Free-rider behavior under voluntary amalgamation: The case of setting the long-term care insurance premium in Japan

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ABSTRACT

Amalgamation offers municipalities an incentive to free ride when they can subrogate the load onto the newly created municipality after amalgamation. However, the doubt about whether the merged municipalities were really selected at random remains, especially in the case of voluntary amalgamation. Moreover, the pre-merger municipality's debt accumulation or public spending expansion before amalgamation cannot be confirmed as free-rider behavior because these municipalities might have only developed the infrastructure in preparation for the amalgamation. Based on the foregoing, this study divides pre-merger municipalities into two groups: those that had the chance to free ride when setting the long-term care insurance premium and those that did not. Moreover, it focuses on the revision of the long-term care insurance premium as the target of free-rider behavior. The regression results confirm that only pre-merger municipalities that formed amalgamation committees before FY2003 and approved amalgamation after FY2003 showed free-rider behavior. These municipalities revised the long-term care insurance premium lower than never-merged and pre-merger municipalities that formed amalgamation committees and approved amalgamation after FY2003.

Keywords: Voluntary amalgamation; Free-rider behavior; Long-term care insurance system; Premium setting; Difference-in-difference

JEL classification: H73, H75, H77, I18, R51

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1 Introduction

Studies have recently applied the fiscal common-pool problem (i.e., the overuse of fiscal resources) first explored by Tullock (1959) and Buchanan and Tullock (1962) to the municipal amalgamation scenario. Amalgamation offers municipalities an incentive to accumulate public debt before the amalgamation takes place because the newly created post-amalgamation municipality subrogates the load. Hinnerich (2009) and Jordahl and Liang (2010), using a difference-in-difference (DD) estimation for Sweden to clarify municipalities' free-rider behavior before amalgamation, found that smaller local governments tend to accumulate public debt in order to free ride on the increased number of taxpayers in the expanded municipal entity. On the contrary, Saarimaa and Tukiainen's (2015) investigation in Finland pointed out that the pre-merger municipality's free-rider incentive should be low under voluntary amalgamation because excessive free-rider behavior might exclude that participant from the amalgamation. Nakazawa (2016) also confirmed this hypothesis in the Japanese case.[1]

These studies employ the DD method between pre-merger and never-merged municipalities. However, although they consider the parallel trend assumption of the public debt accumulation between the treatment group (pre-merger municipalities) and control group (never-merged municipalities) when applying this method, the doubt about whether the merged municipalities were really selected at random remains, particularly in the voluntary municipality amalgamation case compared with the compulsory case. To overcome this problem, in this study, I divide pre-merger municipalities into two groups based on the different timing of amalgamation: those that had the chance to free ride when setting the long-term care insurance (LTCI) premium burden for residents[2] and those that did not.

The latest program of municipality amalgamation in Japan ran from fiscal year (FY) 1999 to FY2005.[3] All municipalities that wanted to merge formed amalgamation committees to discuss and decide on the amalgamation process. The average interval between committee formation and amalgamation approval was about two years, although this differed by amalgamation.

During this period, municipalities faced another institutional revision. In April 2003, all municipalities set their LTCI premium burdens for residents in order to balance the

[1] Nakazawa (2016) also confirmed the extent to which central government regulation on issuing public debt affects free-rider behavior.
[2] The Japanese LTCI is administered at the municipal level over a three-year program management period based on the pay-as-you-go principle.
[3] The fiscal year in Japan runs from April 1 to March 31.

budget based on the forecast of the next period's LTCI benefit. On amalgamation, the premium set beforehand carried over to the post-amalgamation municipality. Thus, some pre-merger municipalities had an incentive to free ride by setting the LTCI premium low because the LTCI benefit load of the next period would be borne by the larger entity after amalgamation. However, only pre-merger municipalities that formed amalgamation committees before FY2003 and approved amalgamation after FY2003 had such an incentive to free ride. On the contrary, pre-merger municipalities that formed amalgamation committees and approved amalgamation after FY2003 did not have an incentive to free ride because the municipality had not scheduled its amalgamation when setting the LTCI premium. This first novelty of the present study allows us to compare the difference in free-rider incentives between pre-merger municipalities.

The second novelty of the study focuses on setting the LTCI premium. The pre-merger municipality's debt accumulation or public spending expansion before amalgamation cannot be considered to be free-rider behavior because these municipalities might have only carried out the infrastructure in preparation for the amalgamation. On the contrary, the setting of the LTCI premium was unrelated to the preparation for the amalgamation. Therefore, the present study is able to capture pure free-rider behavior before the amalgamation.

