incumbent. Our second test analyzes responses to a large-scale survey of the heads of neighborhood associations (NHAs) (Pekkanen, Tsujinaka and Yamamoto, 2014). We describe this data and the critical role NHAs play in Japanese elections below. Our analysis reveals that NHA heads in subsidy-eligible municipalities are less likely to report supporting "a particular candidate" during election campaigns than their counterparts in subsidy-ineligible municipalities. This is indirect evidence that the snow subsidy makes voters in subsidy-eligible municipalities 'swingier', meaning less committed to a specific candidate. Together, these tests lend support to Hypothesis I.

Finally, we consider several alternative explanations for the positive relationship between subsidy eligibility and post-election transfers. The evidence we analyze suggests that our findings are unlikely to be explained by subsidy-eligible municipalities boasting better bargaining skills or stronger connections to LDP incumbents than their subsidy-ineligible counterparts. Nor can our results be explained by the possibility that LDP incumbents are using post-election transfers to offset any negative impacts of the subsidy on heavy-snowfall municipalities. Together, these checks strengthen our confidence in Hypothesis I.

5 Subsidy-Eligible Municipalities Receive More Post-Election Transfers

First, we examine how the snow subsidy changes the relationship between electoral support for LDP incumbents and post-election transfers. The outcome is the logarithm of per capita transfers (NTD) received by Japanese municipalities in the fiscal years following the nine HOR elections between 1980 and 2005. To capture electoral support for the LDP, we use the proportion of eligible voters in a municipality that voted for the district's winning LDP candidate(s). This is the same operationalization of 'electoral support' used in Catalinac, Bueno de Mesquita and Smith (2019). Districts were multi-member (electing between two and six winners) prior to 1994 and single member after 1994.[15] In elections prior to 1994, we take the proportion of a municipality's voting population who voted for each of the LDP winners and summed those.

[15] An electoral reform in 1994 changed the system used to select Members of Japan's HOR from SNTV-MMD to a mixed member majoritarian (MMM) system where approximately 60% of Members are elected in single member districts (SMDs) and 40% in a proportional representation (PR) tier.

Because we are interested in comparing the amount of post-election transfers received by different municipalities in the same district, we estimate a series of OLS regressions with fixed effects by district-year. This specification allows us to exploit variation in post-election transfers within each district-year, which controls for district-level features that could influence transfers, such as district magnitude, number of municipalities, number of LDP winners, and the seniority or backgrounds of those winners. To account for any remaining differences among municipalities in the same district-year that could plausibly influence post-election transfers, we include the following municipality-level controls: population, per capita income, population density, the proportion of the population who is dependent and employed in agriculture, and the municipality's 'fiscal power' index.[16] We cluster standard errors on the municipality.[17]

In Model 1 of Table 1, we present an analysis of districts in which no municipalities are eligible for the snow subsidy (all-ineligible districts). The coefficient on Winning LDP Vote Share is positive and statistically significant, meaning that municipalities that return higher levels of electoral support for LDP winners tend to be rewarded with more transfers than municipalities providing less support. In Model 2 of Table 1, we focus on districts in which all municipalities receive the snow subsidy (all-eligible districts). We again find that there is a positive relationship between Winning LDP Vote Share and post-election transfers at the 95% level of statistical significance. Together, this confirms that in districts where municipalities do not vary with regard to access to the programmatic policy, the conventional understanding of how the clientelistic exchange works holds.

What happens when subsidy-eligible and -ineligible municipalities coexist in the same district? In Models 3 to 5 of Table 1, we analyze the pattern of clientelistic exchanges in these 'mixed districts'.[18] In Model 3, the coefficient on Winning LDP Vote Share does not reach the conventional level of statistical significance. Moreover, its effect size is smaller than those in Models 1 and 2. Therefore, there is no strong evidence that LDP incumbents tie the distribu-

[16]This index captures the proportion of the cost of services a municipality provides that it can finance with taxation, with higher scores indicating greater self-reliance. We note that these are the standard controls used in work on the political determinants of transfers in Japan (Hirano, 2006; Horiuchi and Saito, 2003).

[17]We do not employ municipality fixed effects because a municipality's eligibility for the snow subsidy is constant during our period of study.

[18]In HOR elections held between 1980 and 1993, there were 25 mixed districts (of a total of 131-129 districts). In HOR elections held between 1996 and 2005, there were between 32 and 34 mixed districts (of a total of 300 districts). Mixed districts exist in 14 of Japan's 47 prefectures: Miyagi, Fukushima, Tochigi, Gunma, Yamanashi, Nagano, Gifu, Shizuoka, Shiga, Kyoto, Hyogo, Shimane, Okayama, and Hiroshima. The Online Appendix's Section A presents descriptive statistics of the municipalities located in these mixed districts.

Table 1: The distribution of per capita transfers in the year after the nine HOR elections between 1980 and 2005 is tied to levels of electoral support for LDP incumbents in districts where no municipality is eligible for the snow subsidy (Model 1) and in districts where all municipalities are eligible for the snow subsidy (Model 2). In districts containing a mix of eligible and ineligible municipalities, however, post-election transfers are no longer tied to levels of electoral support (Model 3) and instead flow to subsidy-eligible municipalities (Models 4 and 5).

	Post-Election Per Capita Transfers (log)				
	(1)	(2)	(3)	(4)	(5)
District Type	All-Ineligible	All-Eligible	Mixed	Mixed	Mixed
Snow Subsidy				0.071*	0.071*
				(0.035)	(0.035)
Winning LDP Vote Share	0.253*	0.426*	0.140		0.137
	(0.094)	(0.148)	(0.122)		(0.123)
Population (log)	0.071*	0.060*	0.041	0.033	0.034
	(0.021)	(0.029)	(0.023)	(0.023)	(0.023)
Population Density (log)	−0.152*	−0.190*	−0.219*	−0.207*	−0.204*
	(0.022)	(0.019)	(0.019)	(0.020)	(0.020)
Income per capita (log)	−0.340*	0.069	−0.199	−0.203	−0.196
	(0.103)	(0.157)	(0.150)	(0.148)	(0.150)
Primary Industry Proportion (log)	−0.145*	−0.059	−0.080*	−0.079*	−0.079*
	(0.021)	(0.034)	(0.030)	(0.030)	(0.029)
Dependency Proportion	3.246*	2.900*	1.471*	1.513*	1.503*
	(0.474)	(0.537)	(0.472)	(0.471)	(0.470)
Fiscal Power	0.228*	0.408*	0.269*	0.266*	0.266*
	(0.075)	(0.134)	(0.102)	(0.101)	(0.101)
District-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
N	13,375	5,840	6,490	6,490	6,490
N of Districts	970	280	255	255	255
R^2	0.532	0.427	0.344	0.345	0.345

Note: *$p<0.05$. In Model 1, observations include municipalities in all-ineligible districts in the nine HOR elections between 1980 and 2005. In Model 2, observations include municipalities in all-eligible districts in the same nine elections. In Models 3-5, observations are municipalities in mixed districts in the same municipalities receive the snow subsidy and others do not. Standard errors are clustered on the municipality.

tion of transfers to levels of electoral support in mixed districts. When we include a dummy indicator of subsidy eligibility in Model 4, however, we find that the coefficient on Snow Subsidy is now positive and statistically significant. The estimated effect of Snow Subsidy in this model is 0.071, meaning that subsidy-eligible municipalities receive 7% greater post-election transfers than their subsidy-ineligible municipalities in the same district. This result remains identical when we control for Winning LDP Vote Share in Model 5. Even when subsidy-eligible and subsidy-ineligible municipalities return the same level of support for the LDP, LDP incumbents steer more transfers toward the former than the latter.

Table 1 shows that the clientelistic exchanges LDP incumbents cultivate with municipalities in their districts seems to change when some of those municipalities are eligible for a programmatic policy. However, estimates from these fixed effects regressions could suffer from omitted

variable bias because we cannot control for every factor that distinguishes subsidy-eligible from subsidy-ineligible municipalities in mixed districts. To extract a cleaner estimate of the causal effect of the snow subsidy, we can make use of the fact that the Snow Act creates a 'natural' border that separates the subsidy-eligible municipalities in Figure 1 from their subsidy-ineligible counterparts in the same district as-if exogenously. This enables us to implement a geographical regression discontinuity (GRD) design (Keele and Titiunik, 2015, 2016).

To do this, we take the 6,490 municipalities located in the universe of mixed districts and calculate the distance between the centroid of each municipality and its nearest location on the border.[19] Then, we set a very narrow bandwidth of distance to the border and restrict our observations to municipalities falling within this range. With this sub-sample of municipalities, we estimate the following local linear regression:

$$y_{mdt} = \alpha_{dt} + \tau S_{mdt} + f(D_{mdt} < 0) + f(D_{mdt} \geq 0) + \epsilon_{mdt} \tag{1}$$

where the unit of analysis is municipality m in district-year dt. The outcome is the logarithm of per capita transfers received by municipality m in district d in the year after the election. α_{dt} denotes fixed effects by district-year, which ensure that our comparison is always between subsidy-eligible and subsidy-ineligible municipalities in the same district-year. D_{md} is the running variable, a one-dimensional distance between the centroid of municipality m and its nearest point on the border (subsidy-eligible municipalities receive positive values and ineligible municipalities receive negative ones).[20] $f(\cdot)$ represents a polynomial function of distance to the border that is estimated separately for municipalities on both sides of it. S_{md} is a dummy indicating whether or not the municipality receives the snow subsidy, which is constant across municipalities over time. τ captures the local average treatment effect (LATE) of the snow subsidy at the threshold (border). Finally, observations are weighted by their distance to the border using triangular kernel weighting, and standard errors are clustered on municipality. We use a range of bandwidths between $\pm 4,000$ and $\pm 15,000$ to select our observations and report the LATE estimated with all of these bandwidths.[21]

[19] The Online Appendix's Section B plots the distribution of the distances of the universe of Japanese municipalities to this border and also the distribution of the distances of the 6,490 municipalities in mixed districts.

