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Economic Welfare and Local Government Fiscal Balance under Japan’s Hometown Tax Donation System (Furusato Nozei): A Salop-Type Circular Model

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Economic Welfare and Local Government Fiscal Balance under Japan's Hometown Tax Donation System (*Furusato Nozei*) : A Salop-Type Circular Model※

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Abstract

This study develops a Salop-type circular model to analyze the impact of Japan's Hometown Tax Donation system (*Furusato Nozei*) on the fiscal balance of local governments and household economic welfare. In the model, households endogenously choose the local government to which they donate based on the donation price, the brand strength of the reciprocal gifts, and idiosyncratic attachment. The system affects household welfare through two channels: private utility derived from reciprocal gifts and utility from public goods financed by local government fiscal balances. We develop a unified theoretical framework incorporating these channels and examine its implications using both numerical simulations and empirical analysis. The results show that deficit local governments are predominantly located in urban areas, whereas surplus local governments are more common in rural areas. Urban local governments experience fiscal deterioration due to donation outflow, leading to a decline in per capita welfare through reduced public goods provision. In contrast, rural local governments can sustain per capita welfare by improving their fiscal position through attracting donations, even in the presence of population decline. Furthermore, the Local Allocation Tax system partially offsets revenue losses, thereby mitigating the decline in economic welfare.

JEL Classification: H71, H72, and H77

Keywords : hometown tax donation system, Salop-type circular model, economic welfare, local government fiscal balances

1. Introduction

This study analyzes the impact of Japan's Hometown Tax Donation system (*Furusato Nozei*) on the fiscal balances of local governments and on household economic welfare. The effects of this system

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on household welfare operate through two channels: private utility derived from reciprocal gifts and public utility derived from public goods financed by local government fiscal balances. Household economic welfare is determined by the combination of these two components.

Local government fiscal balances consist of donation revenue, the costs associated with procuring and shipping reciprocal gifts, and donation outflow to other local governments. These outflows reflect a reduction in local individual resident tax revenue due to tax credits for such donations. For local governments eligible for the Local Allocation Tax (LAT) system, 75% of the revenue shortfall is compensated through intergovernmental transfers. In contrast, non-eligible local governments receive no such compensation. Therefore, eligibility for the LAT system affects its fiscal balance and, in turn, the public utility households derive from public goods. These features imply the need for an integrated economic model to analyze the welfare effects of the Hometown Tax Donation system. Accordingly, this study adopts a spatial competition model as an analytical framework.

Spatial competition models have been widely used to analyze competitive interactions among differentiated agents by incorporating spatial distributions and distance-related costs. Starting with Hotelling (1929), which considers competition among firms located on a linear space, demonstrate how markets are segmented by households' indifference conditions. However, the Hotelling-type linear model suffers endpoint problems. Salop (1979) addresses this issue by introducing a circular spatial structure without endpoints. This study applies a Salop-type circular model to the Hometown Tax Donation system.

While much of the existing literature on the Hometown Tax Donation system focuses on household donation behavior and local government finances, relatively few studies explicitly analyze household economic welfare. The study contributes by providing a unified framework for analyzing both local government fiscal balances and household economic welfare within a Salop-type circular model. In addition, it complements the broader literature on interregional fiscal transfers and public goods provision on economic welfare. For example, the theory of tax competition (Zodrow and Mieszkowski,1986) examines how interregional tax revenue shifts affect resource allocation and welfare. Oates (1972) develops the theory of fiscal federalism, and Tiebout (1956) analyzes how residential mobility influences public goods provision and welfare. These studies are closely related to the present analysis in that they examine how intergovernmental fiscal interactions shape economic welfare.

The remainder of this study is organized as follows. Section 2 presents a Salop-type circular model incorporating the Hometown Tax Donation system. Section 3 conducts a numerical simulation analysis. Section 4 provides an empirical analysis using local government revenue and expenditure data. Section 5 concludes with a summary of the findings and discusses policy implications and directions for future research.

2. Salop-type Circular Model Incorporating the Hometown Tax Donation System

2.1. Overview of the Model

This section presents the spatial economic model used in this study. Kato and Yanagihara (2021) and Ayukawa (2022, 2023) provide pioneering analyses of the Hometown Tax Donation system by focusing on households' attachment to local governments within a Hotelling-type linear spatial competition framework. Their primary objective is to examine local government finances. While the present study also considers fiscal balances, its main focus is on household economic welfare.

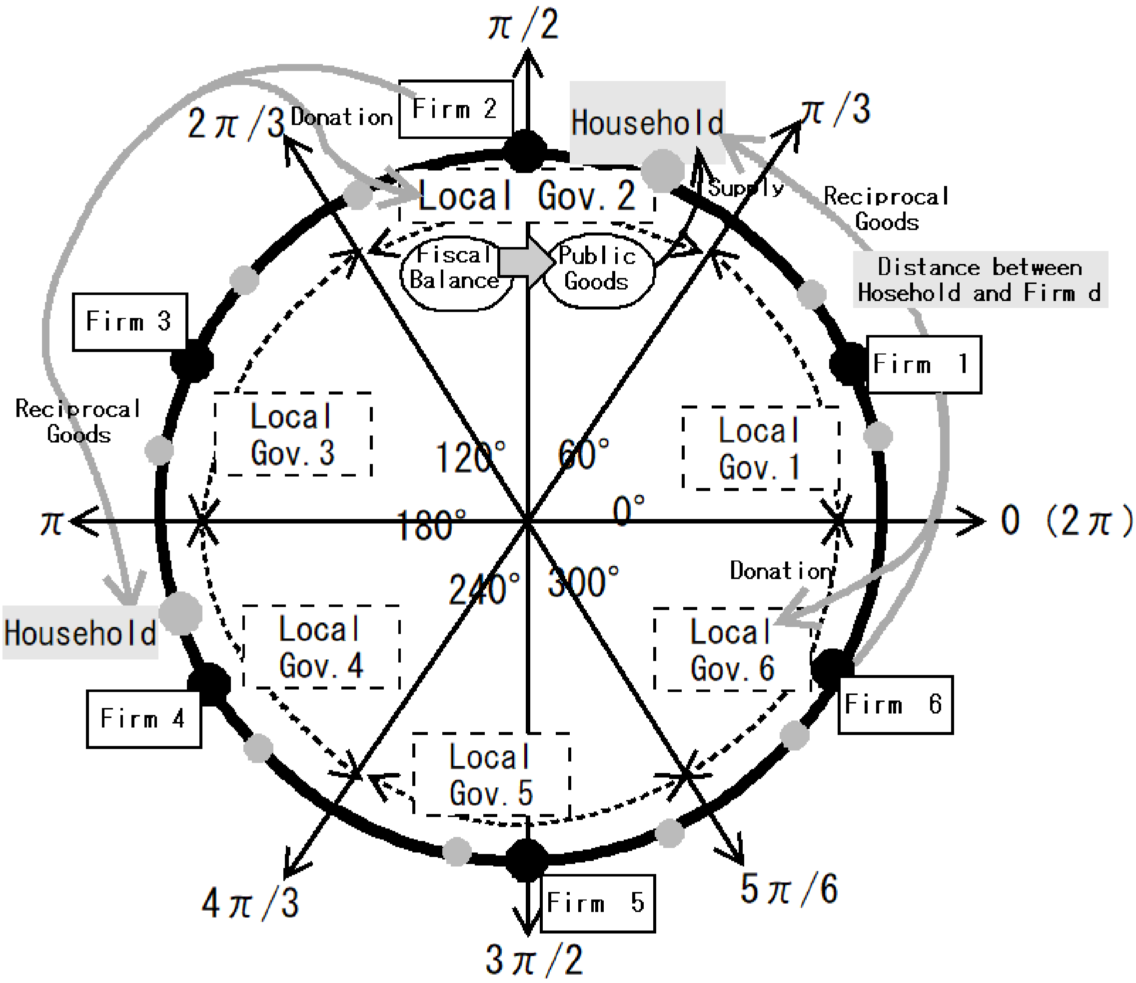
A key institutional difference concerns donations to the local government of residence. In existing two-region models, households are assumed to donate to their home local government and receive reciprocal gifts. However, under the current Hometown Tax Donation system, households may donate to their own local government but are not eligible to receive reciprocal gifts from it. To reflect this feature, this study adopts a multi-region framework in which households do not receive reciprocal gifts from their local government of residence.

