

# Japanese Fiscal Structure between Central and Local Governments

— Welfare Assessment of the Trinity Reform of Japan — <sup>1)</sup>

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## 1. Introduction

It is widely known that Japan's fiscal structure essentially consists of "the central government collecting tax revenues and local governments<sup>2)</sup> spending them". For instance, in 2000 the central government collected 52.7 trillion yen in tax revenues, while local governments collected only 35.5 trillion yen. On the other hand, while central government expenditures totaled 63.0 trillion yen, local government expenditures climbed to 96.1 trillion<sup>3)</sup>. In other words, central and local government roles regarding revenues and expenditures are converse. Furthermore, if the system of local allocation tax and the fact that national taxes are collected from every region are taken into consideration, the structure of "the central government collecting tax revenues and local governments spending them" implies "tax revenues from high revenue regions flow into low revenue ones".

Regions with high tax revenues include large metropolitan areas, while those with low tax revenues are non-urban. Therefore, the present fiscal adjustment system redistributes revenue sources from metropolitan to more rural areas. According to data on local taxes and the transfer of national and local revenue sources, we can see the fact that a per capita local revenue source is higher in non-urban areas than in urban ones. Table 1 depicts the final accounts of prefectural income, total national taxes collected, local taxes and local allocation taxes on a per capita basis for fiscal 1999<sup>4)</sup>. The figures for urban areas are high as far as local taxes are concerned. However, regarding local allocation taxes, the figures for non-urban areas are higher. In addition, the amount of local allocation taxes granted exceeds local tax revenues in 22 prefectures on a per capita basis. Thus, it has been observed that "non-urban areas have received relatively preferential treatment" by the central government<sup>5)</sup>.

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1) This paper is an expansion of Iritani and Tamaoka, 1997.

2) Hereafter, the term "non-urban" will also apply to regions without metropolitan areas.

3) As central government expenditures include expenditures to local governments, excluding them further increases the ratio of local government expenditures.

4) All numerical data pertaining to applicable prefectural figures in this paper are totals of figures for the prefecture and its municipalities.

5) Y. Hayashi, H. Hayashi, T. Saito, et al. (1997) makes the same observation based on the calculation of financial benefits and burdens of individual prefectural governments.

From a welfare viewpoint, this type of interregional fiscal redistribution may imply that “urban areas receive unfavorable treatment, whereas non-urban areas receive favorable treatment.” Intuitively, the redistribution of revenue sources from metropolitan to more rural areas works as a system whereby “welfare levels in regions with large urban areas are lowered while they are raised in non-urban regions” (Hayashi 1996, p. 34, Table 4). Lots of conventional researches on local public finance have quantitatively examined the relationship between the financial benefits and burdens of individual local governments, and considered that regions where benefits exceed burdens have benefited from the national revenue distribution system as a whole. Moreover, as regions where financial benefits outweigh burdens are often so-called non-urban areas, Japan’s overall public finance system has been considered to sacrifice urban areas in favor of non-urban ones.

However, these observations do not necessarily imply that non-urban areas are favored over large metropolitan areas. In fact, per capita income in regions with small population is lower than that in urban regions with large population. Therefore, fiscal redistribution from urban to non-urban areas enables per capita income to increase for a larger number of non-urban regions by slightly reducing per capita income for urban regions. This may, in turn, stimulate the production in urban areas and lead to an increase in urban income, finally leading to the potential for improved welfare levels nationwide. Consequently, interregional fiscal redistribution can be evaluated in a fair manner only when all the effects are taken into consideration. We offer a useful concept (hereafter referred to as the region’s welfare position) to measure the regional welfare levels given by the central government to local governments.

The purpose of this paper is to provide tools to clarify the method of examining individual region’s welfare positions assumed by the central government, to calculate numerical figures for each region’s welfare position, and to provide an evaluation of post-war interregional fiscal adjustment. Subsequent to numerically calculating welfare positions, an evaluation of the government’s “trinity reform” will be done. The conclusions of this paper can be summarized as:

- (a) During the period observed, metropolitan areas have been given higher welfare positions than non-urban areas; and
- (b) Metropolitan areas will receive further improvements in their welfare positions after the “trinity reform”.

This paper is organized as follows. The model will be presented in section two. Individual region’s post-war welfare positions will be calculated and observations will be made in section three. Factors determining welfare positions will be analyzed in section four and, in conclusion, a welfare evaluation of the “trinity reform” will be given in section five.