[20] As Keele and Titiunik (2015) point out, using a one-dimensional distance can be problematic because the municipalities being compared can be located close to the border yet relatively far from each other. Our use of district-year fixed effects avoids this concern: municipalities are only ever compared to other municipalities in the same district.

[21] An alternative approach is to use the mean squared error optimal bandwidth selector, which yields the bandwidth of $\pm 4,506.582$. We deem this too narrow, however, as it leaves us with a single observation in most district-years. Given that we want to compare subsidy-eligible and subsidy-ineligible municipalities in the same district, we must use

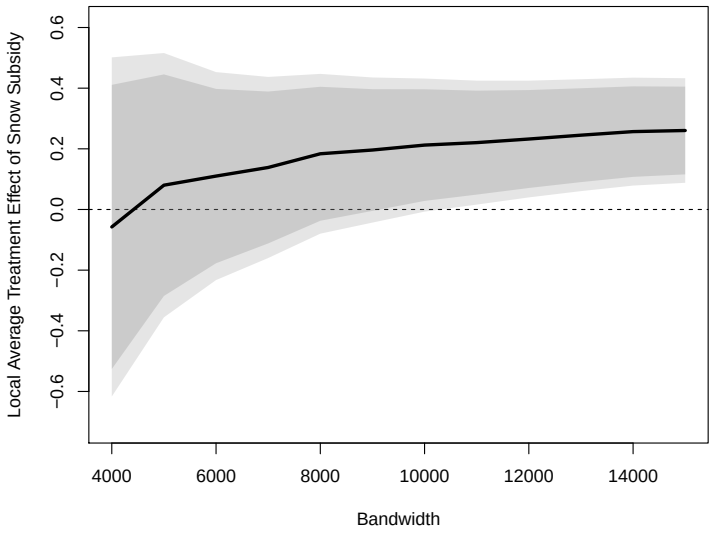
GRD designs produce valid causal inferences about the effects of a treatment (the snow subsidy) under three conditions: when the border is not associated with other discontinuities in municipality-level characteristics; when municipalities are unable to manipulate their treatment status; and when there is no compound treatment, which occurs when the border is synonymous with another boundary of relevance to the outcome of interest. First, Section C of the Online Appendix checks for discontinuities in nine municipality-level characteristics at the border, including income per capita and importantly, Winning LDP Vote Share. We find that the only characteristic in which a discontinuity appears is area size: subsidy eligible municipalities immediately proximate to the border are slightly larger than their ineligible counterparts. We run the analysis that follows with and without controlling for area size and find that our results are similar. Given the absence of discontinuities in the other eight characteristics, plenty of which are thought to also influence transfers, we can have confidence that systematic discontinuities in unobserved characteristics are unlikely.

Second, the objective criteria that governs a municipality's eligibility for the subsidy makes it unlikely there could be sorting at the border. Nevertheless, Section D of the Online Appendix reports the results of a McCrary (2008) sorting test, which confirms there is no evidence of self-sorting. Third, the border we study is a natural border, created by the fact that municipalities experiencing heavy snowfall are clumped together in a 'snowy zone', which enables us to identify the zone's border and calculate how far away other municipalities are from it. Because our treatment is assigned to whole municipalities, our border follows municipality lines but is not synonymous with the borders of a single municipality, nor any other administrative or political entity, including an electoral district. We are not aware of anything that could occur along this border that might signify a compound treatment. In sum, satisfying these three conditions enables us to attribute any difference in outcome between subsidy-eligible and subsidy-ineligible municipalities within this narrow geographic window to the effects of the subsidy.

In Figure 2, we depict the LATE of Snow Subsidy on the amount of per capita transfers received the year following these same nine HOR elections. On the x-axis, we vary the bandwidths of the local linear regressions from $\pm 4,000$ to $\pm 15,000$. The y-axis displays the coefficients on Snow Subsidy and their corresponding 90% and 95% confidence intervals. The number of obser-

slightly wider bandwidths. Note that the full range of distances to the border among municipalities in mixed districts is [−98,580, 54,663], so using a bandwidth of $\pm 15,000$ still represents a considerable narrowing of the sample.

Figure 2: Receiving a snow subsidy increases the amount of per capita transfers received by municipalities in mixed districts in the year after the nine HOR elections held between 1980 and 2005.



Note: This figure depicts the coefficient estimates on Snow Subsidy obtained from local linear regressions of subsidy eligibility on post-election transfers when the bandwidth is changed from $\pm 4,000$ to $\pm 15,000$. Shaded areas indicate 90%/95% confidence intervals.

vations changes from 1,467 at the most narrow bandwidth depicted, which equates to an average of 122 municipalities per election, to 4,543 at the widest bandwidth shown, which equates to an average of 379 municipalities per election. Even at the widest bandwidth, then, we are only including approximately 11% of the municipalities that existed in the elections until 2003, after which municipal mergers mean that we are including approximately 21%.

Figure 2 shows that when we use a very narrow bandwidth, the effect of Snow Subsidy is positive but not statistically different from 0. But when the bandwidth is very narrow, we do not have a sufficient number of observations on both sides of the border in each district-year, making it difficult to compare subsidy-eligible and -ineligible municipalities in the same district. Once we widen the bandwidth to include more observations (bandwidth $\geq 9,000$), while still preserving covariate balance, the effect of Snow Subsidy becomes positive and statistically significant. The estimated effect of Snow Subsidy is approximately 0.22, meaning that subsidy-eligible municipalities receive approximately 25% more per capita transfers after elections relative to their same-district, subsidy-ineligible counterparts. Therefore, the estimated effect of Snow Subsidy at the threshold is even larger than the estimated effect in the benchmark fixed effects regressions in Models 4 and 5 of Table 1.

Given the clean identification afforded by the GRD design, we can conclude that the positive relationship between snow subsidy eligibility and post-election transfers is likely to be causal. It is important to emphasize here that we observe subsidy-eligible municipalities receiving larger amounts of transfers even though there are no observable differences in per capita income, population density, dependent population, municipality fiscal power, and other characteristics. This means that our findings cannot easily be explained by the fact that voters in subsidy-eligible municipalities have a greater need for the subsidy. We return to this point below.

6 Subsidy Eligibility Makes Votes More Expensive

The above results reveal how the presence of a programmatic policy alters the patterns of clientelistic exchange. Next, we investigate which hypothesis is correct. Do subsidy-eligible municipalities receive more transfers because votes therein are cheaper or more expensive? As we explained above, we can distinguish the two by examining support for winning LDP candidates. In other words, we ask: is the relationship between subsidy eligibility and post-election transfers mediated by electoral support for the LDP? In Table 2, we estimate a regression model with Winning LDP Vote Share as the dependent variable and district-year fixed effects. The specification is otherwise the same as that presented in Model 4 of Table 1. The coefficient on Snow Subsidy is very small and not statistically discernible from 0 ($p = 0.64$). This means that there is no statistically significant difference in extent to which subsidy-eligible and subsidy-ineligible municipalities in the same district supported their winning LDP candidate. Further, the GRD results also revealed that Snow Subsidy had a null effect on Winning LDP Vote Share at the border of the zone separating subsidy-eligible municipalities from their ineligible counterparts (demonstrated in Section C of the Online Appendix). Together, this evidence seems to contradict the claim that the snow subsidy induces more favorable attitudes toward the LDP, which are reflected in higher LDP vote shares. LDP candidates are allocating more transfers to beneficiaries even though they are *not* seeing higher levels of electoral support.

To further investigate whether incumbents are distributing extra transfers to offset the fact that the snow subsidy provides beneficiaries with a greater 'exit option', we turn to the 'Nationwide Survey of Neighborhood Associations' (Pekkanen, Tsujinaka and Yamamoto, 2014; Tsujinaka, 2009). This large-scale survey, conducted in Japan between 2006 and 2007, aims to

Table 2: Snow subsidy -eligibility has no effect on the vote shares winning LDP candidates received in the nine HOR elections held between 1980 and 2005.

	Winning LDP Vote Share
Snow Subsidy	0.002
	(0.005)
Population (log)	−0.012*
	(0.003)
Population Density (log)	−0.018*
	(0.003)
Income per capita (log)	−0.052*
	(0.016)
Primary Industry Proportion (log)	0.005
	(0.004)
Dependency Proportion	0.075
	(0.058)
Fiscal Power	0.005
	(0.015)
District Fixed Effects	Yes
N	6,496
N of Districts	255
R^2	0.869

Note: *$p<0.05$. The model predicts the effect of snow subsidy eligibility on winning LDP vote share in municipalities in mixed districts in the nine HOR elections between 1980 and 2005. Standard errors are clustered on the municipality.

understand the function of Japan's neighborhood associations (henceforth, 'NHAs', or chōnaikai in Japanese). NHAs are informal, voluntary groupings that exist at the level of the neighborhood and play a key role in providing social services, mediating interactions between citizens, the bureaucracy, and politicians, and mobilizing voters during election campaigns (Pekkanen, 2009; Curtis, 1971). According to one study, nearly all Japanese adults reported being part of an NHA (Pekkanen, 2009, 30). Although the survey was conducted in a non-electoral context, some of the questions asked enable us to ascertain whether systematic differences in political attitudes exist among the voters in subsidy-eligible and ineligible municipalities in the same district. If the subsidy indeed provides beneficiaries with a greater exit option, then we expect this will be reflected in their responses. We can use the question: 'What type of activities does your NHA conduct?' One of the answers offered was 'Assisting [and recommending a particular candidate] in election campaigns'. NHA heads were presented with a binary 'Yes' or 'No' choice.[22]

[22]The surveys were filled out by NHA 'presidents' and 'officers'. These individuals are obviously different from ordinary Japanese voters. Their organizational role in the neighborhood means they are likely to be more politically engaged; they also tend to lean conservative. While caution is thus required when extrapolating from differences in views among NHA heads to differences in views among ordinary voters, we think it unlikely that any of the ways in which NHA heads differ from ordinary voters would be correlated with living in a subsidy-eligible municipality.

