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Testing the Partisan Bias in the Japanese Fiscal Equalization System

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Abstract

Japanese local governments are depending on fiscal transfer from the central government. The general transfer is called Local Allocation Tax (LAT, below). Previous research has insisted that the amount of LAT for each local government is calculated by very meticulous formula objectively. This research refutes that view by constructing intergovernmental model and by testing partisan bias. Actually central government favors local governments with similar partisan characteristics to increase the amount of transfer, whereas central government dislikes local governments with different partisanship to decrease the amount of transfer.

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1 Introduction

Japan reputedly is a centralized unitary country, however, almost 6 out of 10 jobs are done by the local government. Since local revenue sources such as

local tax consist only 0.4 of total government revenue, local governments need large transfer from the central government. The total amount of revenue for all local governments was 92.2 trillion yen in 2008 fiscal year, whereas the total amount of transfer from central government was 27.1 trillion yen. Transfer from central government to local governments consist of general revenue, Local Allocation Tax (LAT, below) and special revenue, National Grants-in-aid. The former was 15.4 trillion and the latter was 11.7 trillion in 2008.

This research concentrates on how LAT is distributed among Japanese prefectures. This research does not focus on how the total amount of LAT is determined by the Ministry of Finance, the Ministry of Internal Affairs and Communications and the governing party (Kitamura 2009). This research deals with Japanese 47 prefectures rather than municipalities so that units are relatively comparable.

According to the regular view, the amount of LAT that each autonomy receives is determined by a strict formula. However, this research insists that there are much room for discretion by the Ministry of Internal Affairs and Communications and the governing party. If the central government favors a certain local government, the center can increase the amount of LAT, whereas the center can decrease LAT for disfavored local governments.

I will explain existing explanation of how LAT is distributed in the second chapter. Then I will develop a model in the third chapter. The data and testing ensues in the fourth chapter. Finally I will conclude proposition in the fifth chapter.

2 Existing Research

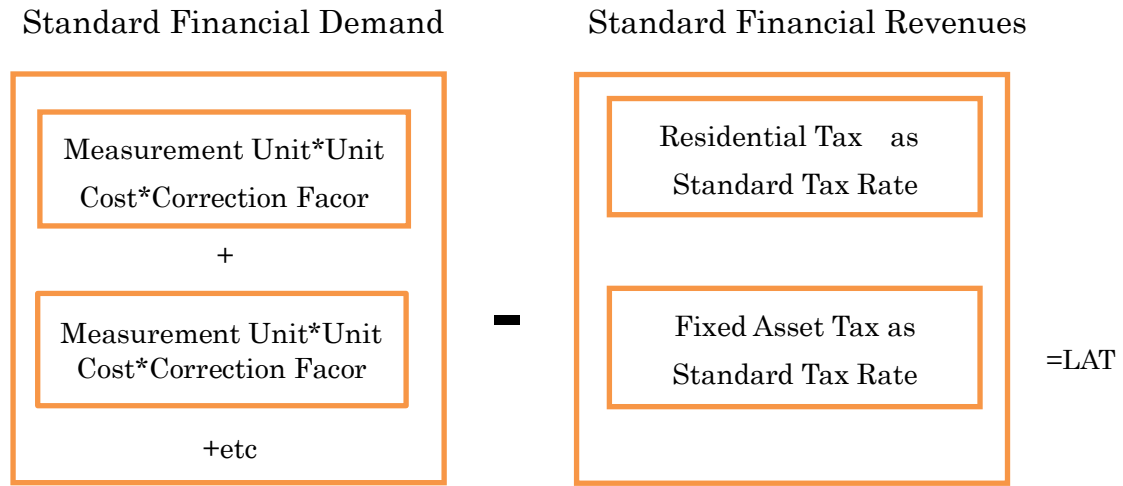
This chapter introduces existing explanation of how LAT is determined, and then proposes my own hypothesis that develops in detail in the following chapter.