Another important difference lies in the spatial structure. Existing studies employ a Hotelling-type linear model, whereas this study adopts a Salop-type circular model. The Hotelling-type model assumes a linear space, in which the presence of endpoints has a significant impact on the equilibrium. This structure is appropriate in standard settings where the distance between households and firms directly affects demand. However, when distance is introduced as a supply-side factor affecting local government transportation costs, as in this study, the presence of endpoints may introduce spurious asymmetry into the analytical results.

In contrast, the Salop-type circular model assumes a symmetric spatial structure without endpoints, making it possible to treat the distribution of households and transportation costs in an aggregate manner. In a structure such as the one described in this study, where distance affects costs rather than demand, the assumption of a circular space is not merely a technical assumption but plays an essential role in ensuring the model's consistency. Furthermore, since many local governments border multiple others, a circular space provides a more realistic representation than a linear one.

Within this framework, this study analyzes households' endogenous selection of donation recipients, the provision of public goods based on inter-governmental fiscal balances, and transportation costs determined by the distance between households and firms. By incorporating these elements, the model captures the impact of the Hometown Tax Donation system on household economic welfare within a spatial structure without endpoints.

Figure 1. Salop-Type Circular Model of the Hometown Tax Donation System



Note: This figure illustrates a scenario where there are six local governments and six firms.

Source: Author's illustration

To the best of our knowledge, this study is the first to apply a Salop-type circular model to the

Hometown Tax Donation system. Its originality lies in modeling households' endogenous choice of donation recipients within a spatial competition framework. In addition, the study contributes by providing an empirical analysis using local government revenue and expenditure data to assess the external validity of the theoretical results.

Figure 1 illustrates the Salop-type circular model employed in this study. The locations of local government jurisdictions are exogenously fixed, and a key feature of the model is that households, which are uniformly distributed over the circular economic space, endogenously choose the local government to which they donate. Within each jurisdiction, a single firm provides reciprocal gifts. For simplicity, Figure 1 assumes six local governments and six firms.

The choice of donation destination is determined by the donation price, the brand strength of the reciprocal gifts, and the households' attachment to the local governments[1]. Attachment reflects a household's place of origin, interests, or preferences. For simplicity, each household is assumed to make a donation to one local government. By adopting a symmetric framework, the model highlights how household behavior and inter-governmental fiscal interactions affect economic welfare under the Hometown Tax Donation system.

In the standard Salop-type circular model, the distance between households and firms directly affects household utility, and demand is determined by indifference conditions. In contrast, under the Hometown Tax Donation system, households face a uniform donation price through online platforms, while transportation costs for reciprocal gifts are borne by local governments rather than households. As a result, households do not directly pay transportation costs based on distance. For example, for reciprocal gifts offered by a local government in Hokkaido, the donation price does not differ between households in Tokyo and those in Osaka. Although transportation costs differ, these costs are borne by the local government.

Therefore, this study assumes that distance does not directly affect household utility but instead influences local governments' transportation costs. Consequently, the model incorporates spatial structure on the supply side rather than on the demand side. Although this differs from standard spatial competition models, it reflects a key institutional feature of the Hometown Tax Donation system, in which households

[1] Uemura (2025) and Uemura (2026b) demonstrate that the brand strength of reciprocal gifts is a key policy variable, while Uemura (2026a) shows that the donation price is also an important policy variable. Kato and Yanagihara (2021) and Ayukawa (2022, 2023) explicitly model household attachment.

neither directly bear nor necessarily perceive transportation costs.

2.2. Households, Firms, and Local Governments

As shown in Figure 1, we normalize the circumference of the circle to 2π and set the radius to 1, so that the location of each economic agent can be represented by an angle $\theta \in [0,2\pi)$. Households i are continuously distributed along the circle. There are J local governments indexed by $j \in \{1, \cdots, J\}$, whose jurisdictions are equally spaced. Accordingly, the length of each jurisdiction $|A_j| = (2\pi)/J$. Let N_j denote the number of households residing in jurisdiction j. The density of households in jurisdiction j is therefore $N_j/|A_j| = (JN_j)/(2\pi)$. When necessary, let $j(i)$ the jurisdiction in which household i resides.

Under the Hometown Tax Donation system, households are not allowed to receive reciprocal gifts from the local government in which they reside. To reflect this institutional feature, we assume that households do not donate to their own local government, but instead make a single donation to another local government. For simplicity, each household is assumed to make one donation.