Table 3: NHAs in subsidy-eligible municipalities are less likely to report supporting a particular candidate during election campaigns than their counterparts in subsidy-ineligible municipalities in the same district.

	Supporting a Candidate During Electoral Campaigns
Snow Subsidy	−0.060*
	(0.034)
NHA Household (log)	−0.012
	(0.009)
Population Density (log)	0.027
	(0.024)
Income per capita (log)	0.040
	(0.196)
Primary Industry Proportion (log)	0.060*
	(0.030)
Dependency Proportion	0.601
	(0.647)
Fiscal Power	0.104
	(0.091)
Municipality Random Effects	Yes
District Fixed Effects	Yes
N	3,090
N of Districts	35

Note: *p<0.1. NHA = neighborhood association. Observations are NHA heads in mixed districts. The model is estimated with a linear probability model with random effects by municipality and fixed effects by district.

Of the 18,404 NHA heads who responded to the survey, approximately 3,000 were located in our 32 mixed districts, spanning 159 municipalities therein.[23] Of these, 53 were subsidy-eligible and 106 were subsidy-ineligible. With these observations, we estimated a multilevel linear probability model of campaign involvement on behalf of a particular candidate on subsidy eligibility. The unit of analysis is the NHA. As controls, we include the number of member households at the first (NHA) level and all the municipality-level controls used in the previous analysis at the second (municipality) level, with the exception of population, which is replaced by the finer-grained measure of household size at the NHA level. Because NHAs are nested in a municipality, we include random effects by municipality. Further, since we are interested in comparing attitudes in subsidy-eligible and subsidy-ineligible municipalities in the same district, we include fixed effects for the municipality's district.

The results appear in Table 3. The coefficient on Snow Subsidy has a negative sign, meaning that NHA heads in subsidy-eligible municipalities are *less* likely to report getting involved in

Because of the key role NHAs play in vote mobilization during election campaigns, it is possible the views of NHA heads might not be a poor reflection of the views of voters in their neighborhood.

[23]The survey targeted 33,438 NHAs in 890 municipalities, which represented half of the number of municipalities that existed at the time (Pekkanen, Tsujinaka and Yamamoto, 2014).

election campaigns on behalf of particular candidates than NHA heads in subsidy-ineligible municipalities in the same district. The coefficient estimate is at least marginally significant with $p = 0.079$. That voters in subsidy-eligible municipalities report being less likely to get involved and support a particular candidate is further evidence that they are less committed to their incumbent and thus, 'swingier'. This supports our claim that the subsidy has increased the cost of beneficiaries' votes (Hypothesis I), requiring LDP incumbents to pay more (Table 1). Because incumbents distribute just enough transfers to cover the difference in price, we do not observe any systematic differences in LDP vote shares between subsidy-eligible and -ineligible municipalities in the same district (Table 2). In other words, had LDP incumbents *not* delivered these extra transfers, their vote shares in subsidy-eligible municipalities would likely have been lower. On balance, then, our evidence is more consistent with Hypothesis I.

7 Alternative Explanations

How can we be sure that our interpretation of the results is the correct one? Are there other explanations, perhaps unrelated to vote-buying, that can better account for our findings? Before considering two below, we note that results from our GRD show that subsidy-eligible municipalities close to the border receive more post-election transfers than their neighboring subsidy-ineligible municipalities in the *absence* of differences in per capita income, fiscal strength, proportion of the population who are dependent, proportion of the population employed in agriculture, population, population density, or support for the LDP. This casts immediate doubt on several alternative explanations. Because voters in subsidy-eligible municipalities are not systematically *needier*, it is unlikely that LDP incumbents are transferring more money there to make up for the fact that the snow subsidy had not ironed out all economic differences. Because these voters are not systematically *richer* or *more urban*, on the other hand, it is unlikely that the price of their vote increased for another reason. Finally, because these municipalities do not have systematically *more people*, they are unlikely to have more local politicians. Saito (2010) shows that local politicians, the vast majority of whom are LDP-affiliated, are a critical resource for LDP incumbents during campaigns. The absence of differences in electoral support is also evidence against this alternative explanation. Below we describe and examine two that we feel could plausibly account for our results.

7.1 Differences on the Demand Side?

First, it is possible that subsidy-eligible municipalities in mixed districts receive more transfers without returning higher vote shares for LDP incumbents because of an advantage they have over their same-district subsidy-ineligible counterparts. As we mentioned above, NTD are transfers earmarked for specific projects. LDP incumbents do not allocate these funds directly; this is done by central government bureaucrats. LDP incumbents influence the allocation process by leaning on bureaucrats to prioritize certain projects over others (Saito, 2010). When funds are being allocated by bureaucrats, it is safe to presume that other factors, such as whether a proposal is well-researched, vital to the economic health of a municipality, supported among residents, and lobbied for effectively also matter. Subsidy-eligible municipalities may be better at coming up with the type of projects likely to receive funding, building a consensus around those projects, or lobbying the higher-ups. In support of this, one aim of the Snow Act is to 'promote cooperation among residents and volunteer activities'. It follows that the extra transfers received by subsidy-eligible municipalities may not reflect a strategic decision by LDP incumbents to pay the higher price of a beneficiaries' vote, but instead reflect demand-side differences.

On balance, we think this explanation is unlikely because it casts LDP incumbents in mixed districts as passive actors, content to sit by and allow the superior bargaining, organizational, or lobbying power of subsidy-eligible municipalities determine transfer allocations. This is difficult to square with our findings in Models 1 and 2 of Table 1, which show that in districts where all municipalities are either subsidy-eligible or subsidy-ineligible, LDP incumbents are able to tie their lobbying on behalf of municipalities and thus, the money provided, to vote shares in those municipalities. It is also at odds with prior work in Japanese politics that traces variation in the intensity of pork-barrelling activities among LDP candidates to variation in their electoral incentives, not variation in demand-side factors (e.g. Catalinac, 2015; Krauss, Pekkanen and Nyblade, 2006).

Nevertheless, we conduct two types of empirical analyses to help adjudicate between our explanation centered on vote-buying and an alternative explanation centered on demand-side factors. First, we identify the universe of LDP candidates who switched into a mixed district over the course of our period of study (1980-2006). Table 1 shows that LDP incumbents in mixed

districts concentrate transfers on subsidy-eligible municipalities, whereas in other districts, they tie transfers to levels of support in all municipalities. If our explanation is correct, it is reasonable to expect that switching into a mixed district will be associated with producing a campaign manifesto whose promises are concentrated on a smaller group of municipalities in a candidate's district. In Section E of the Online Appendix, we explain how we extracted references to place names from the manifestos of candidates who switched districts, matched these place names to municipalities in their district, and calculated a Herfindahl Index capturing the concentration of references for each candidate. We find that LDP-affiliated candidates who switched into (or out of) a mixed district changed their concentration of references in the expected direction. If LDP politicians in mixed districts were not the driving force behind the concentration of transfers on subsidy-eligible municipalities in mixed districts, we would be unlikely to observe their campaign promises also becoming more concentrated after switching into these districts.

Second, we turn again to the NHA survey and analyze responses to seven questions asking NHA heads about their relationship with local government. Four of these questions probe the *means* used by the NHA to ensure that its resident's interests are reflected in local government policies, while another ascertains the extent to which the NHA *monitors* the implementation of those policies. The seventh question asks the NHA head to estimate the degree of *influence* the NHA has over these policies. If subsidy-eligible municipalities are receiving more transfers than subsidy-ineligible municipalities because they are better organized, more skilled at lobbying, or possess greater access to government figures, then it is reasonable to expect that there would be observable differences in answers to these questions. In Section F of the Online Appendix, we use the same specification as in Table 3 to examine this. The results demonstrate that NHAs in subsidy-eligible and subsidy-ineligible municipalities in the same district are indistinguishable in terms of their answers to these questions. On balance, this evidence strengthens our claim that subsidy-eligible municipalities in mixed districts are not receiving more transfers because of any such advantages they possess over their subsidy-ineligible counterparts.