The remainder of this paper is organized as follows. Section 2 explains the institutional background of the Japanese LTCI system and municipality amalgamation in Japan. The empirical methodology is presented and data described in Section 3. Section 4 presents the estimation results and discusses the main findings. Section 5 concludes.

2 Background

2.1 Municipality amalgamation in Japan

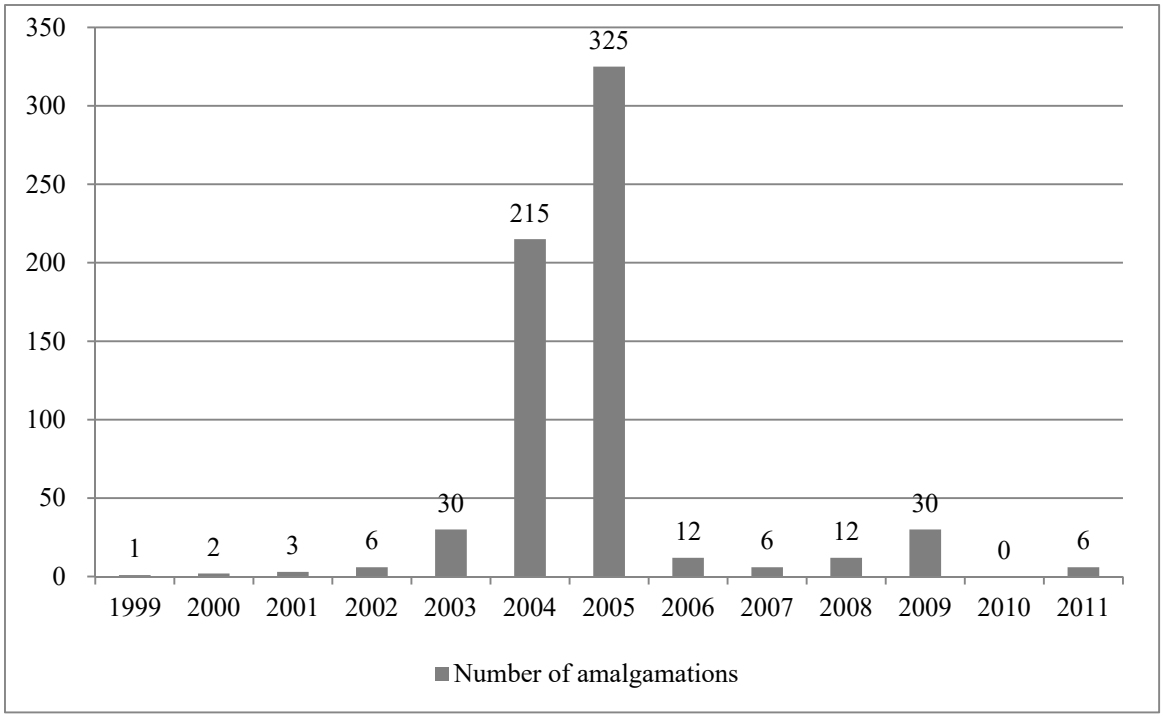
The ongoing process of municipality amalgamation in Japan can be roughly divided into three main waves. The first wave, from 1888 to 1889, reduced the number of municipalities from 71,314 to 15,820. The second wave lasted from 1953 to 1961, further reducing the number from 9,868 to 3,472. In the latest wave, between April 1999 and January 2012, the number almost halved from 3,229 to 1,719.

The Japanese government enacted the Municipal Amalgamation Law in 1965 to promote amalgamation. This law included several measures to promote amalgamation such as guaranteeing the same inter-governmental subsidy to the merged municipality

for 10 years after amalgamation.[4] However, although the law was revised every 10 years until the 1990s, it did not provide for voluntary amalgamation, and the number of municipalities decreased by only 163 from 1965 to 1999.

A remarkable change occurred in the latter half of the 1990s when the Japanese government reviewed the roles of the central, prefectural, and municipal governments. In 1999, the law was amended to conform to the provisions of the Omnibus Law of Decentralization, and additional measures were included to provide financial support for municipality amalgamation. Figure 1 shows the number of amalgamations from FY1999 to FY2011. Many municipalities pursued amalgamation only until the end of FY2005 because the financial support provided by the national government for amalgamation under the law was revised in FY2006. This explains why amalgamations peaked in FY2004 and FY2005.

Fig. 1. Number of amalgamations.



[4] Such a subsidy aims to adjust the uneven distribution between demand for basic local public services and tax revenue by local governments.