## **2. Model**

Researches on the redistribution system of local government revenue sources often emphasize the excessiveness of standard financial needs that surpass the “national minimum” through the local allocation tax system, thus indicating excessive fiscal adjustment. However, in the event of judging excessive adjustment, it is rare for them to show any standard of measurement. Simply holding up the average interregional fiscal redistribution as a standard and measuring the divergence from it are insufficient. This is due to the fact that there are several types of revenue sources in addition to the local allocation tax system with different objectives, such as national treasury disbursements, the local transfer tax system, and the local government bond system operated under the national authorization.

Therefore, in order to uniformly evaluate aggregate intergovernmental transfer of revenue sources, it is logical to assume that under these various systems the central government is pursuing an integrated objective, which results in the actual redistribution of revenue sources. Whether or not this fiscal adjustment is excessive can be

determined by expressing such action in numerical terms. For this purpose, this paper assumes that the central government's objective is to maximize "the welfare of citizens," which is expressed as the "welfare position."<sup>6)</sup>

**Table 1. Fiscal 1999 per capita prefectural income, amount of national taxes collected, amount of local taxes and local allocation tax**

(unit:10,000yen)

	Prefectural income	Amount of national taxes collected	Amount of local taxes	Amount of local allocation tax
Hokkaido	271.5	25.2	23.3	32.3
Aomori	248.4	18.7	19.0	34.8
Iwate	266.3	17.6	19.8	36.5
Miyagi	281.3	34.0	25.3	19.4
Akita	257.6	18.3	19.5	40.0
Yamagata	265.1	18.8	20.7	33.3
Fukushima	281.1	21.5	24.1	24.8
Ibaraki	302.5	25.1	24.7	15.6
Tochigi	317.2	21.4	27.1	15.4
Gunma	305.7	26.5	25.5	17.3
Saitama	327.4	18.4	24.0	8.4
Chiba	321.3	26.3	25.8	8.3
Tokyo	419.0	138.0	53.2	2.0
Kanagawa	326.3	34.2	30.0	5.1
Niigata	295.5	23.9	24.5	25.8
Toyama	293.3	31.1	26.4	26.0
Ishikawa	299.3	30.8	27.1	25.3
Fukui	283.1	26.2	29.7	29.9
Yamanashi	286.1	22.2	24.3	31.5
Nagano	298.9	26.2	25.6	25.3
Gifu	289.4	23.9	25.2	20.3
Shizuoka	310.1	28.1	29.1	9.8
Aichi	355.0	48.1	33.2	5.2
Mie	282.6	30.5	26.2	19.1
Shiga	322.7	19.9	20.4	19.0
Kyoto	295.1	35.7	22.4	16.4
Osaka	331.2	59.5	15.9	6.8
Hyogo	292.9	30.1	22.0	14.3
Nara	278.6	14.8	99.9	22.7
Wakayama	249.3	29.6	33.4	33.2
Tottori	259.8	18.7	21.7	42.5
Shimane	246.3	19.0	21.1	49.5
Okayama	274.2	36.1	24.8	23.2
Hiroshima	296.0	28.7	26.2	18.6
Yamaguchi	283.2	33.4	24.0	24.8
Tokushima	272.3	21.5	21.9	36.5
Kagawa	280.5	35.0	24.6	24.0
Ehime	243.2	28.5	21.3	27.2
Kochi	240.3	20.0	20.0	46.0
Fukuoka	275.0	29.2	24.1	16.6
Saga	266.7	19.4	21.0	33.3
Nagasaki	236.9	15.5	18.6	33.5
Kumamoto	253.3	18.0	19.4	29.3
Oita	266.9	24.8	21.6	31.8
Miyazaki	233.2	17.0	18.6	33.9
Kagoshima	233.4	16.9	18.4	35.0
Okinawa	217.0	19.5	15.4	30.0

6) In Hayashi (1996), the system of local allocation tax is assessed from the perspective of maximizing the welfare of representative individuals from each local area. Take note that this paper is on a different standpoint, that the objective of the central government is to maximize the overall welfare of citizens.

First, the 47 prefectures are given numbers, with the index  $i= 1, 2, \dots, 47$ . The welfare position of prefecture  $i$  envisioned by the central government is expressed as the positive numerical figure  $\alpha_i$ .  $\alpha_i$  expresses the relative degree of importance the central government places on local government  $i$ .