7.2 Transfers to Mitigate Negative Effects of the Snow Subsidy?

Second, it is possible that subsidy-eligible municipalities in mixed districts receive more transfers without returning higher vote shares for LDP incumbents because those transfers are designed to mitigate a *negative* effect of the snow subsidy. As we explained, what we call the 'snow sub-

sidy' is a programmatic transfer awarded to municipalities by the central government, whereas NTD is a discretionary transfer influenced by LDP incumbents. Ramseyer and Rasmusen (2018) found that another programmatic transfer, a subsidy to rectify decades of discrimination against Japan's burakumin minority, had the effect of attracting organized crime to recipient municipalities. On the other hand, Smith and Harada (2018) found that increases in the sum of another programmatic transfer (LAT, which was mentioned above) and the discretionary transfers we study (NTD) reduced crime. If the snow subsidy was having a deleterious effect on subsidy-eligible municipalities, then it is reasonable to expect that voters there would hold darker views of the government than their counterparts in subsidy-ineligible municipalities. To examine this, we turn to a question in the NHA survey, in which NHA heads are asked how much they *trust* various institutions, including the central government.[24] We estimated a multilevel linear probability model of trust toward the institutions in this question on subsidy eligibility using the same observations and specification used in Table 3.

The model specification is presented in Section G of the Online Appendix. The coefficients on 'central government' and 'national politicians' have positive, statistically significant signs, meaning that NHA heads in subsidy-eligible municipalities exhibit *greater* trust in these entities than their counterparts in subsidy-ineligible municipalities in the same district. Far from holding darker views of their government, these voters have, if anything, *more positive* views. The coefficients on the other entities serve as placebo tests. They show that this difference in trust does not extend to other institutions. NHA heads in subsidy-eligible municipalities do not exhibit systematically higher levels of trust than their counterparts in subsidy-ineligible municipalities. The fact that the difference emerges only when respondents are asked about the central government and national politicians, respectively, casts doubt on the possibility that the snow subsidy is having a deleterious effect on communities, requiring LDP incumbents to mitigate this with transfers.

[24]The question is "When announcing the NHA's requests and opinions, how much can you trust the following institutions?" A five-point scale was offered, in which "1" was "very trustworthy" and "5" was "not at all". The institutions named were the central government; national politicians; local government; municipal politicians; courts; police; media; and NGOs.

8 Conclusion

With a view to understanding how clientelism can be reduced or even dispelled, we sought to understand how programmatic policies impact clientelism. Specifically, we asked whether giving a programmatic policy to a subset of voters embedded in clientelistic exchanges with members of a ruling party has the effect of increasing or decreasing the price of their vote. As we explained, the literature furnishes good reasons for both. We studied this question in Japan, where the clientelistic exchanges between ruling party incumbents and voters can be characterized with data and where the ruling party occasionally enacts programmatic policies. Using a wealth of new data and cutting-edge statistical techniques, we found evidence that giving a programmatic policy to some voters but not others increases the price of beneficiaries' votes. Because incumbents in those settings already have access to goods that can be exchanged for votes, they will simply decide to direct even more resources at beneficiaries, with deleterious consequences for everyone else.

The finding that beneficiaries of a programmatic policy end up receiving more clientelistic goods than otherwise-similar non-beneficiaries has important implications for research on clientelism in comparative politics. We describe three here. One, when programmatic policies are found to have increased electoral support for the incumbent, scholars would do well to consider whether this was because incumbents had plied beneficiaries with more clientelistic goods to recoup an anticipated *decline* in support. Incumbents vary in both their access to such goods and their ability to target them precisely, which could help account for the varied findings in studies of the so-called 'programmatic incumbent support hypothesis' (Imai, King and Rivera, 2019). Most studies in this genre do not attempt to control for the volume of clientelistic goods being provided to beneficiaries. One exception is Magaloni (2006, 141), who found that municipalities in Mexico that received more *programmatic* federal transfers also received more *discretionary* federal transfers. This evidence is consistent with our claim that programmatic policies make voters 'swingier', which means incumbents have to pay higher prices for their votes.

Evidence we marshaled for the purpose of testing alternative explanations puts a second contribution of our study into stark relief: namely, subsidy-eligible municipalities *do* exhibit systematically more positive views of the central government and national politicians than their same-district subsidy-ineligible counterparts, even as they *do not* return systematically higher

vote shares for their LDP incumbent. If we had only examined survey evidence, as some studies have done (e.g. Layton and Smith, 2015; Manacorda, Miguel and Vigorito, 2011), we might have concluded that receiving a programmatic policy leads to more positive views of the incumbent. Because we also examined vote shares and transfers, we were able to see first that more positive views of the government do not always translate into more votes for members of the governing party, and second, that those receiving the programmatic policy we studied also received more transfers, which renders it difficult to determine whether their more-positive views of the government are being caused by the programmatic policy or by the extra transfers. Again, future work in this are should examine transfers.

Three, the fact that incumbents in clientelistic political systems introduce programmatic policies at all is puzzling (Stokes et al., 2013; Magaloni, Diaz-Cayeros and Estvez, 2007). When incumbents have the ability to tie the distribution of goods to electoral support, they will usually prefer to do so, rather than giving voters a good that they are unable to withdraw in the event voters went rogue. If programmatic policies decrease the exit costs of beneficiaries, raising the cost of their votes and forcing incumbents with beneficiaries in their districts to provide even more clientelistic goods, why would an incumbent ever decide to enact a programmatic policy? One answer might be in countries where members of the ruling party are in active competition with each other (Maeda, 2012). Within a given district, it is possible that all ruling party incumbents would favor spending less time securing clientelistic goods. However, incumbents who are more skilled at the core activities clientelism entails may favor the enactment of a programmatic policy on the grounds that it would give them an edge over their less-skilled co-partisan opponents. Similarly, ruling party politicians with designs on the prime ministership or larger policy goals may favor enacting a programmatic policy if it forced their rivals within the party to spend more time in their district. We suggest that future work consider the motivations of the 101 HOR Members who introduced the 1962 Snow Act with this in mind.

References

Ames, Barry. 1995. "Electoral Strategy under Open-List Proportional Representation." *American Journal of Political Science* 39(2):406–433.

Bechtel, Michael M. and Jens Hainmueller. 2011. "How Lasting Is Voter Gratitude? An Analysis of the Short- and Long-Term Electoral Returns to Beneficial Policy." *American Journal of Political Science* 55(4):852–868.

Blattman, Christopher, Mathilde Emeriau and Nathan Fiala. 2018. "Do Anti-Poverty Programs Sway Voters? Experimental Evidence from Uganda." *The Review of Economics and Statistics* 100(5):891–905.

Calvo, Ernesto and Maria Victoria Murillo. 2004. "Who Delivers? Partisan Clients in the Argentine Electoral Market." *American Journal of Political Science* 48(4):742–757.

Carey, John and Matthew Shugart. 1995. "Incentives to Cultivate a Personal Vote: A Rank Ordering of Electoral Formulas." *Electoral Studies* 14:417–39.

Catalinac, Amy. 2015. "From Pork to Policy: The Rise of Programmatic Campaigning in Japanese Elections." *Journal of Politics* 78(1):published online September 18.

Catalinac, Amy, Bruce Bueno de Mesquita and Alastair Smith. 2019. "Group Rewards and Rational Voting in Japan." *working paper* .

Christensen, Ray and Joel Sawat Selway. 2017. "Pork-Barrel Politics and Electoral Reform: Explaining the Curious Differences in the Experiences of Thailand and Japan." *The Journal of Asian Studies* 76(2):283310.

Conover, Emily, Roman A. Zarate, Adriana Camacho and Javier E. Baez. 2018. "Cash and Ballots: Conditional Transfers, Political Participation and Voting Behavior." *working paper* .

Correa, Diego Sanches and Jose Antonio Cheibub. 2016. "The Anti-Incumbent Effects of Conditional Cash Transfer Programs." *Latin American Politics and Society* 58(1):49–71.

Curtis, Gerald. 1971. *Election campaigning, Japanese style*. New York, NY: Columbia University Press.

Dewan, Torun and Arthur Spirling. 2011. "Strategic Opposition and Government Cohesion in Westminster Democracies." *American Political Science Review* 105(2):337358.

Diaz-Cayeros, Alberto, Federico Estevez and Beatriz Magaloni. 2009. Welfare Benefits, Canvassing, and Campaign Handouts. In *Consolidating Mexico's Democracy*, ed. Jorge I. Dominguez, Chappel Lawson and Alejandro Moreno. Baltimore: Johns Hopkins Press.

Dionne, Kim Yi and Jeremy Horowitz. 2016. "The Political Effects of Agricultural Subsidies in Africa: Evidence from Malawi." *World Development* 87:215 – 226.

Finan, Federico and Laura Schechter. 2012. "Vote Buying and Reciprocity." *Econometrica* 80(2):863–881.

Fukui, Haruhiro and Shigeko N. Fukai. 1996. "Pork Barrel Politics, Networks, and Local Economic Development in Contemporary Japan." *Asian Survey* 36(3):268–286.

Gans-Morse, Jordan, Sebastin Mazzuca and Simeon Nichter. 2014. "Varieties of Clientelism: Machine Politics during Elections." *American Journal of Political Science* 58(2):415–432.

Golden, Miriam and Brian Min. 2013. "Distributive Politics Around the World." *Annual Review of Political Science* 16(1):73–99.

Golden, Miriam and Lucio Picci. 2008. "Pork-Barrel Politics in Postwar Italy, 1953-94." *American Journal of Political Science* 52(2):268–289.

Hagopian, Frances, Carlos Gervasoni and Juan Andres Moraes. 2009. "From Patronage to Program: The Emergence of Party-Oriented Legislators in Brazil." *Comparative Political Studies* 42(3):360–391.

Hicken, Allen. 2011. "Clientelism." *Annual Review of Political Science* 14(1):289–310.

Hicken, Allen D. 2007. How Do Rules and Institutions Encourage Vote Buying? In *Elections for Sale: The Causes and Consequences of Vote Buying*, ed. Frederic C. Schaffer. Boulder, CO: Lynne Rienner chapter 5, pp. 27–57.