2.2 The LTCI system in Japan

LTCI was introduced for the elderly in FY2000 to solve the long-term care problem in Japan. The insurers (municipalities) have established special LTCI accounts for a three-year program management period to administer the system. They estimate the total benefits for the next period and maintain a constant ratio of the total insurance benefits provided to the category I insured (aged 65 years and older). Therefore, the category I premium is linked to the benefit level. Surpluses, if any, are transferred to the Long-term Care Benefit Fund (LTCBF) against future deficits. When fiscal resources for a certain program management period are insufficient because of increasing benefits or decreasing revenue (owing to, for example, an error in the forecast increase in the number of eligible individuals or failure to set a premium), the municipality could draw down the LTCBF or borrow from the Fiscal Stabilization Fund (FSF). However, to repay the FSF loan, the municipality would need to increase the premium for the next program period. Moreover, using the general budget to fund the municipality's LTCI special account is prohibited by law, beyond its entitlement of 12.5% of the LTCI benefits.[5]

Insured categories I and II (aged from 40 to 64 years old) can be grouped according to the nature of care required by the process of eligibility assessments. The conditions requiring care range from mild to serious in a multistep approach. The degree of eligibility ranges across six levels from "support need" (the lowest level) to "long-term care need V" (the highest level). Eligibility levels have been increased to seven since FY2006 with the division of the support need into two stages (support I and support II). Individuals eligible for support are not permitted to use some LTCI services (e.g., facility care services). The benefits are allocated on the basis of points and are limited by the degree of eligibility.[6] The insured person should pay 10% of the care cost, while LTCI covers the remaining 90%. According to these institutional criteria, universal service use and horizontal equity compared with eligibility for LTCI benefits are guaranteed irrespective of the insured individual's income and place of residence.

2.3 Free-rider incentive for pre-merger municipalities

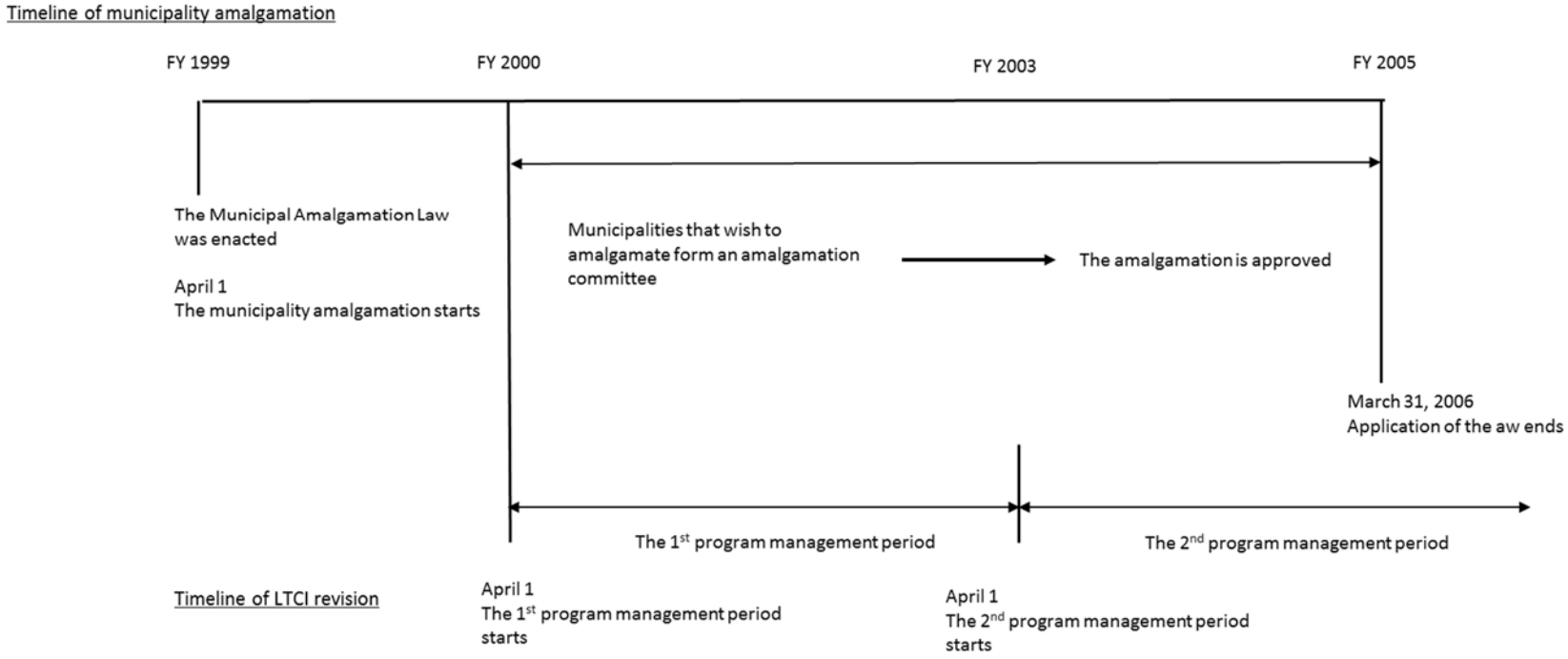
The second program management period ran from FY2003 to FY2005. Before starting this period, municipalities had to forecast the period's benefit and set the premium. Therefore, as described in Section 1, pre-merger municipalities that formed

[5] The LTCI benefits are financed by premium revenue from the category I and II insured (50%), central government (25%), prefectural government (12.5%), and municipal government (12.5%).

