Online Appendix: How Incumbent Politicians Respond to the Enactment of a Programmatic Policy: Evidence from Snow Subsidies

A Additional Information About the Snow Act

- The Special Measures Act Concerning Countermeasures for Heavy Snowfall Areas (*Gosetsu Chitai Taisaku Tokubetsu Sochi Ho*) can be found at: https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=337AC1000000073.
- The criteria for eligibility for the snow subsidy is stipulated in two ordinances: Cabinet Ordinance on the Criteria for the Designation of Heavy Snowfall Area (https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=338CO0000000344) and Ministerial Ordinance on the Stipulation of Period and Facilities in Cabinet Ordinance on the Criteria for the Designation of Heavy Snowfall Area (https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=338M50000002047).
- According to these ordinances, a municipality is eligible for the snow subsidy if it is located in "heavy-snowfall area" in which the height of accumulated snow over the post thirty years exceeded 5,000 cm per year, and if it satisfies either of the following conditions:
  1. More than two-thirds of the municipality's area is in a "heavy-snowfall" area.
  2. More than one-half of the municipality's area is in a "heavy-snowfall" area, and it is in a prefecture whose capital is in a "heavy-snowfall" area.
  3. Either the municipal government office (e.g., city hall), Class 1 and 2 national highways, or prefectural road/city road/national railway station in Article 56 of the Road Law is in a "heavy snowfall" area.
  4. More than one-half of the municipality's area is in a "heavy-snowfall" area, and more than two-thirds of the municipal border is in contact with municipalities that satisfy conditions 1, 2, or 3.
- The following table illustrates how one would calculate the height of accumulated snow over the first thirteen days of December for a hypothetical municipality:

December	Snowfall	Snow Height on the Ground	Height of Accumulated Snow
1st	0	0	0
2nd	1	1	1
3rd	2	2	3
4th	1	1	4
5th	24	24	28
6th	0	22	50
7th	0	17	67
8th	22	36	103
9th	0	34	137
10th	2	27	164
11th	0	27	191
12th	2	19	210
13th	0	19	229

- Prior to 2001, the Snow Act stated that the Prime Minister is responsible for the designation of a "heavy snowfall" area. After 2001, it stipulates that the Ministries of Land, Infrastructure, and Transport, Internal Affairs and Communications, Agriculture, Forestry, and Fisheries, and the National Land Development Council are responsible.
- The Snow Act was introduced by a non-partisan coalition of politicians. 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.

B Descriptive Statistics

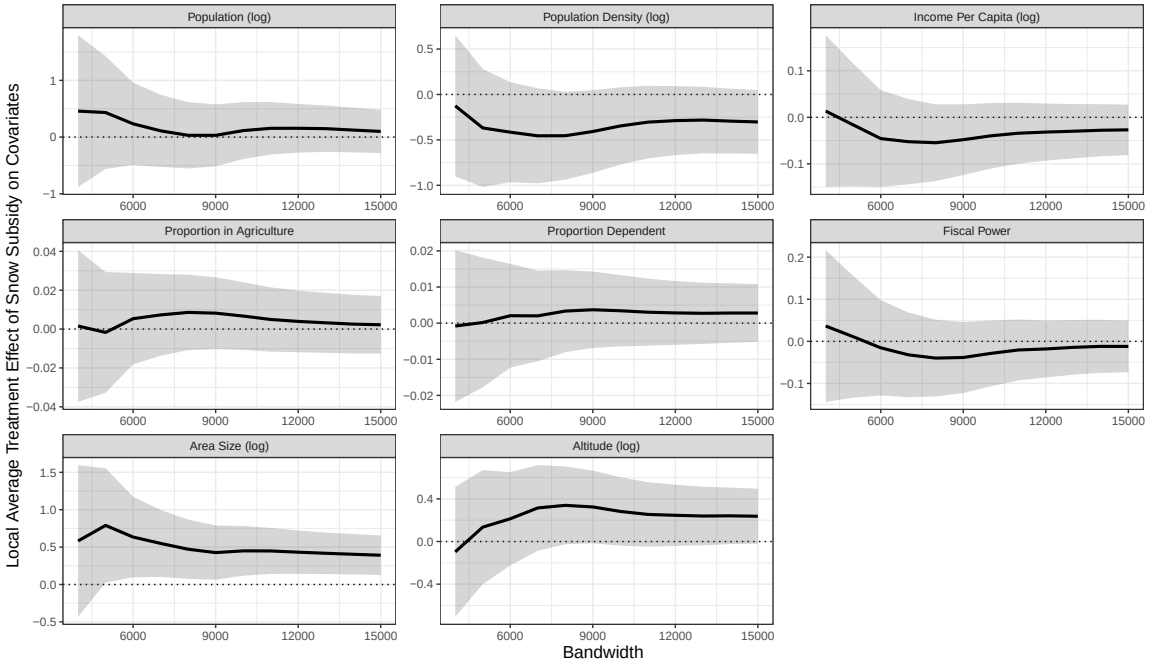
Table B.1: Descriptive Statistics of Municipalities in Mixed Districts