Hirano, Shigeo. 2006. "Electoral Institutions, Hometowns, and Favored Minorities: Evidence from Japanese Electoral Reforms." *World Politics* 59(1):51–82.

Holland, Alisha C. 2017. *Forbearance as Redistribution: The Politics of Informal Welfare in Latin America*. New York, NY: Cambridge University Press.

Horiuchi, Yusaku and Jun Saito. 2003. "Reapportionment and Redistribution: Consequences of Electoral Reform in Japan." *American Journal of Political Science* 47(4):669–682.

Horiuchi, Yusaku, Jun Saito and Kyohei Yamada. 2015. "Removing Boundaries, Losing Connections: Electoral Consequences of Local Government Reform in Japan." *Journal of East Asian Studies* 15(1):99125.

Imai, Kosuke, Gary King and Carlos Velasco Rivera. 2019. "Do Nonpartisan Programmatic Policies Have Partisan Electoral Effects? Evidence from Two Large Scale Experiments." *Journal of Politics* 81(2).

Keele, Luke J and Rocío Titiunik. 2015. "Geographic Boundaries as Regression Discontinuities." *Political Analysis* 23(1):127–155.

Keele, Luke and Rocío Titiunik. 2016. "Natural Experiments Based on Geography." *Political Science Research and Methods* 4(1):65–95.

Kitschelt, Herbert and Steven Wilkinson, eds. 2007. *Patrons, Clients, and Policies*. New York: Cambridge University Press.

Krauss, Ellis S. and Robert J. Pekkanen. 2010. *The Rise and Fall of Japan's LDP. Political Party Organizations as Historical Institutions.* Ithaca, New York: Cornell University Press.

Krauss, Ellis S., Robert Pekkanen and Benjamin Nyblade. 2006. "Electoral Incentives in Mixed-Member Systems: Party, Posts, and Zombie Politicians in Japan." *American Political Science Review* 100(2):183–193.

Kuo, Didi. 2018. *Clientelism, Capitalism, and Democracy: The Rise of Programmatic Politics in the United States and Britain*. Cambridge University Press.

Labonne, Julien. 2012. The local electoral impacts of conditional cash transfers: Evidence from a field experiment. CSAE Working Paper Series 2012-09 Centre for the Study of African Economies, University of Oxford.

Larreguy, Horacio, John Marshall and Laura Trucco. 2015. "Breaking clientelism or rewarding incumbents? Evidence from an urban titling program in Mexico." *working paper* .

Larreguy, Horacio, John Marshall and Pablo Querubin. 2016. "Parties, Brokers, and Voter Mobilization: How Turnout Buying Depends Upon the Partys Capacity to Monitor Brokers." *American Political Science Review* 110(1):160179.

Layton, Matthew L. and Amy Erica Smith. 2015. "Incorporating Marginal Citizens and Voters: The Conditional Electoral Effects of Targeted Social Assistance in Latin America." *Comparative Political Studies* 48(7):854–881.

Linos, Elizabeth. 2013. "Do Conditional Cash Transfers Shift Votes? Evidence from the Honduran PRAF." *Electoral Studies* 32(4):864–874.

Maeda, Ko. 2012. "An Irrational Party of Rational Members: The Collision of Legislators Reelection Quest With Party Success in the Japan Socialist Party." *Comparative Political Studies* 45(3):341–365.

Magaloni, Beatriz. 2006. *Voting for Autocracy: Hegemonic Party Survival and its Demise in Mexico*. Cambridge University Press.

Magaloni, Beatriz, Alberto Diaz-Cayeros and Federico Estvez. 2007. Clientelism and portfolio diversification: a model of electoral investment with applications to Mexico. In *Patrons, Clients and Policies: Patterns of Democratic Accountability and Political Competition*, ed. Herbert Kitschelt and Steven I.Editors Wilkinson. Cambridge University Press p. 182205.

Manacorda, Marco, Edward Miguel and Andrea Vigorito. 2011. "Government Transfers and Political Support." *American Economic Journal: Applied Economics* 3(3):1–28.

McCrary, Justin. 2008. "Manipulation of the Running Variable in the Regression Discontinuity Design: A Density Test." *Journal of Econometrics* 142(2):698–714.

McMichael, Taylor C. 2017. "When Formulas Go Political: The Curious Case of Japan's Financial Index." *Japanese Journal of Political Science* 18(3):407425.

Mizusaki, Tokifumi. 2014. *Sosenkyo Deta Besu. JED-M Deta*. Tokyo, Japan: LDB.

Nichter, Simeon. 2008. "Vote buying or turnout buying? Machine politics and the secret ballot." *American Political Science Review* 102(1):19–31.

Nichter, Simeon. 2018. *Votes for Survival: Relational Clientelism in Latin America*. Cambridge Studies in Comparative Politics Cambridge University Press.

Noble, Gregory W. 2010. "The Decline of Particularism in Japanese Politics." *Journal of East Asian Studies* 10:239–273.

Pekkanen, Robert J. 2009. Japan's neighborhood associations. Membership without advocacy. In *Local Organizations and Urban Governance in East and Southeast Asia*, ed. Benjamin L. Read and Robert Pekkanen. London: Routledge chapter 2, pp. 27–57.

Pekkanen, Robert J, Yutaka Tsujinaka and Hidehiro Yamamoto. 2014. *Neighborhood Associations and Local Governance in Japan*. New York: Routledge.

Pempel, T. J. 2010. "Between Pork and Productivity: The Collapse of the Liberal Democratic Party." *Journal of Japanese Studies* 36(2):227–254.

Pop-Eleches, Cristian and Grigore Pop-Eleches. 2012. "Targeted Government Spending and Political Preferences." *Quarterly Journal of Political Science* 7(3):285–320.

Ramseyer, J. Mark and Eric B. Rasmusen. 2018. "Outcaste Politics and Organized Crime in Japan: The Effect of Terminating Ethnic Subsidies." *Journal of Empirical Legal Studies* 15(1):192–238.

Ramseyer, Mark and Frances Rosenbluth. 1993. *Japan's Political Marketplace*. Cambridge: Harvard University Press.

Rizzo, Tesalia. 2019. "When Clients Exit: Breaking the Clientelist Feedback Loop." *Working Paper* pp. 1–58.

Saito, Jun. 2010. *Jiminto Choki Seiken no Seiji Keizaigaku*. Tokyo, Japan: Keiso Shobo.

Scheiner, Ethan. 2006. *Democracy Without Competition in Japan. Opposition Failure in a One-party Dominant State*. New York, NY: Cambridge University Press.

Schlesinger, Jacob M. 1997. *Shadow Shoguns. The Rise and Fall of Japan's Postwar Political Machine*. Stanford, CA.: Stanford University Press.

Smith, Alastair, Bruce Bueno de Mesquita and Tom LaGatta. 2017. "Group Incentives and Rational Voting." *Journal of Theoretical Politics* 29(2):299–326.

Smith, Daniel M. and Masataka Harada. 2018. "Distributive Politics and Crime." *Working Paper* .

Sone, Yasunori and Masao Kanazashi. 1989. *Nihon no Seiji. Bijuaru Seminaru*. Tokyo: Nihon Keizai Shimbunsha.

Stokes, Susan C. 2005. "Perverse Accountability: A Formal Model of Machine Politics with Evidence from Argentina." *American Political Science Review* 99(3):315–325.

Stokes, Susan C. 2007. Is Vote Buying Undemocratic? In *Elections for Sale: The Causes and Consequences of Vote Buying*, ed. Frederic Charles Schaffer. Boulder, CO: Lynne Rienner chapter 6, pp. 117–45.

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

Tamada, Keiko. 2009. "The Effect of Election Outcomes on the Allocation of Government Spending in Japan." *Japanese Economy* 36(1):3–26.

Tobias, Julia E., Sudarno Sumarto and Habib Moody. 2014. "Assessing the Political Impacts of a Conditional Cash Transfer: Evidence from a Randomized Policy Experiment in Indonesia." *The SMERU Research Institute* .

Tsujinaka, Yutaka. 2009. *Nationwide Survey of Neighborhood Associations in Japan*. Tokyo, Japan: Bokutakusha.

Yamada, Kyohei. 2016. "From a Majority to a Minority: How Municipal Mergers in Japan Changed the Distribution of Political Powers and the Allocation of Public Services Within a Merged Municipality." *Urban Affairs Review* pp. 1–33.

Zucco, Cesar. 2013. "When Payouts Pay Off: Conditional Cash Transfers and Voting Behavior in Brazil 200210." *American Journal of Political Science* 57(4):810–822.