[6] One point is equal to 10 to 10.5 JPY, depending on the region.

amalgamation committees before FY2003 and approved amalgamation after FY2003 had an incentive to set lower LTCI premiums for the second period because the municipality could pass the benefit burden onto the new municipality after amalgamation. On the contrary, municipalities that formed amalgamation committees after FY2003 had no such incentive to free ride. Figure 2 illustrates the timeline of the Japanese municipality amalgamation program and LTCI premium revision.

Fig. 2. Timeline of the municipality amalgamation and LTCI revision.



I drop the municipalities that formed amalgamation committees before FY2000 and approved amalgamation before FY2003. Therefore, all municipalities employed in the study had no incentive to free ride before the first program management period (from FY2000 to FY2003).

3 Empirical framework and data

3.1 Empirical framework

Weingast et al. (1981) considered the incentive to free ride in a formal framework. At the efficient spending level, the marginal social cost of a public spending project in a certain district equals the marginal social benefit. However, if the costs of the project must be shared among n districts, only $1/n$ of the social marginal cost of the project should be loaded onto a district.[7] Therefore, when municipalities amalgamate, a small municipality tends to have a strong incentive to free ride. Where N_i denotes the population of municipality i, which participates in an amalgamation, and N_j the total population of the post-amalgamation municipality, including municipality i, the social marginal borrowing cost of municipality i is equal to $N_i/N_j < 1$. Hinnerich (2009) formulated the strength of municipality i's incentive to free ride as $Freeride_i = 1 - N_i/N_j \in [0,1]$. Jordahl and Liang (2010) employed the same concept, which they referred to as the "law of $1/n$."

By employing Hinnerich's (2009) definition of the free-rider incentive associated with amalgamation and applying the case of setting the LTCI premium in Japan, one can define the following relation:

$$premium_i = \alpha + \beta Freeride_i + u_i, \qquad (1)$$

where $Premium_i$ is the LTCI premium. The parameter β represents the free-rider effect and u_i represents the observed or unobserved premium determinants. By considering the difference in eq. (1), I can write the equation as

$$\Delta Premium_i = \theta + \beta \Delta Freeride_i + v_i, \qquad (2)$$

where Δ indicates the difference operator, representing the difference between the first and second program management periods. Since no municipalities in this analysis

[7] Baqir (2002), Bradbury and Crain (2001), Bradbury and Stephenson (2003), and Gilligan and Matsusaka (1995, 2001) empirically analyzed the *1/n* effect.

had an incentive to free ride before setting the first-stage LTCI premium, $Freeride$ of the first-stage LTCI premium is always zero. Because $\Delta Freeride = Freeride$, eq. (2) can thus be written as follows:

$$\Delta Premium_i = \theta + \beta Freeride_i + v_i, \qquad (3)$$

I employ the DD estimation for eq. (3). The control group is the never-merged municipalities. I divide the pre-merger municipalities into two treatment groups. Those that formed amalgamation committees before FY2003 and approved amalgamation after FY2003 are classified as *Treatment_a* and those that formed amalgamation committees and approved amalgamation after FY2003 are classified as *Treatment_b*. The other municipalities that formed amalgamation committees and approved amalgamation before FY2003 are dropped from the estimation. Therefore, parameter β of *Treatment_a* should be negative when the pre-merger municipalities showed free-rider behavior. On the contrary, parameter β of *Treatment_b* should not be significant because these pre-merger municipalities did not have the chance to free ride when setting their LTCI premium. I run the estimation by using the difference-in-difference-in-difference (DDD) method as follows;

$$\Delta Premium_i = \theta + \beta_1 Freeride_i + \beta_2 Freeride_i \times Treatment\_a\_dummy_i + v_i, \qquad (4)$$

I can therefore capture the free-rider incentive of pre-merger municipalities in *Treatment_a* from the total free-rider effect.

3.2 *Data*

The control group comprises 967 municipalities, while the treatment groups comprise 340 (*Treatment_a*) and 867 (*Treatment_b*) municipalities. From the above discussion, $\Delta Premium_i$ is the difference between the premium of the first and second program management periods. $Freeride$, the key regressor of the study, represents the strength of the free-rider incentive of pre-merger municipalities. Under the LTCI system, the elderly bear the LTCI premium burden. Therefore, I change N_i and N_j from the total population to the elderly population.