$I_i$  represents the total of prefecture  $i$ 's private investment (the total of private capital investment and private housing investment) and local government expenditures from local revenue sources,  $T(\ )$  is the national tax, and  $F_i$  represents the portion of revenue sources transferred to the local government by the central government.  $F_i$  is the total of local allocation tax, national treasury disbursements and local transfer taxes. Let  $b_i$  be a multiplier of regional income  $X_i$  with respect to local investment and local expenditure  $I_i+F_i$ , disposal income  $X_i$  is

$$X_i = b_i(I_i + F_i) - T(b_i(I_i + F_i)).$$

Then, by using each prefecture's welfare position  $\alpha_i$ , prefecture  $i$ 's welfare, assumed to be dependent on per capita income, can be expressed as  $u_i\left(\frac{X_i}{N_i}\right) = \left(\frac{X_i}{N_i}\right)^{\alpha_i}$ .  $N_i$  represents prefecture  $i$ 's population. Depending on the choice of revenue source redistribution  $F_i$ , it is assumed that the central government will resolve the problem of

$$\begin{aligned} & \max \prod_{i=1}^{47} u_i\left(\frac{X_i}{N_i}\right) \\ & \text{subject to } \sum_{i=1}^{47} F_i = c \sum_{i=1}^{47} T(b_i(I_i + F_i)) \end{aligned} \quad (1),$$

where  $c(0 < c < 1)$  is a constant expressing the degree to which revenue sources are redistributed to local governments from national taxes.

The solution to the maximization problem fulfills the following necessary conditions<sup>7)</sup>,

$$\frac{a_i b_i (1 - t_i)}{b_i (1 - t_i) (I_i + F_i)} = \mu (1 - c b_i t_i), \quad i = 1, 2, \dots, 47,$$

$$\sum_{j=1}^{47} F_j = c \sum_{j=1}^{47} T(b_j(I_j + F_j)).$$

Note that  $\mu$  is the Lagrangean multiplier relating to maximization and  $t_i$  expresses prefecture  $i$ 's marginal tax rate. Here, specifying the tax revenue function, it is assumed  $T(\tilde{X}_i) = t_i \tilde{X}_i$ , where  $t_i$  is a positive fixed value. To assume a prefecture's marginal tax rate is constant does not necessarily mean that each prefecture has a different tax system. Each prefecture has a different industrial structure and income distribution. These situations make the marginal tax rates of the regions different even if those regions face the identical tax system. Coefficient  $t_i$  changes in accordance with fluctuations in economic prosperity or recession, but remains intact for an applicable fiscal year. Furthermore, small exogenous changes, if any, shall not change the value. The same is true for multipliers  $b_i$  and  $c$ .

There is still room for debate on whether the central government is actually solving problem (1). The government's method of transferring revenue sources is related to general accounts, special accounts and other systematic factors. There is also historical inertia accompanying the creation process of these various systems. Therefore, it is disputable that the government perceives the problem of revenue source transfer as problem (1). In this paper, we are trying to investigate "what would become evident if the current revenue source transfer is viewed as problem (1)", instead of assuming that the current government is solving problem (1). We use actual

7) In problem (1), because the solution does not change with flat conversion of the objective function, the natural logarithm

$\sum_i \alpha_i \log(b_i(I_i + F_i) - T(b_i(I_i + F_i)))$  may be adopted as a new objective function. This method is more useful when making calculations.

data to find the welfare positions that are consistent with problem (1).

Let us try to solve maximization problem (1). The necessary condition for maximization leads us to

$$\alpha_i \frac{1}{I_i + F_i} = \mu (1 - cb_i t_i), \text{ i.e., } I_i + F_i = \frac{\alpha_i}{\mu (1 - cb_i t_i)}.$$

These results together with the constraint of problem (1) imply

$$\sum_i I_i + \sum_i F_i = c \sum_i t_i b_i (I_i + F_i) + \sum_i I_i,$$

$$\sum_i (1 - ct_i b_i) (I_i + F_i) = \sum_i I_i,$$

$$\sum_i (1 - ct_i b_i) \frac{\alpha_i}{\mu (1 - cb_i t_i)} = \sum_i I_i.$$

Consequently,  $F_i$  and  $\mu$  satisfy the relationship

$$\mu = \frac{\sum_i \alpha_i}{\sum_i I_i}, \quad F_i = \frac{\alpha_i}{\mu (1 - cb_i t_i)} - I_i \quad (2).$$

This paper assumes that the welfare position expresses the relative degree of importance the central government places on each region. We can assume without loss of generality that  $\sum_i \alpha_i = 1$  since the monotone transformation of objective function does not affect the solution. Therefore, according to (2),  $F_i$  and  $\mu$  are solved.