Online Appendix: How Programmatic Policies Impact Clientelism: Evidence from Snow Subsidies in Japan

A Descriptive Statistics

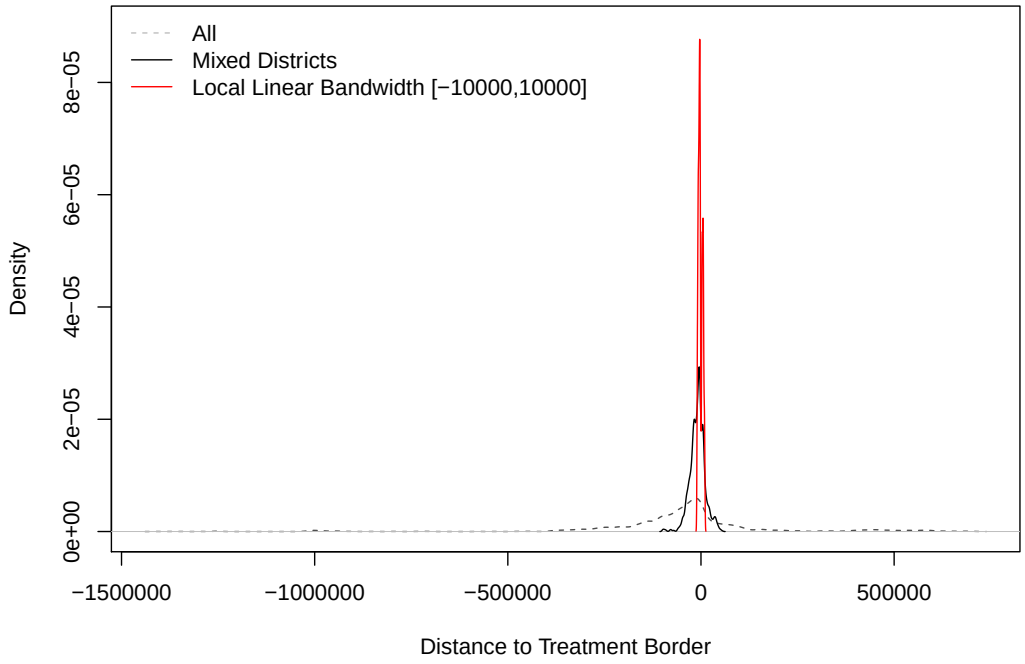
Table A.1: Descriptive Statistics of Municipalities in Mixed Districts

	N	Mean	SD	Min	Max
Post-Election Transfers (log)	6,631	−3.719	0.690	−5.814	0.021
Snow Subsidy	7,145	0.287	0.452	0	1
Winning LDP Vote Share	7,097	0.337	0.220	0.000	0.909
Population (log)	6,947	9.262	1.154	6.047	13.638
Population Density (log)	6,947	4.931	1.331	0.265	9.069
Income per capita (log)	6,869	−0.168	0.355	−1.538	0.602
Primary Industry Proportion (log)	6,604	−2.620	0.866	−6.650	−0.798
Dependency Proportion	6,604	0.367	0.040	0.182	0.585
Fiscal Power	6,869	0.391	0.230	0.000	1.990
Area Size (log)	7,145	4.321	0.915	0.962	7.688
Altitude (log)	7,126	5.327	1.447	−0.916	7.569

These descriptive statistics pertain to municipalities in 'mixed districts', where municipalities that receive the subsidy co-exist with municipalities that do not. In HOR elections held between 1980 to 1993, there were 25 mixed districts. In HOR elections held between 1996 to 2005, there were between 32 and 34 mixed districts. When we turn to a GRD design with district-year fixed effects, we limit the sample further to municipalities in these mixed districts that are located very close to the natural border that separates the municipalities receiving the subsidy from those that do not.

B The Distribution of Observations by Distance to the Snow Subsidy Border

Figure B.1: Distribution of all Japanese Municipalities by their Distance to the Subsidy Border



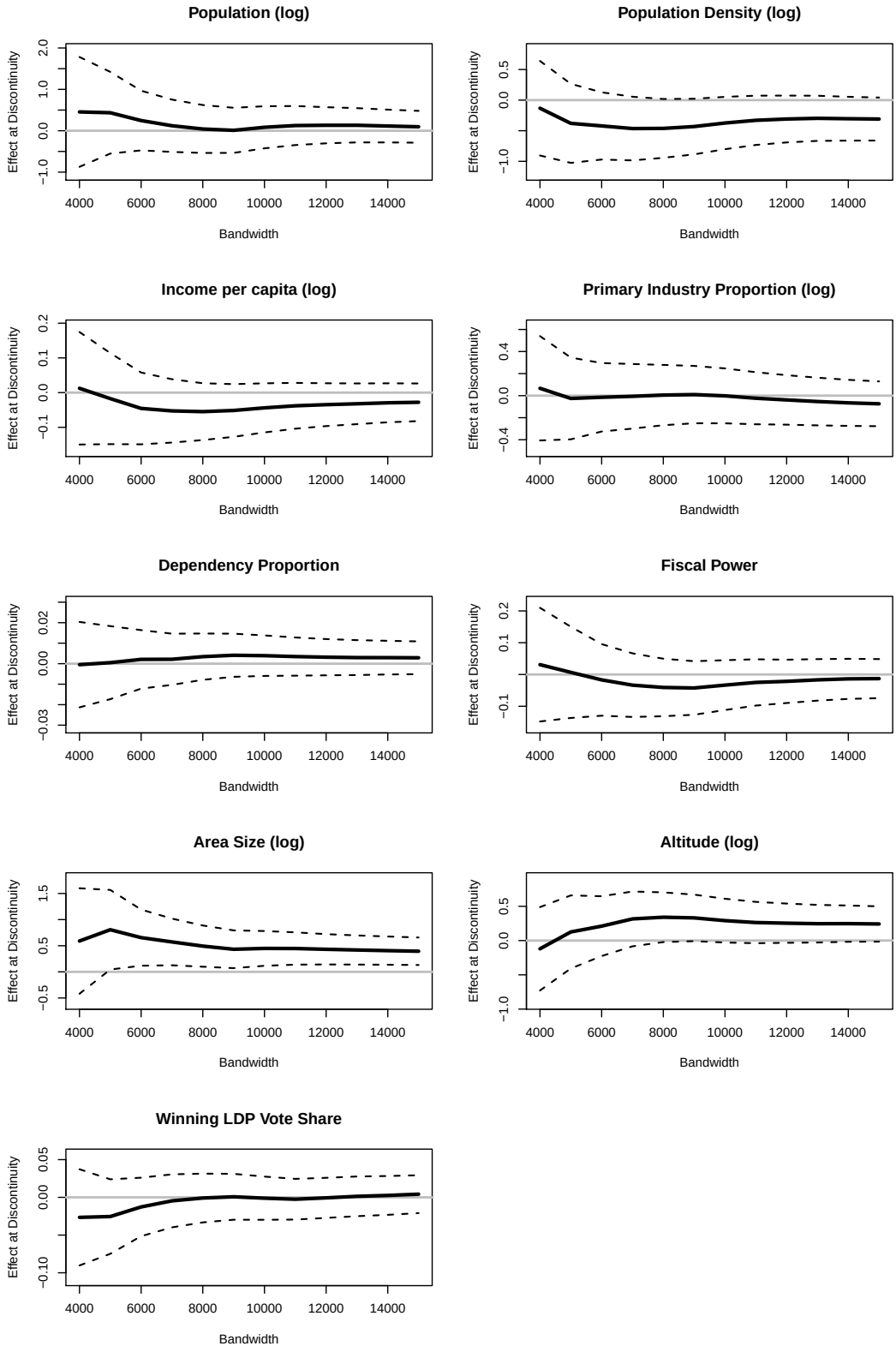
First, the gray dotted line plots the distribution of distances to the natural border separating subsidy eligible municipalities (those receiving the subsidy) from ineligible municipalities (those not receiving the subsidy) for the universe of Japanese municipalities in existence between 1980 and 2005. Negative values on the x-axis indicate municipalities that are ineligible for the snow subsidy, whereas positive values indicate eligible municipalities. Second, the black line plots the distribution of these distances for the municipalities in mixed districts, which are included in Table 1. This distribution ranges from −98,580 to 54,663. Third, the red line plots the distribution of these distances for the municipalities that fall within the [−10,000, 10,000] bandwidth, from which we draw our causal inferences of the effects of the snow subsidy (see Figure 2).

C Covariate Balance Between Subsidy-Eligible and Subsidy-Ineligible Municipalities

To examine whether there are any discontinuities in covariate characteristics at the border, we estimated the same local linear regression with triangular kernel weights described in Equation 1 with each of these characteristics as the dependent variable. Population, population density, income per capita, proportion of the population who are dependent or employed in agriculture, and fiscal strength are all variables known or expected to influence the amount of central government transfers received by a municipality. We also include Winning LDP Vote Share, which Table 1 shows also influences transfers. Other variables, such as area size and the altitude of the municipality's centroid, are geographical features of a municipality that may also influence transfers. We use the same range of bandwidths that were used in the main paper's Figure 2. In all specifications, we also include district-year fixed effects.