I employ pre-control variables that might affect setting the LTCI premium. The eligibility ratio, namely the percentage of eligible elderly who could use LTCI services as a proportion of the whole elderly population, places pressure on raising the premium. Similarly, the elderly ratio, namely the percentage of the elderly population as a

proportion of the total population, also places pressure on raising the premium. Moreover, this is needed to control for the differences in the unit cost of LTCI services between municipalities. Therefore, I employ the average at-home and facility care cost per user. Finally, I use the LTCI premium of the first program management period. The pre-control variables are taken for FY2002, one FY before the second program management period. Table 1 describes the summary statistics and their sources.

Table 1. Summary statistics.

Variable	N	Mean	S.D.	Min	Max
LTCI premium (first period, JPY/month)	2174	2779	392.325	1533	4100
Change in the LTCI premium (Control)	970	380.563	394.369	-825	1983
Change in the LTCI premium (*Treatment_a*)	338	449.581	456.742	-1097	2067
Change in the LTCI premium (*Treatment_b*)	866	455.909	433.504	-580	2368
Freeride (including control group)	2174	0.390	0.399	0	0.995
Freeride_a	338	0.749	0.214	0.016	0.995
Freeride_b	866	0.687	0.268	0.020	0.991
Elderly ratio (%)	2174	25.254	7.352	4.784	53.306
Eligibility ratio (%)	2174	14.137	3.002	6.625	29.273
At-home care cost (1,000 JPY/person)	2174	32.853	4.738	15.038	53.233
Facility care cost (1,000 JPY/person)	2174	344.680	20.715	165.454	426.893

Sources: Ministry of Health, Labour and Welfare, *the Annual Report on LTCI Programs 2002 and 2003.*

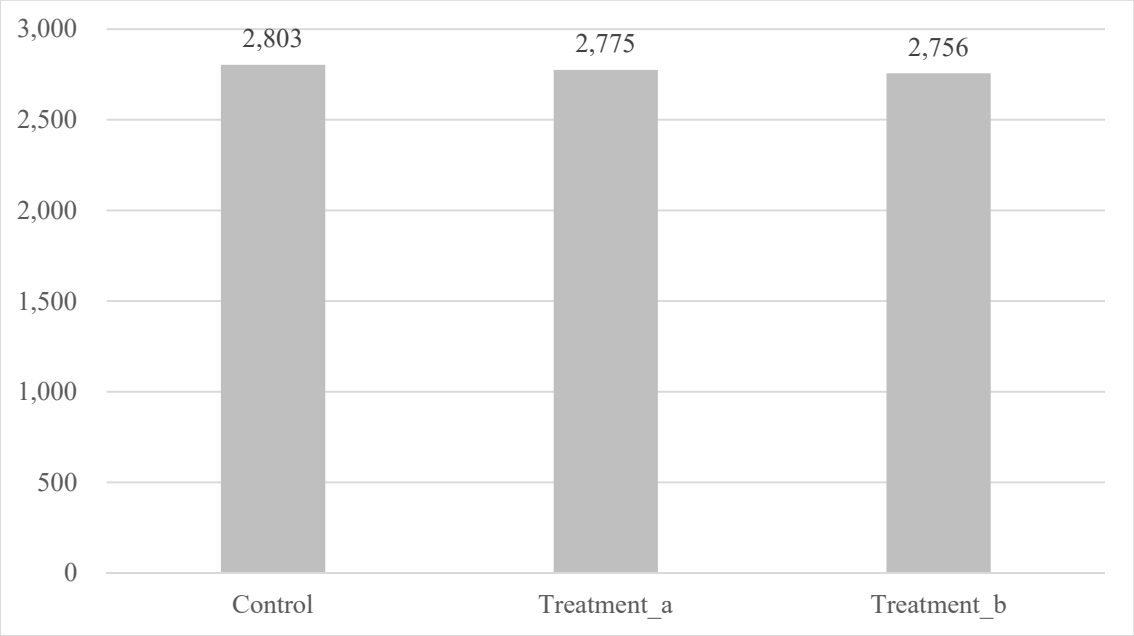
The average, minimum, and maximum LTCI premium values of the first program management period are 2,780, 1,533, and 4,100, respectively. The highest elderly ratio and eligibility ratio for a municipality is approximately 53% for the total population and 30% for the category I insured.

4 Estimation results

4.1 Parallel trend assumption

We must test for the parallel trend assumption to justify using the DD method. Figure 3 shows the average LTCI premium of the first program management period of the control, *Treatment_a*, and *Treatment_b* municipalities. The LTCI premium of the first program management period was set before FY2000 when no municipalities in the sample had yet scheduled an amalgamation. Therefore, I employ the LTCI premium of the first program management period to compare the differences in each group.