In this model, local government j denotes the recipient chosen by household i, while local government k denotes the local government in which household i resides. When a household i, residing in local government k, donate to local government j, its preferences are represented by the following quasi-linear utility function: [2]

$$U_{i\to j} = 1 + \frac{v_j - p_j}{\sigma} + \varepsilon_{i,j} + \gamma_{k(i)} G_{k(i)}, \qquad (j \neq k) \qquad (1).$$

Here, the constant term represents utility from numeraire consumption other than reciprocal gifts. The variable v denotes the brand strength of reciprocal gifts, and p is the donation price. The variable G denotes the level of public goods provided by the local government of residence. The parameter $\gamma > 0$ measures the contribution of public goods to household welfare. To capture heterogeneity in households' attachment, we introduce a idiosyncratic term ε and a scale parameter $\sigma > 0$. The term ε represents unobservable attachment, and its distribution will be specified later. The parameter σ governs the dispersion of preferences: a smaller σ implies that household choices are more sensitive to utility

[2] Households are assumed to consume a numeraire good in addition to reciprocal gifts. Under quasi-linear preferences, the utility from numeraire consumption can be normalized to one.

differences, leading to a concentration of donations, whereas a larger σ leads to more dispersed choices.

Households choose their donation destination based on the donation price, the brand strength of reciprocal gifts, and idiosyncratic attachment, using information provided by online platforms. Importantly, households do not take into account the physical distance to local governments when making their donation decisions. Therefore, a household's location θ_i^H does not directly affect its choice of donation recipient. This feature distinguishes the present model from the standard Salop-type circular model, in which distance directly enters household utility and determines indifference conditions. At the same time, local governments incur transportation costs that depend on the distance between households and local governments. As will be formalized below, these costs are borne by local governments rather than households. Consequently, spatial structure affects local government fiscal balances through the cost side, rather than through household demand.

Each household i chooses a local government $j^* \in \{1, \cdots, J\}$ that maximizes its utility and donate to that local government. Since the constant term and the public goods component depend only on the local government of residence k, they are common across all alternatives and can be omitted from the choice problem. Thus, the household solves the following maximization problem: [3]

$$j^*(i) = \arg \max_{j \neq k(i)} \left\{ \frac{v_j - p_j}{\sigma} + \varepsilon_{i,j} \right\} \qquad (2).$$

The number of donations D received by local government j from households residing in local government k is given by:

$$D_j = \sum_{k \neq j} N_k \Pr(j|k) \qquad (3).$$

Here, $\Pr(j|k)$ denotes the probability that a household residing in k selects j as the optimal donation destination.

Assuming that the idiosyncratic component of utility follows an independent and identically distributed Gumbel distribution. In this case, the choice probability derived from the utility maximization problem takes the standard multinominal logit form (McFadden, 1974). Accordingly, the probability

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[3] Although the household utility function includes the public good G, it does not affect the choice of donation recipient, since households within the same local government face the same level of public goods provision. Here, $arg\ max$ denotes the local government that maximizes the household's utility.

$\Pr(j|k)$ that a household residing in local government k selects j^* is given by [4]:

$$\Pr(j|k) = \frac{exp\left(\frac{v_j - p_j}{\sigma}\right)}{\sum_{r \neq k} exp\left(\frac{v_r - p_r}{\sigma}\right)} \qquad (j \neq k) \qquad (4).$$

Here, the index r denotes alternative local governments in the choice set. Note that the choice set excludes the local government of residence, so the summation is taken over $r \neq j$. Substituting this expression into the demand equation yields:

$$D_j = \sum_{k \neq j} N_k \Pr(j|k) = exp\left(\frac{v_j - p_j}{\sigma}\right) \sum_{k \neq j} \frac{N_k}{\sum_{r \neq k} exp\left(\frac{v_r - p_r}{\sigma}\right)} \qquad (5).$$

Since households do not donate to the local government of residence, the choice set in the denominator depends on the household's place of residence k.

Given this, the donation revenue of local government j is expressed as: [5]

$$REV_j = p_j D_j = p_j \sum_{k \neq j} N_k \Pr(j|k) = p_j exp\left(\frac{v_j - p_j}{\sigma}\right) \sum_{k \neq j} \frac{N_k}{\sum_{r \neq k} exp\left(\frac{v_r - p_r}{\sigma}\right)} \qquad (6).$$

On the cost side, local governments incur procurement costs and transportation costs for reciprocal gifts. Firms providing reciprocal gifts are assumed to be located within each jurisdiction, and goods are shipped from these locations to households. To determine transportation costs, the relevant distance is that between the firm and the household. For simplicity, we assume one firm per jurisdiction, indexed by the same subscript j as the corresponding local government. The location of firm j, denoted by θ_j^F, is assumed to be at the center of its jurisdiction. For example, if the jurisdiction of local government $j = 1$, is given by [0, $2\pi/J$), then the firm 1 is located at $(2\pi/J)/2$. In general, the location of firm j is given by $\theta_j^F = (2\pi/J)(j - 1/2)$.

The shortest distance between firm j, and household i is given by:

$$d\left(\theta_j^F, \theta_i^H\right) = min\left\{\left|\theta_j^F - \theta_i^H\right|, 2\pi - \left|\theta_j^F - \theta_i^H\right|\right\} \qquad (7).$$

Transportation costs are borne by local governments and are proportional to this distance. Let t denote the unit transportation cost. Taking into account the density of households, the expected transportation cost

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[4] The Gumbel distribution (extreme value distribution) is widely used in discrete choice models. When the unobservable components of utility are independently and identically according to this distribution, the resulting choice probabilities take the multinomial logit form.

[5] In this study, the donation price p for local governments is treated as an exogenous variable to maintain analytical tractability. Endogenizing the donation price and analyzing strategic interactions among local governments in the Salop-type circular framework remain important topics for future research.

T for local government j is given by:

$$T_j = \sum_{k \neq j} \int_{\theta \in A_k} \frac{J N_k}{2\pi} t_j d\left(\theta_j^F, \theta\right) \Pr(j|k) d\theta = t_j \sum_{k \neq j} N_k \Pr(j|k) d_{jk} \qquad (8)$$

$$d_{jk} \equiv \frac{1}{|A_k|} \int_{\theta \in A_k} d\left(\theta_j^F, \theta_i^H\right) \qquad (9)$$

Based on the above, the total cost for local government j is given by:

$$COST_j = gp_j D_j + T_j = \sum_{k \neq j} N_k \left(gp_j + t_j \bar{d}_{jk}\right) \Pr(j|k) \qquad (10).$$

Here, g denotes the ratio of the value of reciprocal gifts to the donation, and gPD represents the procurement cost of reciprocal gifts.

Under the Hometown Tax Donation system, donations are eligible for a resident tax credit, which reduces the tax revenue of the local government where the donor resides. Let OUT denote the tax revenue loss resulting from residents of local government j making donations to the other local governments. Then:

$$OUT_j = \sum_{k \neq j} N_j p_k \Pr(k|j) \qquad (11).$$

The net fiscal balance of local government j, denoted by NET, is given by:

$$NET_j = REV_j - COST_j - OUT_j + \omega \delta_j OUT_j = REV_j - COST_j - \left(1 - \omega \delta_j\right) OUT_j \qquad (12).$$

Here, $\omega \in (0,1)$ represents the compensation rate under the Local Allocation Tax (LAT) system, and $\delta \in \{0,1\}$ is an indicator that takes the value 1 if local government j receives such transfers and 0 otherwise. Under the current system, $\omega = 0.75$. Thus, while donation outflows reduce local tax revenue, a fraction ω of this loss is compensated for eligible local governments[6].