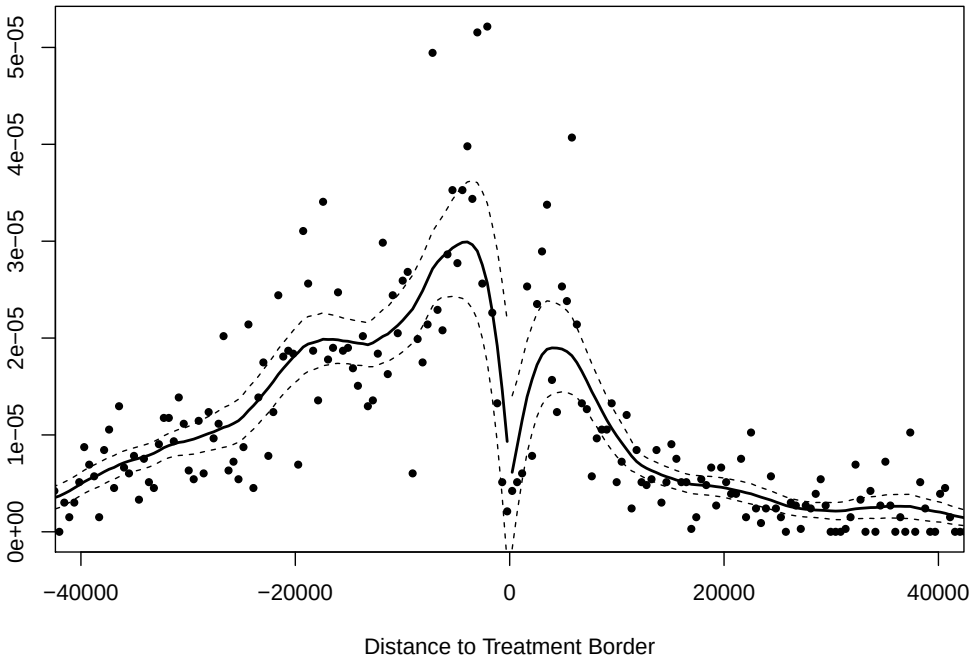
Figure C.1 summarizes the results for each covariate. The y-axis displays the coefficients on Snow Subsidy and their corresponding 95% confidence intervals. If the confidence intervals include 0, there is no evidence for a discontinuity (sudden change) in characteristics of municipalities just above and below the cutoff (border separating beneficiaries from non-beneficiaries). These figures reveal that the snow subsidy does not have a significant effect on any covariate except for area size (left panel in the fourth row). Importantly, there is no discontinuity in income per capita, fiscal strength index, and winning LDP vote share. Together, this rules out two alternative explanations for the positive, significant effect of the snow subsidy on post-election transfers. One is that subsidy eligible municipalities receive more transfers because they are poorer; thus, cheaper to buy votes in. Our results show that they are not poorer. The other is that subsidy eligible municipalities receive more transfers because they have higher levels of electoral support for the LDP. Our results show that they do not exhibit higher levels of support for the LDP. In sum, Figure C.1 suggests that we can safely assume an absence of systematic differences between subsidy eligible and ineligible municipalities close to the border on other dimensions.

Figure C.1: Checking for Discontinuities in Covariate Characteristics Across Subsidy Eligible and Ineligible Municipalities Located Close to the Border



D Self-Sorting

Figure D.1: Results of a McCrary Sorting Test



The results of the McCrary (2008) sorting test in Figure D.1, above, indicate that there is little evidence of self-sorting. This is unsurprising given than our treatment is determined by the amount of snowfall, which is plausibly exogenous.

E Does the Snow Subsidy Change LDP Candidates' Campaign Strategies?

To examine whether the presence of both subsidy eligible and ineligible groups in the same district alters the behavior of LDP politicians, we undertake an original analysis of the Japanese-language election manifestos produced by LDP-affiliated politicians who switched districts between 1980 and 2005. This exercise is important to ensure that LDP politicians, rather than voters in subsidy eligible municipalities, drive our main findings. If subsidy eligible municipalities receive more post-election transfers because votes there are more expensive, we expect that LDP incumbents in mixed districts will be producing manifestos that reference places in the district's eligible municipalities more than places in the district's ineligible municipalities. If, on the other hand, LDP incumbents are blank slates, being influenced after the election by eligible municipalities boasting better projects or superior lobbying skills, we would be unlikely to observe differences in how LDP politicians campaign based on the type of district they are in.

To implement this, we obtain a list of more than 700,000 place names in Japan.[1] Published in 2016, this list includes their precise geographic locations, including which municipality each place is located in. We then extract all references to place names in the manifestos produced by politicians who were either formally or informally affiliated with the LDP who switched between a non-mixed district (either all-eligible or all-ineligible district) to a mixed district between 1980 and 2005. The vast majority of these switches occurred due to redistricting after the 1994 electoral reform, meaning that they can be considered largely exogenous to vote-buying. This yields 52 candidate-election observations of 16 LDP-affiliated politicians who switched districts and whose manifesto referenced places located in their district. For each of these observations, we create a vector of length equal to the number of municipalities in the politician's district. If a politician's district contained three municipalities, for example, the vector would be of length 3. Then, for every place name mentioned in the politician's manifesto, we check whether it was located in one of the municipalities in her district. Using this information, we filled in the vector such that if the manifesto referenced four places (which could be a train station, school, park, or neighborhood) in municipality i, which is located in her district, item i in the politician's

[1] This can be found here: https://www.gsi.go.jp/MAP/CD-ROM/25000/t25000.html.

Table E.1: District Type and the Concentration of Municipality Names in Manifestos

	Mention Concentration
Mixed District	0.429*
	(0.235)
Population (log)	−0.323
	(0.240)
Population Density (log)	−0.020
	(0.194)
Income per capita (log)	0.657
	(3.164)
Primary Industry Proportion (log)	0.520*
	(0.184)
Dependency Proportion	1.275
	(1.962)
Fiscal Power	2.050
	(1.501)
District Magnitude	−0.219
	(0.178)
Candidate Fixed Effects	Yes
Year Fixed Effects	Yes
N	52
R^2	0.713

Note: *p<0.10. Standard errors clustered at the district level.

vector would be filled with the number 4, and so on. We then calculate the Herfindahl Index of each of our 52 vectors. This is a score, ranging from 0 to 1, that depicts the degree to which a manifesto's distribution of references is *concentrated* on places in a single municipality (receiving a score of 1), or spread out evenly across municipalities (receiving a score of 0).

Using this index, we conduct a generalized difference-in-differences regression of the degree to which a manifesto produced by the LDP politician who switched districts between 1980 and 2005 was concentrated on some of the municipalities in the politician's district (the dependent variable). Our variable of interest is a dummy indicator of whether or not the candidate was running in a mixed district (coded '1') or a non-mixed district (coded '0'). We include fixed effects for both candidate and election year, as well as the time-varying controls used in Table 1 but aggregated to the level of the district. We also cluster standard errors at the district level.

The results are summarized in Table E.1. The coefficient on Mixed District is positive and discernible from 0 at the 90% level of statistical significance. This is evidence that switching into a mixed district is associated with producing a manifesto whose distribution of references to places is concentrated on a small number of municipalities as opposed to spreads out evenly across all municipalities. One way to interpret this pattern is that when they switch to a mixed

district, LDP candidates start to talk about subsidy eligible municipalities in their manifestos more than about ineligible municipalities, which can be seen as their attempt to prevent the electoral defection of subsidy beneficiaries.

Unfortunately, these findings need to be interpreted with caution because our master list of place names corresponds to their geographic locations in 2016 and the municipal mergers that occurred between 2001 and 2005 mean that around half of the municipalities in existence before 2001 do not exist after 2005. While this test would be more reliable with data that was less noisy, it does provide some indirect support our claim that it is the LDP incumbents in mixed districts who are responsible for steering resources toward subsidy eligible municipalities, not voters in these municipalities.

F Does the Snow Subsidy Influence NHAs' Relationship with the Local Government?

A potential alternative explanation for the positive association between the snow subsidy and post-election transfers may be that the snow subsidy increases the organizational and bargaining power of voters in program eligible municipalities. This may give them more voice in local government, which may benefit them in the process of negotiating the amount of transfers with LDP politicians. In this section, we again utilize the NHA data (Tsujinaka, 2009) to show that this alternative explanation is unlikely to be driving our results. To measure the organizational and bargaining power of voters in program eligible municipalities, we rely on the following seven questions in the NHA survey (response items are reordered so that higher values indicate a greater influence on the local government):

1. Does your NHA monitor the local government's policy implementation? Monitoring refers to regular examination and observation of policies (Q26).
    - Always, regardless of relevance
    - Only when the policy is relevant to our NHA
    - Never
2. How often does your NHA use the following methods to reflect the NHA's interests and opinions in policies? Consult the corresponding section in local government (Q27A).
    - Often
    - Regularly
    - Sometimes
    - Seldom
    - Never
3. How often does your NHA use the following methods to reflect the NHA's interests and opinions in policies? Consult senior officials in local government (Q27B).
    - Often
    - Regularly
    - Sometimes

- Seldom
- Never

4. How often does your NHA use the following methods to reflect the NHA's interests and opinions in policies? Consult local politicians (Q27C).
    - Often
    - Regularly
    - Sometimes
    - Seldom
    - Never
5. How often does your NHA use the following methods to reflect the NHA's interests and opinions in policies? Attend local government-sponsored round-table conferences (Q27F).
    - Often
    - Regularly
    - Sometimes
    - Seldom
    - Never
6. How often does your NHA use the following methods to reflect the NHA's interests and opinions in policies? Lobby the local assembly (Q27G).
    - Often
    - Regularly
    - Sometimes
    - Seldom
    - Never
7. How much do you think NHAs influence local government's decision making? (Q30).
    - Influential
    - Some influence
    - Moderate
    - Not very much

- Not at all

Using these questions, we estimate a multilevel linear model with random effects by municipality and fixed effects by districts. This specification is the same as the one we use in Table 3 in the main text.

The results are summarized in Table F.1. We find that the coefficient on Snow Subsidy is statistically indistinguishable from 0 in all of the models. There is no difference in monitoring capacity between NHAs in program eligible and ineligible municipalities. They are also not discernible from each other in terms of the extent to which they reach out to various local government agents. Further, there is no association between subsidy eligibility and perceived influence over the local government. Therefore, there is no strong reason to believe that the snow subsidy changes the bargaining power of voters in program eligible municipalities or the relationship between them and the local government. Together with the results in Section E above, there is insufficient evidence to believe that something about voters in subsidy eligible municipalities explains our main findings.