Fig. 3. Average LTCI premiums of the first program management period (JPY/month).



This figure shows a similar level between the control and treatment groups. Thus, I carry out a two-sample mean comparison test on the average premium for each group. Table 2 presents the results of the t-test.

Table 2. Mean comparison t-test of the LTCI premiums.

	Control vs. Treatment_a		Control vs. Treatment_b		Treatment_a vs. Treatment_b	
Sample	967	338	967	867	338	867
Average	2,802	2,775	2,802	2,757	2,775	2,757
t-value	1.141		2.508**		0.763	

Notes: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

The t-values for the control and *Treatment_b* municipalities are significantly different at the 5% level. Therefore, we must control for the difference in the LTCI premium. On the contrary, the t-test results between the control and *Treatment_a* municipalities and between the *Treatment_a* and *Treatment_b* municipalities support the homogeneity of municipalities before amalgamation starts.

4.2 Baseline results

Table 3 presents the results of the baseline specification based on the DD and DDD methods.

Table 3. The free-rider effect of smaller municipalities before amalgamation.

Method	DD	DD	DDD
Group	Control Treatment_a	Control Treatment_b	Control Treatment_a Treatment_b
Freeride (total)			-11.304 (23.475)
Freeride_a	-105.498***		-79.435**
	(32.071)		(32.651)
Freeride_b		-11.345	
		(23.700)	
Elderly ratio	3.003*	2.468*	1.447
	(1.675)	(1.389)	(1.319)
Eligibility ratio	93.418***	91.694***	91.339***
	(5.211)	(4.242)	(3.883)
At-home cost	20.504***	23.874***	23.247***
	(2.557)	(2.101)	(2.051)
Facility cost	1.829***	1.347***	1.637***
	(0.639)	(0.520)	(0.496)
Premium	-0.361***	-0.346***	-0.364***
(first period)	(0.036)	(0.030)	(0.028)
Constant	-1259.077***	-1213.770***	-1208.517***
	(243.947)	(193.342)	(186.770)
N	1305	1832	2172
R^2	0.318	0.317	0.312

Notes: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively. Robust standard errors are shown in parentheses.

According to the results in Table 1, the average change in the LTCI premium from the first program management period to the second program management period for the treatment groups is higher than that for the control group, seemingly disputing the free-rider behavior of pre-merger municipalities. However, the regression results in Table 3 show that the parameter of the free-rider behavior of *Treatment_a* is

significantly negative in line with the hypothesis in this study. The point estimate is -105.498 and average *Freeride* is 0.749. Therefore, pre-merger municipalities in *Treatment_a* revised their premiums downward by about 80 JPY per month (960 JPY per year) on average compared with never-merged ones. The free-rider effect on the change in premium is not large, however, with the average effect reaching about 21% of the average change in the LTCI premium of the control group.

On the contrary, the regression results show that the parameter of the free-rider behavior of *Treatment_b* is not significant, again as expected. This result is different depending on whether pre-merger municipalities had the chance to free ride. Finally, the result of the DDD regression also supports the hypothesis. The parameter of the total free-rider incentive is not significant and the parameter of *Treatment_a* is significantly negative.

These results suggest that smaller municipalities have an incentive to control the change in the LTCI premium before amalgamation. Owing to the free-rider incentive at amalgamation, smaller municipalities that have the chance of free-ride adopt opportunistic behavior by controlling the LTCI premium. On the contrary, smaller municipalities could not adopt such behavior if the chance to free ride did not exist.

The pre-treatment control variables are significant in the LTCI system, except for the elderly ratio. The eligibility ratio, unit cost of at-home care, and unit cost of facility care all increase the LTCI premium. On the contrary, the high level of the LTCI premium of the first program management period induces a lower change in the premium of the second program management period.