By aggregating the expected utility of households residing in local government j, we obtain economic welfare W is given by:

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[6] Under the actual Local Allocation Tax (LAT) system, revenue losses associated with the Hometown Tax Donation system are not necessarily compensated at a fixed rate such as 75%. The compensation rate may vary endogenously due to constraints on the total allocation and adjustments in the calculation formula. This study does not aim to replicate the institutional details of the LAT system. Instead, it focuses on the differential impact between local governments that receive transfers and those that do not. Accordingly, following the approach of the Nihon Keizai Shimbun "The Reality of the Hometown Tax: A Map of Net Revenue and Expenditure for All Municipalities" (https://vdata.nikkei.com/newsgraphics/hometown-tax-donation-trends-map/), we adopt a simplified approximation in which 75% of the revenue loss is compensated.

$$W_j = N_j \mathbb{E}\left[\max_{r \neq j}\left(1 + \frac{v_r - p_r}{\sigma} + \varepsilon_{i,r} + \gamma G_j\right)\right] = N_j\left[1 + \gamma G_j + ln\left(\sum_{r \neq j} exp\left(\frac{v_r - p_r}{\sigma}\right)\right)\right] \qquad (13).$$

Since the unobservable component follows an independent Gumbel distribution, we use the standard result that the expected maximum utility takes a log-sum form (McFadden, 1974)[7].

Public goods G are financed by the net fiscal balance NET of local government j and is specified as:

$$G_j = \frac{NET_j}{N_j^{\rho_j}} \qquad (14).$$

The parameter $\rho \in [0,1]$ captures the degree of rivalry in public goods. When $\rho = 0$, public goods are non-rival (pure public goods), whereas $\rho = 1$ corresponds to fully rival goods. For $0 < \rho < 1$, the public goods are partially rival. A higher degree of rivalry implies that the effective benefit of public goods per household decreases as the population increases. Finally, note that the net fiscal balance NET may be positive or negative. When it is negative, the level of public goods G becomes negative, reducing household welfare.

Finally, we decompose economic welfare W in local government j into private and public components. Specifically, welfare consists of private utility derived from donations, denoted by W^D, and utility from public goods:

$$W_j = N_j\left[1 + ln\left(\sum_{r \neq j} exp\left(\frac{v_r - p_r}{\sigma}\right)\right)\right] + N_j \gamma G_j = W_j^D + N_j \gamma_j G_j \qquad (15).$$

To distinguish between the effects of population size and fiscal policy, we define per-household economic welfare $\overline{W}$ as:

$$\overline{W_j} = \frac{W_j^D}{N_j} + \frac{N_j \gamma_j G_j}{N_j} = \overline{W_j^D} + \gamma_j G_j \qquad (16).$$

Here, $\overline{W^D}$ represents the average private utility derived from donations.

In this study, both total welfare and per-household welfare are considered to separately identify the effects of population size and institutional factors such as the Hometown Tax Donation system. The welfare measure used here is a partial measure evaluated from the perspective of households residing in

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[7] Strictly speaking, the log-sum social welfare function includes a constant term; however, since this constant is common to all households and all local governments and is irrelevant for comparative static analysis, it is omitted.

each local government, rather than a measure of aggregate national welfare. Accordingly, the analysis focuses on relative differences in welfare across local governments.

3. Numerical Simulation Analysis

In this section, we conduct a simulation analysis based on the theoretical model developed in the previous section. Because the model incorporates multiple nonlinear elements—such as the spatial distribution, logit-type donation demand, distance-based transportation costs, local government fiscal balances, and the Local Allocation Tax (LAT) system—it is analytically intractable to derive comparative statics. We therefore employ numerical methods to examine the effects of parameter changes. We first construct a symmetric equilibrium as a baseline case, in which all local governments share identical parameters. We then analyze how variations in key parameters affect local government revenues and expenditures, as well as household economic welfare.

Table 1 reports the parameter settings and case definitions. In the baseline case, the symmetric equilibrium yields identical outcomes across all local governments in terms of revenue, expenditure, and economic welfare. In Cases 1-7, asymmetry is introduced by varying the parameters of Local Government 1. The arrows (↑, ↓, →) indicate increases, decreases, and no changes relative to the baseline case, respectively.

Case 1 considers an increase in the brand strength v of Local Government 1's reciprocal gifts. As shown in Table 2, this leads to an increase in Local Government 1's donation revenue REV and an improvement in its net fiscal balance NET, while the donation revenues and net balances of other local governments decline. This result reflects a reallocation of donations: higher brand strength attracts donations toward Local Government 1, diverting demand from competing local governments. Thus, stronger brand strength enhances a local government's fiscal position under inter-governmental competition.

Table 1. Parameter Settings and Case Definitions

	Parameters	Baseline Case (Symmetric Equilibrium)	Case 1 $v(\uparrow)$	Case 2 $\sigma(\downarrow), v(\uparrow)$	Case 3 $p(\uparrow)$	Case 4 $t(\uparrow)$	Case 5 N$(\uparrow)$	Case 6 N$(\downarrow)$	Case 7 $\delta(\downarrow)$
Common	Reciprocal Gift Ratio g	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Attachment Scale Parameter σ	2.0	2.0	1.0 (↓)	2.0	2.0	2.0	2.0	2.0
	LAT Rate ω	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Local Government 1	Brand Strength v	0.5	0.8 (↑)	0.8 (↑)	0.5	0.5	0.5	0.5	0.5
	Donation Price p	0.3	0.3	0.3	0.4 (↑)	0.3	0.3	0.3	0.3
	Unit Transportation Cost t	0.05	0.05	0.05	0.05	0.10 (↑)	0.05	0.05	0.05
	Number of Households N	12	12	12	12	12	18 (↑)	6 (↓)	12
	LAT Dummy Variable δ	1	1	1	1	1	1	1	0 (↓)
	Weight of Public Goods γ	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Degree of Rivalry ρ	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other Local Governments 2-6	Brand strength v	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Donation Price p	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Unit Transportation Cost t	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	Number of Households N	12	12	12	12	12	12	12	12
	LAT Dummy Variable δ	1	1	1	1	1	1	1	1
	Weight of Public Goods γ	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Degree of Rivalry ρ	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Note: Arrows (↑) and (↓) indicate increases and decreases relative to the baseline case, respectively. Only the parameters of Local Government 1 are varied across cases; all other local governments remain symmetric.