Statistic	N	Mean	St. Dev.	Min	Max
Post-Election Per Capita Transfers (log)	6,578	−3.737	0.698	−5.814	0.021
Snow Subsidy	6,882	0.286	0.452	0	1
Winning LDP Vote Share	6,882	0.395	0.184	0.000	0.909
Fiscal Power	6,807	0.389	0.229	0.000	1.990
Proportion Dependent	6,543	0.367	0.040	0.182	0.585
Proportion in Agriculture	6,543	0.098	0.066	0.001	0.450
Population (log)	6,882	9.240	1.128	6.047	13.638
Income Per Capita (log)	6,807	−0.170	0.355	−1.538	0.602
Population Density (log)	6,882	4.923	1.330	0.265	9.069
Area Size (log)	6,882	4.311	0.899	0.962	7.688
Altitude (log)	6,864	5.333	1.445	−0.916	7.569

As the main paper explains, the data used in this study are based on Catalinac, Bueno de Mesquita and Smith (2019), JED-M (Mizusaki, 2014), Nikkei NEEDs (http://www.nikkei.co.jp/needs/contents/regional.html), the National Land Numerical Information Service (http://nlftp.mlit.go.jp/ksj-e/index.html) and the Geospatial Information Authority of Japan (http://www.gsi.go.jp/ENGLISH/index.html).

C Covariate Balance Between Heavy Snowfall and Non-Heavy Snowfall Municipalities

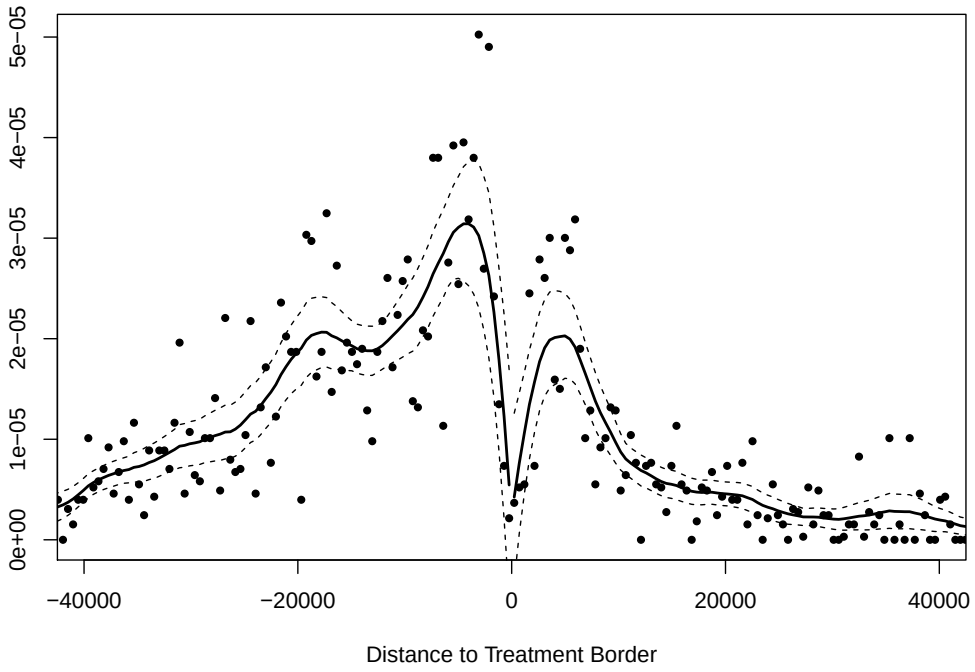
Figure C.1: Investigating Discontinuities in Covariate Characteristics Between Heavy Snowfall and Non-Heavy Snowfall Municipalities Proximate to the Border in the Same District