4.3 Robustness check

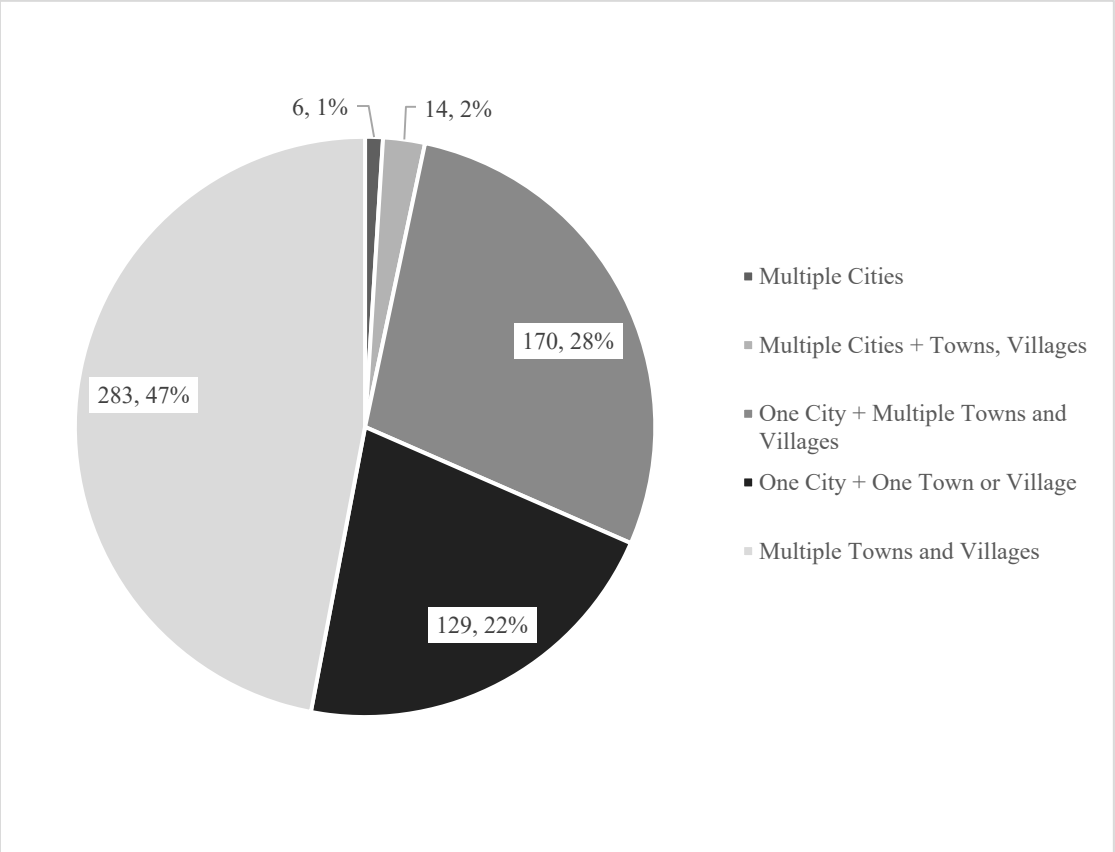
As described in Table 1, the average change in the LTCI premium from the first to the second program management period of the treatment groups is higher than that of the control group. However, the regression results presented in Section 4.2 confirm the free-rider behavior of smaller pre-merger municipalities. These results imply that not all pre-merger municipalities in *Treatment_a* show free-rider behavior at amalgamation.

From a geographical perspective, half of the municipality amalgamation decisions in Japan involve towns and villages in addition to cities. By contrast, amalgamations of multiple cities are rare (3% of all amalgamations). Usually, cities are more populous and financially richer than town and villages.[8] When the amalgamation means the city absorbs the surrounding town and village, there would seem to be no incentive for the

[8] Cities in Japan have 50,000 residents or more.

city to free ride at amalgamation. Figure 4 shows the pattern of municipality amalgamation by city, town, and village in Japan.

Fig. 4. Municipality amalgamation by city, town, and village in Japan.



Based on these geographical trends, I re-run the regression by dividing the sample into cities, towns, and villages. Table 4 shows the regression results.

Table 4. Subsample regression results.

Method	DD		DD		DDD	
Group	Control Treatment_a		Control Treatment_b		Control Treatment_a Treatment_b	
Subsample	City	Town and Village	City	Town and Village	City	Town and Village
Freeride (Total)					58.312	-37.211
					(64.598)	(25.342)
Freeride_a	-51.542	-121.000***			-106.657	-77.361**
	(149.237)	(35.449)			(153.282)	(33.247)
Freeride_b			-44.280	-32.826		
			(63.865)	(25.499)		
Elderly ratio	-6.698*	3.217*	-4.424	2.060	-5.776*	1.070
	(3.703)	(1.909)	(3.190)	(1.609)	(3.196)	(1.481)
Eligibility ratio	119.745***	87.280***	117.155***	87.124***	117.221***	87.118***
	(9.166)	(5.787)	(6.991)	(4.762)	(6.905)	(4.299)
At-home cost	26.829***	19.125***	25.822***	23.306***	27.815***	22.362***
	(5.501)	(2.779)	(4.565)	(2.297)	(4.608)	(2.216)
Facility cost	4.864***	1.477**	3.144***	1.122*	3.665***	1.425***
	(1.222)	(0.691)	(1.097)	(0.580)	(1.144)	(0.546)
Premium (first period)	-0.452***	-0.349***	-0.432***	-0.332***	-0.452***	-0.353***
	(0.086)	(0.038)	(0.067)	(0.033)	(0.068)	(0.030)
Constant	-2490.932***	-1029.479***	-1919.314***	-1059.306***	-2089.197***	-1044.937***
	(421.224)	(272.201)	(399.516)	(218.414)	(404.261)	(208.594)
N	354	953	459	1375	499	1675
R^2	0.467	0.294	0.488	0.288	0.482	0.288

Notes: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively. Robust standard errors are shown in parentheses.