Source: Author’s calculations.

Table 2: Results of Simulation Analysis Based on Numerical Analysis: Revenue and Expenditure of Local Governments

	Baseline Case (Symmetric Equilibrium)	Case 1 $v(\uparrow)$	Case 2 $\sigma(\downarrow), v(\uparrow)$	Case 3 $p(\uparrow)$	Case 4 $t(\uparrow)$	Case 5 N(↑)	Case 6 N(↓)	Case 7 $\delta(\downarrow)$
Donation revenue REV								
Local Government 1 : REV_1	3.6000	4.0515 (↑)	4,5417 (↑)	4.6109 (↑)	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)
Local Government 2 : REV_2	3.6000	3.5097 (↓)	3.4117 (↓)	3.6284 (↑)	3.6000 (→)	3.9600 (↑)	3.2400 (↓)	3.6000 (→)
Local Government 3 : REV_3	3.6000	3.5097 (↓)	3.4117 (↓)	3.6284 (↑)	3.6000 (→)	3.9600 (↑)	3.2400 (↓)	3.6000 (→)
Local Government 4 : REV_4	3.6000	3.5097 (↓)	3.4117 (↓)	3.6284 (↑)	3.6000 (→)	3.9600 (↑)	3.2400 (↓)	3.6000 (→)
Local Government 5 : REV_5	3.6000	3.5097 (↓)	3.4117 (↓)	3.6284 (↑)	3.6000 (→)	3.9600 (↑)	3.2400 (↓)	3.6000 (→)
Local Government 6 : REV_6	3.6000	3.5097 (↓)	3.4117 (↓)	3.6284 (↑)	3.6000 (→)	3.9600 (↑)	3.2400 (↓)	3.6000 (→)
Expenditure $COST$								
Local Government 1 : $COST_1$	2.1796	2.4529 (↑)	2.7497 (↑)	2.4395 (↑)	3.2791 (↑)	2.1796 (→)	2.1796 (→)	2.1796 (→)
Local Government 2 : $COST_2$	2.1796	2.1223 (↓)	2.0601 (↓)	2.1976 (↑)	2.1796 (→)	2.3556 (↑)	2.0035 (↓)	2.1796 (→)
Local Government 3 : $COST_3$	2.1796	2.1262 (↓)	2.0683 (↓)	2.1963 (↑)	2.1796 (→)	2.4185 (↑)	1.9407 (↓)	2.1796 (→)
Local Government 4 : $COST_4$	2.1796	2.1288 (↓)	2.0737 (↓)	2.1955 (↑)	2.1796 (→)	2.4603 (↑)	1.8988 (↓)	2.1796 (→)
Local Government 5 : $COST_5$	2.1796	2.1255 (↓)	2.0669 (↓)	2.1965 (↑)	2.1796 (→)	2.4080 (↑)	1.9511 (↓)	2.1796 (→)
Local Government 6 : $COST_6$	2.1796	2.1216 (↓)	2.0587 (↓)	2.1978 (↑)	2.1796 (→)	2.3452 (↑)	2.0140 (↓)	2.1796 (→)
Outflow OUT								
Local Government 1 : OUT_1	3.6000	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)	5.4000 (↑)	1.8000 (↓)	3.6000 (→)
Local Government 2 : OUT_2	3.6000	3.6000 (→)	3.6000 (→)	3.8305 (↑)	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)
Local Government 3 : OUT_3	3.6000	3.6000 (→)	3.6000 (→)	3.8305 (↑)	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)
Local Government 4 : OUT_4	3.6000	3.6000 (→)	3.6000 (→)	3.8305 (↑)	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)
Local Government 5 : OUT_5	3.6000	3.6000 (→)	3.6000 (→)	3.8305 (↑)	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)
Local Government 6 : OUT_6	3.6000	3.6000 (→)	3.6000 (→)	3.8305 (↑)	3.6000 (→)	3.6000 (→)	3.6000 (→)	3.6000 (→)
Net Revenue NET								
Local Government 1 : NET_1	0.5204	0.6986 (↑)	0.8920 (↑)	1.2714 (↑)	-0.5791 (↓)	0.0704 (↓)	0.9704 (↑)	-2.1796 (↓)
Local Government 2 : NET_2	0.5204	0.4874 (↓)	0.4516 (↓)	0.4732 (↓)	0.5204 (→)	0.7044 (↑)	0.3365 (↓)	0.5204 (→)
Local Government 3 : NET_3	0.5204	0.4835 (↓)	0.4434 (↓)	0.4732 (↓)	0.5204 (→)	0.6415 (↑)	0.3993 (↓)	0.5204 (→)
Local Government 4 : NET_4	0.5204	0.4809 (↓)	0.4379 (↓)	0.4732 (↓)	0.5204 (→)	0.5997 (↑)	0.4412 (↓)	0.5204 (→)
Local Government 5 : NET_5	0.5204	0.4842 (↓)	0.4448 (↓)	0.4732 (↓)	0.5204 (→)	0.6520 (↑)	0.3889 (↓)	0.5204 (→)
Local Government 6 : NET_6	0.5204	0.4881 (↓)	0.4530 (↓)	0.4732 (↓)	0.5204 (→)	0.7148 (↑)	0.3260 (↓)	0.5204 (→)

Note: Arrows (↑) and (↓) indicate increases and decreases relative to the baseline case, respectively. Source: Author's calculations.

Table 3: Results of Simulation Analysis Based on Numerical Analysis: Economic Welfare