LAT originated so that local governments can ensure minimum policy standard (Takagi 2008). In order to fill this aim, LAT is calculated by subtracting Standard Financial Revenues from Standard Financial Demand. Standard Financial Revenues is the amount of presumable local tax that a local government can collect if it levies by standard rate for all local taxes. Standard Financial Demand is the amount of probable fiscal demand that

burden a local government if it fulfills minimum policy standard. Standard Financial Demand is accumulation of all public administrative areas such as elementary school, fire fighting, road construction, sewage, park, and etc. Standard Financial Demand for each policy area is calculated by multiplication of Measurement Unit, Unit Cost, and Correction Factor.

Measurement Unit proxies administrative cost as child population influences education expenditure. Unit Cost is administrative cost for one unit of Measurement Unit. Correction Factor adjusts specific affairs for each local government. For instance, an autonomy with cold climate should spend more to remove snow and thus LAT is increased by multiplying Correction Factor. Generally, sparse local governments reportedly receive more LAT by Correction Factors.

Fig 1. Formula of Local Allocation Tax



Local governments receive special LAT other than regular LAT described above. Special LAT are prepared to respond irregular fiscal demands such as disaster relief. Regular LAT were 14.5 trillion yen while special LAT were 0.9 trillion in 2008 fiscal year for all local governments (Soumusho 2010). As to distribution of special LAT, bureaucrats have much room for discretion (Takagi 2008: 126).

According to the textbook view, the distribution of LAT is objectively determined by a strict formula described above. This view is my null hypothesis.

On the contrary, I propose a hypothesis that the central government increase LAT for favored local governments and decrease LAT for disfavored

local governments. The total amount of LAT for all local governments is a solution of game between the Ministry of Finance, the Ministry of Internal Affairs and Communications, and the governing party (Kitamura 2009). LAT is evinced in the Local Financing Program before a fiscal year starts. Several months after, each local government is informed of its precise LAT. During which the bureaucrats have discretion to fill the gap between necessary LAT and available LAT. The bureaucrats can determine Unit Cost and application of Correction Factor such as Level Correction (Akai, Sato, and Yamashita 2003: 64-68). By operating these coefficients, the central government has much room of discretion to determine LAT for each local government.

In this research, I propose a hypothesis that the central government increase LAT for favored local governments, while the center decrease LAT for disfavored local governments. Concretely, the center favors local governments with common partisanship while the center disfavors local governments with opposite partisanship.

3 Model

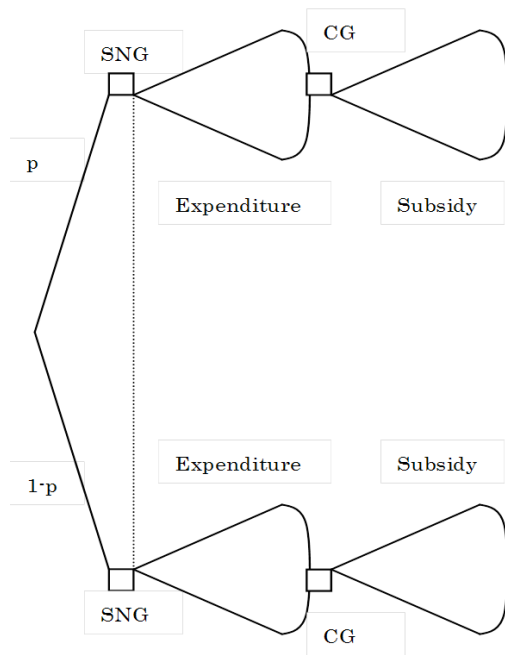
This chapter develops a simple model to explain level of LAT. Jonathan Rodden has developed a model in which irresolute central government relieves local government in fiscal crisis while resolute central government does not relieve local government (Rodden 2006). Resolute central government is resolved to accept insolvency by local governments in fiscal crisis, whereas irresolute central government is ready to rescue local governments to avoid insolvency. Rodden derives an equilibrium that central government tends to rescue big local governments due to externality, local governments that had been rescued in the past. In these cases, local governments suffer from moral hazard to increase expenditure. Rodden's model regards fiscal relief dichotomously, but subsidy as a relief is continuous in reality.