The results show that the parameter of the free-rider incentive of *Treatment_a*'s towns and villages is significantly negative, suggesting that pre-merger towns and villages that have the chance to free ride do so. On the contrary, the free-rider behavior of pre-merger towns and villages of *Treatment_b* municipalities could not be confirmed. Therefore, the results of the DDD regression also support the hypothesis.

5 Conclusion

Amalgamation offers municipalities an incentive to free ride when they can subrogate the load onto the new municipality after amalgamation. Previous studies employ the DD regression between pre-merger and never-merged municipalities. Moreover, they focus on the difference in local public debt or local public expenditure. However, the doubt about whether the merged municipalities were really selected at random remains, especially in the case of voluntary amalgamation. Moreover, the pre-merger municipality's debt accumulation or public spending expansion before amalgamation cannot be considered to be free-rider behavior because these municipalities might have only developed the infrastructure in preparation for the amalgamation.

Based on the foregoing, this study divides pre-merger municipalities into those that had the chance to free ride and those that did not based on the timing of the LTCI premium revision in April 2003. Only pre-merger municipalities that formed amalgamation committees before FY2003 and approved amalgamation after FY2003 had an incentive to free ride because they could set the premium low and the post-amalgamation municipality would subrogate the LTCI benefit. On the contrary, pre-merger municipalities that formed amalgamation committees and approved amalgamation after FY2003 had no such incentive to free ride because the municipality had not scheduled the amalgamation when setting the LTCI premium. In this way, the study can capture pure free-rider behavior before amalgamation because setting the LTCI premium is unrelated to preparing for amalgamation.

The regression results based on the DD and DDD methods are clear: only pre-merger municipalities that formed amalgamation committees before FY2003 and approved amalgamation after FY2003 were confirmed as having showed free-rider behavior. These municipalities revised the LTCI premium lower than never-merged and pre-merger municipalities that formed amalgamation committees after FY2003 and approved amalgamation. Moreover, from the robustness check of the subsample regression, only towns and villages in pre-merger municipalities that formed amalgamation committees before FY2003 and approved amalgamation after FY2003 showed free-rider behavior. Finally, the free-rider effect of the LTCI premium revision is about 21% of the average change in the LTCI premium of the control group. Overall, the results of this study confirm the free-rider behavior of pre-merger municipalities under voluntary amalgamation.

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References

Baqir, R., 2002. Districting and government overspending. J. Political Econ. 110, 1318–1354.

Bradbury, J.C., Crain, W.M., 2001. Legislative organization and government spending: Cross-country evidence. J. Political Econ. 82, 309–325.

Bradbury, J.C., Stephenson, F., 2003. Local government structure and public expenditures. Public Choice 115, 185–198.

Buchanan, J., Tullock, G., 1962. The Calculus of Consent: Logical Foundations of Constitutional Democracy. The University of Michigan Press, Ann Arbor.

Gilligan, T.W., Matsusaka, J.G., 1995. Deviations from constituent interests: The role of legislative structure and political parties in the states. Econ. Inq. 33, 383–401.

Gilligan, T. W., Matsusaka, J.G., 2001. Fiscal policy, legislature size, and political parties: Evidence from state and local governments in the first half of the 20th century. Natl. Tax J. 54, 57–82.

Hinnerich, B.T., 2009. Do merging local governments free-ride on their counterparts when facing boundary reform? J. Political Econ. 93, 721–728.

Jordahl, H., Liang, C.Y., 2010. Merged municipalities: Higher debt on free riding and the common pool problem in politics. Public Choice 143, 157–172.

Nakazawa, K., 2016. Amalgamation, free-rider behavior, and regulation. Int. Tax Public Finan. 23, 812–833.

Saarimaa, T., Tukiainen, J., 2015. Common pool problems in voluntary municipal mergers. Europe. J. Political Econ. 38, 140–152.

Tullock, G., 1959. Problems of majority voting. J. Political Econ. 67, 571–579.

Weingast, B., Shepsle, K., Johnsen, C., 1981. The political economy of benefits and costs: A neoclassical approach to distributive politics. J. Political Econ. 89, 642–664.