	Baseline Case (Symmetric Equilibrium)	Case 1 $v(\uparrow)$	Case 2 $\sigma(\downarrow), v(\uparrow)$	Case 3 $p(\uparrow)$	Case 4 $t(\uparrow)$	Case 5 N(↑)	Case 6 N(↓)	Case 7 $\delta(\downarrow)$
Social Welfare W								
Local Government 1 : W_1	80.1131	80.7302 (↑)	88.3742 (↑)	82.7144 (↑)	76.3041 (↓)	117.7642 (↑)	41.5322 (↓)	70.7600 (↓)
Local Government 2 : W_2	80.1131	82.1451 (↑)	91.9764 (↑)	79.3026 (↓)	80.1131 (→)	80.7503 (↑)	79.4760 (↓)	80.1131 (→)
Local Government 3 : W_3	80.1131	82.1314 (↑)	91.9479 (↑)	79.3026 (↓)	80.1131 (→)	80.5326 (↑)	79.6936 (↓)	80.1131 (→)
Local Government 4 : W_4	80.1131	82.1223 (↑)	91.9290 (↑)	79.3026 (↓)	80.1131 (→)	80.3875 (↑)	79.8387 (↓)	80.1131 (→)
Local Government 5 : W_5	80.1131	82.1337 (↑)	91.9527 (↑)	79.3026 (↓)	80.1131 (→)	80.5689 (↑)	79.6573 (↓)	80.1131 (→)
Local Government 6 : W_6	80.1131	82.1473 (↑)	91.9811 (↑)	79.3026 (↓)	80.1131 (→)	80.7866 (↑)	79.4397 (↓)	80.1131 (→)
Private Utility W^D								
Local Government 1 : W_1^D	78.3103	78.3103 (→)	85.2842 (↑)	78.3103 (→)	78.3103 (→)	117.4654 (↑)	39.1551 (↓)	78.3103 (→)
Local Government 2 : W_2^D	78.3103	80.4565 (↑)	90.4120 (↑)	77.6635 (↓)	78.3103 (→)	78.3103 (→)	78.3103 (→)	78.3103 (→)
Local Government 3 : W_3^D	78.3103	80.4565 (↑)	90.4120 (↑)	77.6635 (↓)	78.3103 (→)	78.3103 (→)	78.3103 (→)	78.3103 (→)
Local Government 4 : W_4^D	78.3103	80.4565 (↑)	90.4120 (↑)	77.6635 (↓)	78.3103 (→)	78.3103 (→)	78.3103 (→)	78.3103 (→)
Local Government 5 : W_5^D	78.3103	80.4565 (↑)	90.4120 (↑)	77.6635 (↓)	78.3103 (→)	78.3103 (→)	78.3103 (→)	78.3103 (→)
Local Government 6 : W_6^D	78.3103	80.4565 (↑)	90.4120 (↑)	77.6635 (↓)	78.3103 (→)	78.3103 (→)	78.3103 (→)	78.3103 (→)
Social Welfare per Household $\bar{W}$								
Local Government 1 : $\overline{W_1}$	6.6761	6.7275 (↑)	7.3645 (↑)	6.8929 (↑)	6.3587 (↓)	6.5425 (↓)	6.9220 (↑)	5.8967 (↓)
Local Government 2 : $\overline{W_2}$	6.6761	6.8454 (↑)	7.6647 (↑)	6.6085 (↓)	6.6761 (→)	6.7492 (↑)	6.6230 (↓)	6.6761 (→)
Local Government 3 : $\overline{W_3}$	6.6761	6.8443 (↑)	7.6623 (↑)	6.6089 (↓)	6.6761 (→)	6.7111 (↑)	6.6411 (↓)	6.6761 (→)
Local Government 4 : $\overline{W_4}$	6.6761	6.8435 (↑)	7.6607 (↑)	6.6091 (↓)	6.6761 (→)	6.6990 (↑)	6.6532 (↓)	6.6761 (→)
Local Government 5 : $\overline{W_5}$	6.6761	6.8445 (↑)	7.6627 (↑)	6.6088 (↓)	6.6761 (→)	6.7141 (↑)	6.6381 (↓)	6.6761 (→)
Local Government 6 : $\overline{W_6}$	6.6761	6.8456 (↑)	7.6651 (↑)	6.6085 (↓)	6.6761 (→)	6.7322 (↑)	6.6200 (↓)	6.6761 (→)
Private Utility per Household $\overline{W^D}$								
Local Government 1 : $\overline{W_1^D}$	6.5259	6.5259 (→)	7.1070 (↑)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)
Local Government 2 : $\overline{W_2^D}$	6.5259	6.7047 (↑)	7.5343 (↑)	6.4720 (↓)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)
Local Government 3 : $\overline{W_3^D}$	6.5259	6.7047 (↑)	7.5343 (↑)	6.4720 (↓)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)
Local Government 4 : $\overline{W_4^D}$	6.5259	6.7047 (↑)	7.5343 (↑)	6.4720 (↓)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)
Local Government 5 : $\overline{W_5^D}$	6.5259	6.7047 (↑)	7.5343 (↑)	6.4720 (↓)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)
Local Government 6 : $\overline{W_6^D}$	6.5259	6.7047 (↑)	7.5343 (↑)	6.4720 (↓)	6.5259 (→)	6.5259 (→)	6.5259 (→)	6.5259 (→)

Note: Arrows (↑) and (↓) indicate increases and decreases relative to the baseline case, respectively. Source: Author's calculations.

Consistent with this result, Table 3 shows that overall economic welfare W increases across all local governments. However, the private utility component W_1^D of Local Government 1 remains unchanged. This indicates that the increase in brand strength does not directly benefit its residing. Because households cannot receive reciprocal gifts from their own local government, improvements in Local Government 1's welfare arise solely through an increase in public goods G associated with improved fiscal balances.

Case 2 considers an increase in the brand strength v of Local Government 1's reciprocal gifts combined with a decrease in the scale parameter σ, which governs preference dispersion. A smaller σ implies that households are more sensitive to utility differences, making brand effects more pronounced. As shown in Table 2, compared with Case 1, this leads to a further increase in donation revenue REV and net fiscal balance NET for Local Government 1, while the net balances of other local governments declines. This reflects a stronger concentration of donations as preference dispersion decreases.

It is worth noting that under the symmetric baseline equilibrium, varying σ alone does not affect outcomes, since all local governments remain identical. However, when combined with differences in brand strength, a lower σ amplifies asymmetries across local governments. Comparing Case 2 with Case 1 in Table 3 shows that the private utility component W_1^D of Local Government 1 increases. This is because the stronger concentration of donations raises Local Government 1's fiscal capacity, thereby enhancing the consumption of reciprocal gifts by households outside the local government.

Case 3 considers an increase in the donation price p for Local Government 1. As shown in Table 2, this increases in its donation revenue REV and net fiscal balance NET, while the net balances of other local governments deteriorate. The increase in p raises revenue per donation, which outweighs the reduction in demand. As a result, the economic welfare W in Local Government 1 improves through increased public goods provision G. In contrast, the welfare of other local governments declines due to the reduction in donations inflows. The private utility component W_1^D remains unchanged, as households cannot receive reciprocal gifts from their own local government.

Case 4 examines an increase in the unit transportation cost t for Local Government 1. As shown in Table 2, donation revenue REV remains unchanged, while total costs $COST$ increase substantially, leading to a deterioration in the net fiscal balance NET. Consequently, as shown in Table 3, economic welfare W declines significantly. This result reflects the structure of the model: transportation costs affect only the supply side and do not influence household demand. The increase in t raises costs without altering donation behavior, thereby reducing public goods provision G through a worsening fiscal balance, while private utility remains unchanged. Therefore, local governments facing higher transportation costs are at a disadvantage in terms of fiscal balance and welfare.