To examine whether there are any discontinuities (sudden changes) in covariate characteristics at the border, we estimate the same local linear regression with triangular kernel weights described in Equation 1 in the paper on eight municipality-level attributes that may influence LDP Vote Share or NTD. Population, population density, income per capita, proportion of the population employed in agriculture, proportion of the population who are dependent, and fiscal power are standard controls in work on transfers. 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 used in the paper's Figures 2 and 3. In all specifications, we 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 in characteristics of the municipalities just left and right of the border. Figure C.1 shows that the snow subsidy does not have a significant effect on any covariate except for area size (left panel in the third row). Importantly, there is no discontinuity in any of the variables thought to influence transfers, such as income per capita, fiscal strength, or proportion of the population who are dependent.

D Investigating Self-Sorting

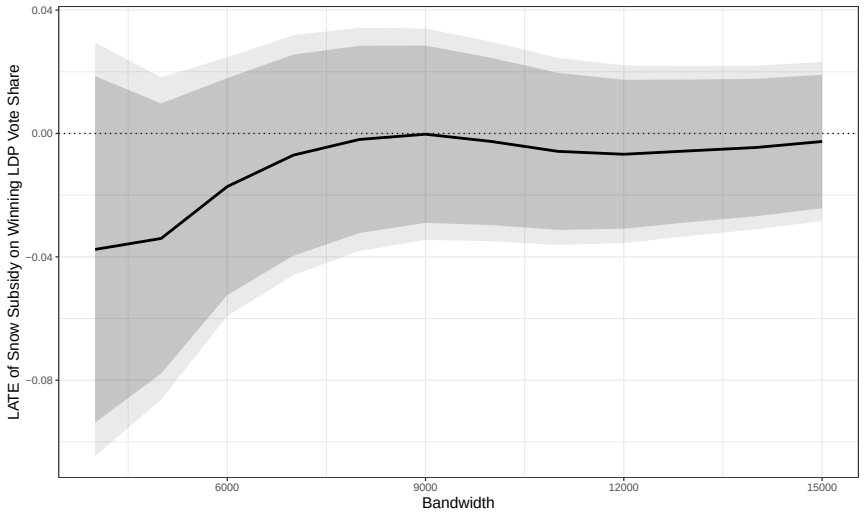
Figure D.1: Results of a McCrary Sorting Test



The results of the McCrary (2008) sorting test in Figure D.1 indicate that there is little evidence of self-sorting. This is unsurprising given than a municipality's eligibility for the snow subsidy is determined by the objective criteria laid out in the main paper.

E Alternative Measure of Electoral Support for the LDP

Figure E.1: Receiving the snow subsidy results in no statistically-significant difference in Winning LDP Vote Share for municipalities in mixed districts, 1980-2005.



Note: This figure depicts the coefficient estimates on Snow Subsidy obtained from local linear regressions of Winning LDP Vote Share on beneficiary status when the bandwidth is changed from $\pm 4,000$ to $\pm 15,000$. Shaded areas indicate 90%/95% confidence intervals.

To reinforce our finding that the snow subsidy has a null effect on incumbent support, in this section we use an alternative measure of LDP support, Winning LDP Vote Share. This operationalization is proposed by Catalinac, Bueno de Mesquita and Smith (2019) and measured as the proportion of a municipality's voting population who voted for the district's LDP winner(s) in each election. Hence, this measure is different from LDP Vote Share, used in the main text, in two ways. First, the denominator is not the total number of votes cast but the total number of voters in the municipality. This means that Winning LDP Vote Share incorporates differences in turnout across municipalities. Second, while in LDP Vote Share, the numerator is the overall support for the LDP, in Winning LDP Vote Share, it is restricted to the total number of votes for LDP candidates who actually won the election. Districts could have more than one winner prior to 1994, but only one winner after 1994.