My own model has two actors, subnational government (SNG) and central government (CG). First, nature chooses whether central government is resolute or irresolute. Subnational government has a certain prior belief "p" that central government is resolute. Then, SNG chooses its level of expenditure "e" ($\underline{e} < e < \bar{e}$). Thereafter, CG chooses the amount of subsidy $s(\underline{s} < s < \bar{s})$. Subnational government seeks to maximize the probability of

reelection “ $\Pr(e)$ ”. Reelection probability is influenced by the level of expenditure, “ e ”, and the amount of local bond, “ e - s .” The more a local government spends, the more voters are pleased and the probability of reelection rises. On the other hand, a local government issues local bond for the expenditure not financed by national subsidy. Since Japanese local governments don’t have enough power to implement local tax, I regard local tax as constant and denote local bond as “ e - s ”. Now, voters compare positive effect by expenditure and negative effect by local bond. I denote λ as a parameter that voters weigh expenditure compared with local bond. Consequently, local government’s object function, the probability of reelection is defined as below.

$$\Pr(e) = f(\lambda e - (e - s)) = f((\lambda - 1)e + s)$$

Fig.2 Model



Assumptions for the shape of function are (1) $\Pr(e)$ is concave function, (2) $\lambda > 1$ and thus voters outweigh expenditure over local bond, (3) $f' > 0$ and $f'' < 0$, and thus some point where expenditure is optimal exists.

Utility function for CG is defined as

$$U_{cgr} = af((\lambda - 1)e + s) - s$$

$$U_{cgi} = bf((\lambda - 1)e + s) - s$$

U_{cgr} denotes utility for resolute central government, and U_{cgi} denotes utility for irresolute central government. “ a ” means parameter that resolute CG weighs reelection probability over subsidy expenditure. “ b ” denotes how important the probability of reelection of local government is for irresolute central government. I assume $0 < a < b$, which means that both types of government hope reelection of incumbent local government, and irresolute central government craves reelection of the local government more than resolute central government does.

The first order condition of the central government’s utility is

$$\odot \quad f'((\lambda - 1)e + s_{cgr}^*) = \frac{1}{a}$$

$$\odot \quad f'((\lambda - 1)e + s_{cgi}^*) = \frac{1}{b}$$

Since $0 < a < b$, $s_{cgr}^* > s_{cgi}^*$ in the bayesian nash equilibrium. Subnational government does not have an opportunity to update prior belief “ p ” that central government is resolute, and thus subnational government should decide level of expenditure as

$$\odot \quad f'((\lambda - 1)e_{sng}^* + s^*) = 0$$

,where $s^* = ps_{cgr}^* + (1 - p)s_{cgi}^*$

A testable hypothesis derived from this chapter’s model is that local government receives more subsidy when the central government wishes reelection of the local government more.

4 Test

In this chapter, I will test the hypothesis in the previous chapter by using LAT data in Japanese prefectures.

The dependent variable here is the amount of LAT, regular LAT, and special LAT. When the fiscal source for LAT is insufficient, the central government allows local governments issue special bonds for the extraordinary financial measures [Rinji Zaisei Taisaku Sai], and the center ensures that these bonds will be redeemed in the future. In the present harsh fiscal situation, local

governments cannot view these bonds as substitute for subsidy. I consider only real subsidy as LAT in this research.

Still there are several caveats. The amount of LAT each prefecture receives is divided by its population. This per capita LAT is further divided by this year's average per capita LAT for the prefectures. There is clear trend of increase and decrease in the total amount of LAT by the national policy. Therefore, I controlled year specific factor by dividing national average per capita LAT (the total amount of LAT for prefecture divided by national population).