Cases 5 and 6 examine changes in the number of households N in Local Government 1. In Case 5, the number of households increases, whereas in Case 6 it decreases. As shown in Table 2, an increase in N worsens the net fiscal balance NET, while a decrease in N improves it. This result arises through two channels. First, a larger population increases the outflow of tax revenue OUT, as more residents donate to other local governments. Second, it raises transportation costs, since more households must be served. Conversely, a reduction in population lowers both outflows and transportation costs, thereby improving the fiscal balance. These findings imply that, under the Hometown Tax Donation system, population growth does not necessarily improve a local government's fiscal position, whereas population decline may lead to an improvement in net fiscal balance.

Although an increase in the number of households N (Case 5) raises total economic welfare W in Local Government 1, this result is driven by a scale effect. When evaluated in per-household terms, welfare declines as population increases. This decline reflects a reduction in public goods provision G due to the deterioration of the fiscal balance. In contrast, per-household welfare in other local governments improves, as increased donations inflows from Local Government 1 enhances their fiscal capacity and expand public goods provision.

Case 7 considers a scenario in which Local Government 1 dose not receive LAT transfers ($\delta = 0$). As shown in Table 2, the loss of compensation leads to a substantial deterioration in its net fiscal balance and a decline in economic welfare W. This result highlights the stabilizing role of the LAT system. By compensating for revenue losses, the system helps sustain the fiscal capacity of recipient local governments and supports household welfare through the provision of public goods.

4. Empirical Analysis of Local Government Fiscal Balance

In this section, we examine the empirical validity of the theoretical results derived in the previous sections using data from Japan's Hometown Tax Donation Program. Since economic welfare is not directly observable, we focus on local government revenue and expenditure as empirical proxies. The simulation analysis in the previous section yields several key predictions. First, an increase in the number of households worsens the fiscal balance of local governments, whereas a decrease improves them (Cases 5 and 6). Second, the absence of compensation through the Local Allocation Tax (LAT) system leads to a deterioration in fiscal balances (Case 7). In these cases, the simulation results suggest that changes in the number of households lead to corresponding changes in outflow, which in turn affect the balance of revenues and expenditures. Therefore, in this section, we empirically test whether the impact of the number of households on local government outflow holds in actual data.

We map the number of households in the model to population N in the data and estimate the following specification for local government outflow:

$$ln(OUT_j) = \alpha_0 + \alpha_1 \, ln(N_j) - \alpha_2 \, DUM_j + \alpha_3 \left\{ln(N_j) \times DUM_j\right\} + \epsilon_j \qquad (17).$$

Here, α denotes the estimated coefficients and ϵ is the error term. The logarithmic specification allows us to estimate the elasticity of population with respect to outflow. The dummy variable DUM takes the value 1 if the net fiscal balance is in surplus and 0 if it is in deficit. The interaction term allows the population elasticity of outflow to differ between surplus and deficit local governments.

We construct the empirical counterparts of the variables using official statistics from the Ministry of Internal Affairs and Communications. Specifically, we define outflow OUT as tax deductions associated with hometown tax donations, based on the "Survey on the Current Status of Hometown Tax Donations" (FY2024). Population data are obtained from the "Survey of Financial Statements by Municipality" (FY2023). The number of residents recorded in the Basic Resident Register as of January 1, 2024 serves as a proxy for N. Table 4 reports the descriptive statistics of the main variables[8].

We define a dummy variable $\delta \in \{0,1\}$ indicating LAT eligibility, based on the Ministry of Internal Affairs and Communications' "Results of the Calculation of General Allocation Tax" (FY2024). Based on these data, we compute the fiscal balance NET and classify local governments into surplus and deficit groups. Table 4 presents descriptive statistics for all local governments, as well as for surplus and deficit groups.

[8] Prefectures are excluded from the analysis. In addition, local governments with zero values for one of the key variables are excluded. Specifically, the excluded municipalities are Miyake Village (Tokyo), Mikura-jima Village (Tokyo), Daiji Town (Aichi), and Sumo City (Hyogo).

Table 4 Descriptive Statistics of Local Government Variables and Local Allocation Tax Compensation

	All Local Governments		Surplus Local Governments		Deficit Local Governments	
	Population N (persons)	Outflows OUT (yen)	Population N (persons)	Outflows OUT (yen)	Population N (persons)	Outflows OUT (yen)
Mean	71,852.4605	328,116,341.1995	41,725.9287	106,773,991.6553	251,885.7108	1,650,836,887.8782
Standard error	4,537.3127	34,887,687.5288	2,031.6251	9,143,141.5647	26,548.8843	219,554,898.7274
Standard deviation	189,103.0877	1,454,025,735.7452	78,369.1324	352,693,056.4320	418,934.3287	3,464,517,864.7610
Minimum	156	50,558	314	50,558	156	369,975
Maximum	3,752,969	34,337,770,368	1,379,529	9,146,705,309	3,752,969	34,337,770,368
Number of observations	1,737	1,737	1,488	1,488	249	249
LAT Compensation Available (current)	Number of Surplus LGs	Number of Deficit LGs	LAT Not Available (simulation)	Number of Surplus LGs	Number of Deficit LGs	Total
Number of LGs Receiving LAT	1,465	167	Number of LGs Receiving LAT	1,229	403	1,632
Number of LGs Not Receiving LAT	23	82	Number of LGs Not Receiving LAT	23	82	105
Total	1,488	249	Total	1,252	485	1,737

Source: Author's calculations, Note: LG denotes local government.

According to the descriptive statistics reported in Table 4, both population and outflow are substantially larger, on average, in deficit local governments than in surplus ones. This pattern may reflect underlying differences between urban and rural areas. The estimated outflow function is as follows:

$$ln(OUT_j) = 5.9033 + 0.2125\, ln(N_j) - 1.3153\, DUM_j + 0.0569\, \{ln(N_j) \times DUM_j\} + \epsilon_j \qquad (18).$$

(0.0000) (0.0000) (0.0000) (0.0153) Adjusted R^2=0.9456

The values in parentheses represent p-values, and all key coefficients are statistically significant. The coefficient on the logarithm of population is positive and significant at the 1% level, indicating that outflow increases with population size. This result supports the predictions of the theoretical model.

The coefficient on the dummy variable is negative and significant, implying a lower baseline level of outflow for surplus municipalities. In addition, the positive and significant coefficient on the interaction term indicates that the population elasticity of outflow is larger for surplus local governments than for deficit ones.