Table F.1: Does the snow subsidy change the relationship between NHAs and the local governments

	(1) Monitor Local Government	(2) Consult Local Government	(3) Consult Senior Officials	(4) Consult Local Politicians	(5) Attend Government Meetings	(6) Lobby Local Assembly	(7) Influence on Local Government
Snow Subsidy	−0.002	0.025	−0.070	−0.048	0.089	−0.132	−0.007
	(0.043)	(0.082)	(0.096)	(0.084)	(0.080)	(0.089)	(0.085)
NHA Household (log)	0.028*	0.156*	0.130*	0.062*	0.033	−0.007	0.120*
	(0.014)	(0.017)	(0.020)	(0.020)	(0.019)	(0.020)	(0.022)
Population Density (log)	−0.059	−0.073	−0.072	−0.047	0.054	−0.133*	−0.102
	(0.033)	(0.056)	(0.066)	(0.060)	(0.056)	(0.062)	(0.061)
Income per capita (log)	0.161	−0.329	−1.074*	−0.508	−0.762	−0.183	−0.021
	(0.265)	(0.456)	(0.538)	(0.486)	(0.457)	(0.506)	(0.491)
Primary Industry Proportion (log)	0.007	0.164*	0.078	0.005	0.069	0.030	0.063
	(0.041)	(0.071)	(0.083)	(0.075)	(0.071)	(0.078)	(0.076)
Dependency Proportion	−0.692	−1.553	−2.119	−0.437	−1.977	0.280	−2.817
	(0.903)	(1.481)	(1.768)	(1.603)	(1.516)	(1.671)	(1.638)
Fiscal Power	−0.175	0.076	0.171	0.087	−0.244	0.219	−0.360
	(0.129)	(0.209)	(0.260)	(0.237)	(0.225)	(0.248)	(0.230)
Municipality Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,921	2,952	2,746	2,810	2,780	2,723	2,992
N of Districts	35	35	35	35	35	35	35

Note: *$p<0.05$. NHA = neighborhood association. Observations include neighborhood associations in mixed districts. The model is estimated with a multilevel linear model with random effects by municipality and fixed effects by district.

G The Relationship between Subsidy Eligibility and Trust in Various Institutions

We use the following question in the Nationwide Survey of Neighborhood Associations in Japan (Tsujinaka, 2009):

Q43. When announcing the NHA's requests and opinions, how much can you trust the following institutions (A-H)?

A. Local Government

B. Local (Municipal) Politicians

C. National Government

D. Political Parties and National Politicians

E. Courts

F. Police

G. Mass Media

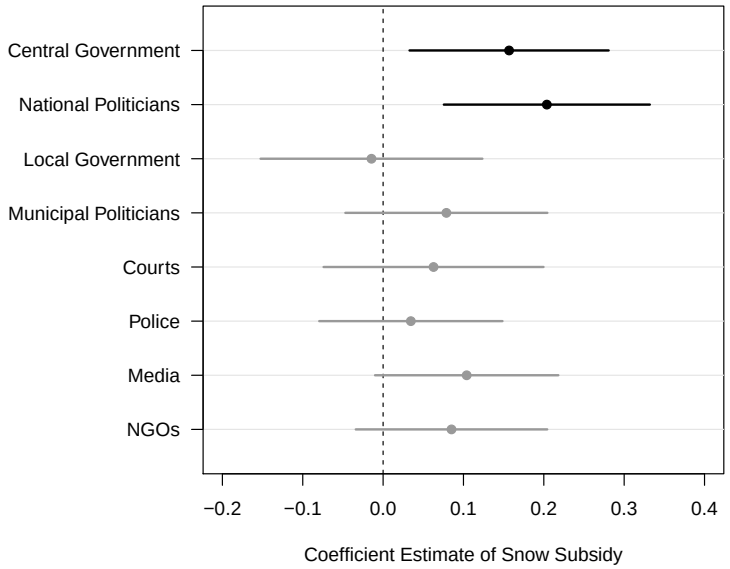
H. Civic Groups such as NGOs

Respondents ('presidents' or 'officers' of the NHA) were provided with the following five-point scale, upon which to select an answer:

1. Very Trustworthy
2. Trustworthy
3. Average
4. Not Very Trustworthy
5. Not at All

We reversed the order of the items so that higher values indicate greater trust in the institutions. The distribution of answers by institution is summarized in Figure G.2. The first and second rows of Figure G.1 reveal the estimated effect of subsidy eligibility on the level of trust in the 'central government' and 'national politicians', respectively. The third to eighth rows of Figure G.1 are placebo tests. Table G.1 presents the full specification of the multilevel model reported in Figure G.1. All models include NHA- and municipality-level controls (in 2007), random effects by municipality, and fixed effects by district.

Figure G.1: Neighborhood associations in treated municipalities show higher levels of trust in the central government and in national politicians than those in control municipalities.



Note: The figure displays the effects of the treatment (snow subsidy) on levels of trust toward various institutions in Japan, as reported in surveys by the heads of neighborhood associations. Positive values indicate higher trust. Horizontal lines are 95% confidence intervals. The full model specification is presented in Section G of the Online Appendix.

Figure G.2: The Distribution of Responses by Institution

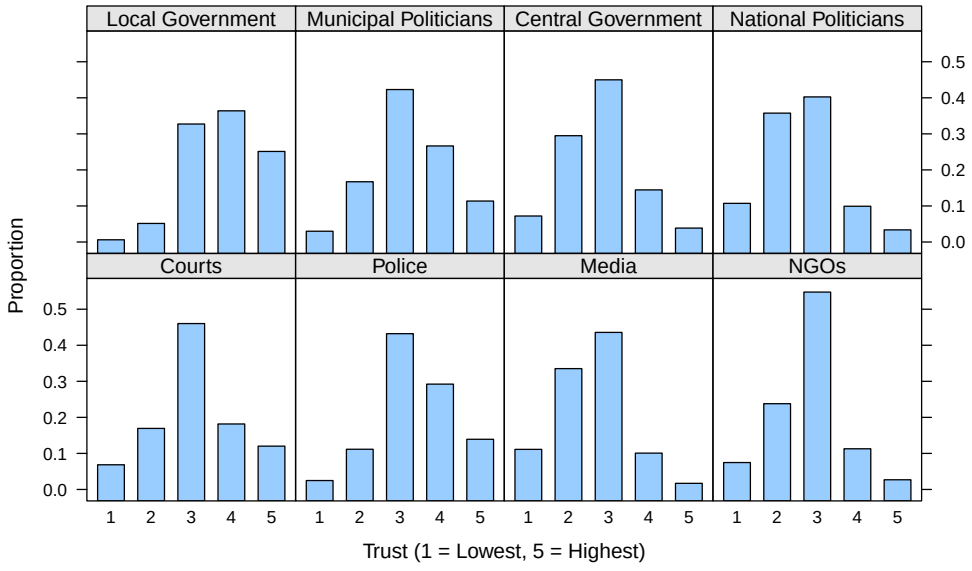


Table G.1: Levels of Institutional Trust among Treated (Beneficiaries of the Subsidy) and Control (Non-Beneficiaries of the Subsidy) Municipalities

	(1) Central Government	(2) National Politicians	(3) Local Government	(4) Municipal Politicians
Snow Subsidy	0.157*	0.204*	−0.014	0.079
	(0.063)	(0.065)	(0.070)	(0.064)
NHA Household (log)	0.045*	0.063*	0.070*	0.026
	(0.019)	(0.019)	(0.017)	(0.019)
Population Density (log)	0.050	0.061	0.082	0.077
	(0.048)	(0.049)	(0.050)	(0.048)
Income per capita (log)	0.658	0.626	0.534	0.994*
	(0.391)	(0.402)	(0.402)	(0.386)
Primary Industry Proportion (log)	0.091	0.046	0.140*	0.110
	(0.060)	(0.061)	(0.062)	(0.060)
Dependency Proportion	2.261	2.895*	2.945*	2.923*
	(1.303)	(1.339)	(1.318)	(1.296)
Fiscal Power	−0.162	−0.122	−0.077	−0.134
	(0.190)	(0.194)	(0.187)	(0.189)
Municipality Random Effects	Yes	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
N	2,692	2,655	2,997	2,921
N of Municipalities	159	159	159	159
N of Districts	35	35	35	35

	(5) Courts	(6) Police	(7) Media	(8) NGOs
Snow Subsidy	0.063	0.035	0.104	0.085
	(0.070)	(0.058)	(0.058)	(0.061)
NHA Household (log)	0.025	0.039*	0.069*	0.028
	(0.023)	(0.019)	(0.019)	(0.020)
Population Density (log)	0.073	−0.007	0.044	0.084
	(0.055)	(0.046)	(0.045)	(0.046)
Income per capita (log)	0.785	0.540	0.113	0.395
	(0.445)	(0.366)	(0.362)	(0.376)
Primary Industry Proportion (log)	0.091	0.027	0.015	0.105
	(0.068)	(0.057)	(0.056)	(0.058)
Dependency Proportion	2.579	1.893	0.446	1.060
	(1.493)	(1.238)	(1.226)	(1.262)
Fiscal Power	−0.338	−0.226	−0.218	−0.368*
	(0.222)	(0.184)	(0.185)	(0.187)
Municipality Random Effects	Yes	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
N	2,367	2,739	2,516	2,234
N of Municipalities	159	159	159	158
N of Districts	35	35	35	35

Note: *$p<0.05$. Observations are NHAs in mixed districts. NHA Household (# of households) is measured at the NHA-level. Snow Subsidy, Population Density, Income per capita, Primary Industry Proportion, Dependency Proportion, and Fiscal Power are measured at the municipality-level.