Some prefectures do not receive LAT at all [Fukofu Dantai]. Tokyo is regarded that it has sufficient revenue sources and does not need fiscal guarantee by LAT. Kanagawa, Aichi, and Osaka did not receive LAT in some years. In these cases, dependent variables are truncated by 0, because there is no negative subsidy. I ignored this truncation as exceptional in the analysis.

I collected data that can affect the amount of LAT. If objectivity hypothesis in determination of LAT is correct, land size and population would be important. However, land size and population hardly varies over time, and these factors cannot explain the variation of LAT over time. I also collected data that may affect Standard Financial Demand, such as unemployment, birth rate, per capita gross prefectural product (nominal, 2000 standard), the number of hospitals per 100,000 residents and the number of elementary students per 1,000 residents. These variables are included to test objectivity hypothesis.

On the other hand, I collected partisanship of the governor to test partisan hypothesis. If the governor has common partisanship with the central government, the center tend to be irresolute to ignore fiscal crisis, whereas the central government tend to be resolute to neglect fiscal crisis in the prefecture whose governor has different partisanship. Consequently, the prefecture with common partisanship would receive more subsidy than the prefecture with different partisanship.

In order to test this hypothesis, I collected governor's partisanship, the party support coalition in the previous gubernatorial election, from Zenkoku Shucho Meibo.

I consider the governing party in the central government as LDP(Liberal Democratic Party)(-2000) and LDP-Komei(2000-). I neglected other

governing party such as JSP(Japan Socialist Party), New Liberal Party, and etc, since they were governing only short period of time. After defining governing party in the center, I compared gubernatorial party recommendation and support with the central government. If governor's support party(s) are precisely the same with the center, I regard common partisanship. If governor's coalition is partly realigned with the center, I regard it's partly common coalition. This category includes multi-partisan governor [Ainori]. If the governor was supported only by opposition party such as JSP, the partisanship is named opposition. If the governor was not supported by any party, he or she is regarded as non-partisan governor. I divided all governors into these four categories.

I hypothesize that prefectures with the latter three types of governor have less LAT than prefectures with the governor of common partisanship.

I assumed one year of lag effect in the model. That is, independent variables of 2007 would affect dependent variable of a year later, and I collected LAT data from 1976 to 2008. I applied fixed effect model, and included 46 prefecture dummy variables, which would proxy land size and population size. Since unemployment and GPP data are only available after 1996, I analyzed models with and without these "objectivity" variables. Partisan variables are included in both models.

Fig. 3 Analysis without objectivity variables (except prefecture dummy) for 1976-2008

	LAT	Regular LAT	Special LAT
Coalition (realigned coalitions are included)	-.0211429*	-.0223101*	.0580661*
Non-partisan	-.0094751	-.0096244	.0382451
Opposition	.0061531	.0064273	.0003459
Constant	1.576283*	1.57462*	1.643179
R2 within	0.0055	0.0059	0.0109
Between	0.0510	0.0526	0.0122
Overall	0.0138	0.0144	0.0009
N	1551	1551	1551

Sig † <.1 *<.05

Fig. 4 Analysis with objectivity variables for 1998-2008

	LAT	Regular LAT	Special LAT
Coalition	-.0294679†	-.030651*	-.0007588
Non-partisan	-.0349212†	-.0362687†	.0192827
Opposition	.0032094	.0035235	-.0646611
Unemployment	-.0666773*	-.0673864*	-.0111526
Birth	-.0239159	-.0249676	.0404321
GPP	-.0002168*	-.0002191*	-1.77e-06
Hospital	.0195215	.021088	-.1078833*
Elementary students	-.0124424*	-.0122419*	-.0215402*
Constant	3.403918*	3.39724*	3.597132*
R2 within	0.1277	0.1277	0.0691
Between	0.5081	0.5165	0.3652
Overall	0.4956	0.5037	0.3285
N	517	517	517

Sig † <.1 * <.05

Major result shown in the Figure 3 and 4 is that partisan hypothesis is relevant both with and without objectivity variables. In the analysis of all 33 years, different coalition governors (mainly Ainori governors) receive less regular LAT and special LAT than governors with the same partisanship with central government even when controlling prefecture specifics and time trend. In the analysis of recent 11 years with objectivity variables, governors supported by different coalition with central government accept 3% smaller LAT and regular LAT than governors of the same partisanship with central government. Non-partisan governors receive even smaller LAT and regular LAT than governors of different party coalition.