Furthermore, the coefficient on the interaction term between population $ln(N)$ and the dummy variable DUM is positive and statistically significant at the 3% level. This indicates that the elasticity of outflows with respect to population differs between surplus and deficit local governments. In particular, outflows in surplus local governments respond more strongly to changes in population than in deficit local governments. That is, population growth (or decline) leads to a larger increase (or decrease) in outflows in surplus local governments.

In addition, the coefficient on the dummy variable DUM is negative and statistically significant. This indicates that, holding population constant, the baseline level of outflows is lower in surplus local governments than in deficit ones. This result suggests the presence of structural differences between the two groups. One possible explanation is that households in surplus local governments tend to have higher income levels, leading to greater participation in donation activities.

Next, we conduct a counterfactual analysis to examine the role of compensation through the LAT system. As shown in Table 4, under the current system, there are 1,632 recipient local governments and 105 non-recipient local governments. Among these, 1,488 are surplus local governments and 249 are deficit local governments. Within the surplus group, 1,465 local governments receive LAT, while 23 do not; within the deficit group, 82 local governments receive LAT and 167 do not. Using this distribution as the baseline, we simulate a scenario without compensation by setting the LAT dummy variable δ to zero for all local governments.

The results are summarized in Table 4. Under the counterfactual scenario without LAT compensation, the number of local governments in surplus decreases to 1,252, while the number of deficit local governments increases to 485. Among surplus local governments, 1,229 receive LAT and 23 do not, whereas among deficit local governments, 403 do not receive LAT and 82 do. Overall, 236 local governments would shift from surplus to deficit in the absence of compensation. Furthermore, the difference between total revenue and expenditure with and without compensation amounts to 286.7 billion yen. This figure represents the aggregate level of compensation provided through the LAT system. The results indicate that local governments receive approximately 300 billion yen in compensation under the Hometown Tax Donation system.

5. Conclusion

This study provides the first application of a Salop-type circular model to the Hometown Tax Donation system and develops a unified framework to analyze its effects on local government finances and household economic welfare.

The analysis highlights two key channels through which the system affects welfare: private utility derived from reciprocal gifts and public utility derived from public goods financed by local government. By integrating these channels, the study demonstrates—through theoretical modeling, numerical simulations, and empirical analysis—that the system generates substantial redistribution across local governments.

The results show that household donation behavior is driven by donation prices, brand strength, and idiosyncratic attachment, leading to endogenous selection of recipient local governments. Local government finances are shaped not only by donation revenue but also by procurement and transportation costs of reciprocal gifts and by fiscal outflows associated with tax deductions. Importantly, transportation costs do not affect household demand but instead influence local government expenditures, placing local governments with higher transportation costs at a disadvantage.

Furthermore, the findings indicate that an increase (decrease) in population leads to higher (lower) outflows of donations, thereby worsening (improving) local fiscal balances and affecting household welfare through changes in public goods provision. In addition, transitioning from a LAT-receiving to a non-receiving local government results in a deterioration of fiscal balance and a decline in welfare.

The empirical analysis supports these mechanisms and shows that deficit local governments are more prevalent in urban areas, while surplus local governments are more common in rural areas. Moreover, counterfactual simulations reveal that the LAT system plays a critical role in mitigating fiscal disparities by compensating for outflows. Without such compensation, a substantial number of local governments would shift into deficit.

Overall, the Hometown Tax Donation system functions not only as a mechanism of inter-governmental competition but also as a quasi-redistributive system. Its welfare implications depend critically on institutional design, particularly the structure of fiscal transfers and the cost burden associated with reciprocal gifts.

This study has several limitations that point to directions for future research. First, the model assumes that all households make donations; incorporating non-donating households would allow for a more realistic representation of participation behavior. Second, local governments' donation policies are treated as exogenous. Endogenizing these decisions would enable a richer analysis of strategic interactions and competition. Third, the model assumes a single firm in each local government and does not explicitly consider firms' optimization behavior. Introducing profit-maximizing firms and endogenous location choices would provide deeper insights into the supply-side mechanisms underlying the provision of reciprocal gifts. Addressing these limitations would contribute to a more comprehensive understanding of the Hometown Tax Donation system and its broader economic implications.

References

Anderson, S. P. (1987) "Spatial Competition and Price Dispersion," ***Review of Economic Studies***, 54(2), pp. 175–191.

Ayukawa, M. (2022) "Effects of Administrative Cost for Accepting Hometown Tax Donation by Local Governments on Local Public Finance," ***Journal of Household Economics***, 56, pp.49–67, The Japan Society of Household Economics. (in Japanese)

Ayukawa, M. (2023) "Effects of Corporate Inhabitant Tax on Local Finance under the Hometown Tax Payment System," ***Journal of Regional Studies***, 53(1), pp.37–57, Japan Society of Regional Science. (in Japanese)

Hotelling, H. (1929) "Stability in Competition," ***Economic Journal***, 39(153), pp. 41–57.

Kato, H. and M. Yanagihara (2021) "Gift Competition in the 'Furusato Nozei System': A Theoretical Approach in the Framework of Tax Competition," ***Journal of Regional Studies***, 51(2), pp.175-195, Japan Society of Regional Science. (in Japanese)

Oates, W. E. (1972) ***Fiscal Federalism***, New York: Harcourt Brace Jovanovich.

Salop, S. C. (1979) "Monopolistic Competition with Outside Goods," ***The Bell Journal of Economics***, 10(1), pp. 141–156.

Tiebout, C. M. (1956) "A Pure Theory of Local Expenditures," ***Journal of Political Economy***, 64(5), pp. 416–424.

Uemura, T. (2025) "Economic Behavior of Local Governments and Hometown Tax Donation (Furusato Nozei) in Japan: Effects of Regulations in a Monopolistic Competition Model," ***Japanese Journal of Local Public Finance***, 32, pp.53-77, Japanese Association of Local Finance Studies (ed.), Gogen-sha. (in Japanese)

Uemura, T. (2026a) "Structure of the Hometown Tax Donation (Furusato Nozei) Market and Revenue and Expenditure Structure of Local Governments in Japan," ***Japanese Journal of Local Public Finance***, 33, pp.51-71, Japanese Association of Local Finance Studies (ed.), Gogen-sha. (in Japanese)

Uemura, T. (2026b) "Donation Amounts and Number of Donations in the Hometown Tax Donation (Furusato Nozei) in Japan －An Economic Analysis of Brand Strength and Transportation Costs－," ***Public Finance Studies***, 21, forthcoming, Japanese Institute of Public Finance (ed.), Yuhikaku. (in Japanese)

Zodrow, G. R., and Mieszkowski, P. (1986) "Pigou, Tiebout, Property Taxation, and the Underprovision of Local Public Goods," ***Journal of Urban Economics***, 19(3), pp. 356–370.