Figure E.1 reports the LATE of Snow Subsidy on Winning LDP Vote Share. The results are similar to those in Figure 2. There is no statistically significant difference in Winning LDP Vote Share between otherwise-similar, same-district beneficiary and non-beneficiary municipalities. This is further evidence that the snow subsidy does not boost electoral support for the LDP.

F Regressions with All Municipalities in Mixed Districts

Table F.1: Controlling for other differences between municipalities, beneficiary municipalities do not deliver higher levels of electoral support for their LDP incumbents than non-beneficiary municipalities in the same district (Model 1 and 2). Beneficiary municipalities do, however, receive larger per capita NTD allocations after elections than their same-district non-beneficiary counterparts.

	(1)	(2)	(3)
	LDP Vote Share	Winning LDP Vote Share	Post-Election Per Capita Transfers (log)
Snow Subsidy	−0.001	0.010	0.087*
	(0.006)	(0.006)	(0.035)
Fiscal Power	−0.004	−0.019	0.352*
	(0.020)	(0.016)	(0.100)
Proportion Dependent	0.004	0.093	1.316*
	(0.063)	(0.062)	(0.468)
Proportion in Agriculture	0.058	0.021	−0.229
	(0.055)	(0.049)	(0.347)
Population (log)	0.015	−0.002	−0.074
	(0.010)	(0.008)	(0.169)
Income Per Capita (log)	−0.081*	−0.059*	−0.187
	(0.020)	(0.018)	(0.161)
Population Density (log)	−0.045*	−0.036*	−0.098
	(0.010)	(0.008)	(0.171)
Area Size (log)	−0.025*	−0.012	0.113
	(0.010)	(0.008)	(0.169)
Altitude (log)	−0.006*	−0.008*	−0.009
	(0.003)	(0.002)	(0.017)
District-Year Fixed Effects	Yes	Yes	Yes
N	6,452	6,452	6,446
R^2	0.721	0.800	0.344

Note: *p<0.05. Robust standard errors clustered on the municipality.

In Table F.1, we present the results of fixed effect regressions that use all municipalities in mixed districts, 1980-2005. These models include, in addition to district-year fixed effects, time-varying municipality-level controls. Standard errors are clustered on the municipality.

Overall, widening the sample to include all observations in mixed districts (not just the ones immediately proximate to the border) and controlling for other differences between municipalities produce results similar to the GRD. Specifically, Snow Subsidy is not a significant predictor of LDP Vote Share nor Winning LDP Vote Share (models 1 and 2). By contrast, its effect on Post-Election Per Capita Transfers is positive and significant (model 3). While we prefer the GRD for cleaner causal identification, our main findings are robust to alternative research

designs.

G Do Beneficiary Municipalities Have Different Relationships with Local Government?

The questions we use in the analysis in Table G.1 of the main text are as follows (response items are reordered so that higher values indicate greater influence on 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

Table G.1: There are no statistically-discernible differences in answers to questions probing NHA heads' relationship with local government actors between beneficiary and non-beneficiary municipalities in the same district.

	(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	0.02	−0.07	−0.05	0.09	−0.13	−0.01
	(0.04)	(0.08)	(0.10)	(0.08)	(0.08)	(0.09)	(0.08)
NHA Household (log)	0.03*	0.16*	0.13*	0.06*	0.03	−0.01	0.12*
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Population Density (log)	−0.06	−0.07	−0.07	−0.05	0.05	−0.13*	−0.10
	(0.03)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)
Income per capita (log)	0.16	−0.33	−1.07*	−0.51	−0.76	−0.18	−0.02
	(0.26)	(0.46)	(0.54)	(0.49)	(0.46)	(0.51)	(0.49)
Primary Industry Proportion (log)	0.01	0.16*	0.08	0.005	0.07	0.03	0.06
	(0.04)	(0.07)	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)
Dependency Proportion	−0.69	−1.55	−2.12	−0.44	−1.98	0.28	−2.82
	(0.90)	(1.48)	(1.77)	(1.60)	(1.52)	(1.67)	(1.64)
Fiscal Power	−0.18	0.08	0.17	0.09	−0.24	0.22	−0.36
	(0.13)	(0.21)	(0.26)	(0.24)	(0.22)	(0.25)	(0.23)
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.