As to other variables that could proxy Measurement Unit, Gross Prefectural Product (per capita, 1000 yen) decreases LAT presumably by increasing Standard Financial Revenues, although LAT changes only slightly. Unemployment rate and the number of elementary student per 1000 residents are hard to comprehend. These variables have effect to decrease LAT contrary to the prior expectation. Although the number of elementary

students stipulates Standard Financial Demand for elementary school expenditure of municipalities, this variable may not proxy prefectural Standard Financial Demand enough.

Albeit there are some tricky results, analyses in this chapter indicate that partisan effects do exist. Prefectures that have different coalition and non-partisan governors receive less LAT and regular LAT than prefectures that have same partisanship with the central government. Governors of different party coalition are mainly multi-partisan [Ainori] governors, LDP, Komei, JSP, DPJ (Democratic Party Japan) etc. Even when LDP supports a governor, his or her prefecture receives less LAT than a governor supported only by LDP or LDP-Komei. Non-partisan governors are not exceptional nowadays, but they are slightly disfavored by the central government and receive less LAT.

5 Conclusion

In this research, I explained strict formula at first sight to calculate LAT do have some room of discretion by the Ministry. In order to investigate this view, I developed a simple model of national subsidy in which resolute national government gives less subsidy and irresolute national government render relatively affluent subsidy in the equilibrium. To test this hypothesis, I collected and analyzed financial data of the Japanese prefectures. From the result of the analyses, governors supported by different coalition from central government and governors not supported by any party receive less LAT than governors supported by precisely the same parties with central government. This result indicates that the amount of LAT can not be explained only by objectivity hypothesis and partisan hypothesis are relevant. This research showcased the central government's discretion to determine the distribution of LAT. Favored prefectures can expect premium LAT whereas disfavored prefectures have to manage without recourse to it.

I admit that my model has some shortcomings. In the equilibrium, the level of optimal expenditure is settled. When the amount of subsidy is decreased, a prefecture would increase expenditure in order to sustain content among voters. This may not be the case, where a prefecture takes retrenchment policy when faced with decreased subsidy and fiscal crisis. On the other hand, favored and thus affluent prefectures seem to increase expenditure and local

bond in reality. I will consider revision of the model to incorporate incentive arisen from subsidy.

Glossary

Correction Factor	Hosei Keisu
Level Correction	Dankai Hosei
Local Financing Program	Chiho Zaisei Keikaku
Local Financing Policy	Chiho Zaisei Taisaku
Measurement Unit	Sokutei Tan'i
Standard Financial Demand	Kijun Zaisei Juyogaku
Standard Financial Revenues	Kijun Zaisei Shunyugaku
Unit Cost	Tan'I Hiyo

Reference

Akai, Nobuo, Motohiro Sato, and Yamashita Koji, *Chiho Kofuzei no Keizaigaku: Riron Jissho ni Motozuku Kaikaku*, Yuhikaku, 2003.

Kitamura, Wataru, *Chiho Zaisei no Gyoseigakuteki Bunseki*, Yuhikaku, 2009.

Rodden, Jonathan A., "Hamilton's Paradox: The Promise and Peril of Fiscal Federalism," Cambridge University Press, 2006.

Soumusho, *Chiho Zaisei Hakusho*, 2010.

Takagi, Kenji, *Chiikikan Kakusa to Chiho Kofuzei*, Kojinsha, 2008.