It is not possible to directly observe welfare position  $\alpha_i$ ,  $i = 1, 2, \dots, 47$ . But we can observe  $F_i$ ,  $I_i$ ,  $b_i$ ,  $t_i$  ( $i = 1, 2, \dots, 47$ ) and  $c$  as data. Thus, the welfare position the central government holds for each region can be determined using the actual data. In other words, from relationship (2) and the data, welfare position  $\alpha_i$ ,  $i = 1, 2, \dots, 47$  existing behind government actions for each region can be calculated using the following formula (3).

$$\alpha_i = (1 - cb_i t_i) \frac{F_i + I_i}{\sum_{j=1}^{47} I_j}, \quad i = 1, 2, \dots, 47 \quad (3).$$

From formula (3), it is understood that if multiplier  $b_i$  and tax rate  $t_i$  are small values, the welfare position becomes higher. Looking at Table 5, it can be seen that these values are high for regions that include metropolitan areas. In fact, from the perspective of the multiplier or tax rate alone, large urban areas are believed to have lower welfare positions. On the other hand, if the ratio of the sum of regional investment and government expenditures to total private investment, expressed as  $(I_i + F_i) / \sum I_j$ , is high, it will raise the value of the welfare position. As a rule, it is expected that this value is high for large metropolitan areas. Therefore, it is not necessarily clear which region's welfare position will be high by just looking at the individual values for  $b_i$ ,  $t_i$ , and  $(I_i + F_i) / \sum I_j$ .

### 3. Observations

We have calculated eight years of  $\alpha_i$  between 1965 and 1999 using the above definition of the welfare position. The results are depicted in Table 2 and Figure 1<sup>8)</sup>. Table 3 shows the divergence from the average cross-section value calculated for the welfare positions of all prefectures (47 prefectures, thus 1/47; however, this was calculated on a basis of 46 prefectures for fiscal 1965 and 1970). In other words, the value in Table 3 for welfare position  $\alpha_j(t)$  at time  $t$  for prefecture  $j$  is expressed as

$$\frac{\alpha_j(t) - 1/47}{1/47} \times 100, j=1, 2, \dots, 47, t=1965 \sim 1999.$$

As is clear from Table 2, the results are the opposite of conventional wisdom. According to the data on local taxes and transfer of revenue sources between central and local governments, it can be observed that regions including non-urban areas have the highest per capita local revenue sources. Accordingly, it has often been asserted that "non-urban areas have received relatively preferential treatment." However, from the standpoint of the welfare position, the values in Table 2 are significant in showing that importance has consistently been placed on large urban areas since the end of World War II. In almost every time period observed, the Tokyo Metropolis has received the highest welfare position value; its highest at 5.85-fold the average (fiscal 1990), and its lowest at 3.04-fold the average (fiscal 1980). Hokkaido, Kanagawa, Aichi, Osaka, Hyogo and Fukuoka all have welfare positions two to three times higher than the national average. In contrast, welfare positions for most of non-urban prefectures fall below the average.

As to Tokyo's welfare position, there are two periods in which she received a relatively lower evaluation (1975-1980) and a higher evaluation (1965-1970 and 1985-1990). Stated another way, during the first oil crisis Tokyo's welfare position started to decline, while it began to rise after the second oil crisis. And it dropped again in the period following 1990. Thus Tokyo's welfare position underwent three major shifts in the past.

Table 3 assigns divergence from the cross-sectional average value of all prefectures at certain fixed points in time, making observations of shifts in welfare positions for non-urban areas particularly difficult. Therefore, in order to clarify changes in the welfare position of each region, a certain region is selected and the average value of the welfare position over time for the prefecture in question is calculated. Then, the degree of divergence from the average value for the respective fiscal years is investigated. In other words, the following calculations are made :

$$\frac{\alpha_j(t) - \left\{ \sum_{t=1965}^{1999} \alpha_j(t) \right\} / 8}{\left\{ \sum_{t=1965}^{1999} \alpha_j(t) \right\} / 8} \times 1000, j=1, 2, \dots, 47, t=1965, 70, 75, 80, 85, 90, 95, 99.$$

(The figures of Okinawa are for six fiscal years.)

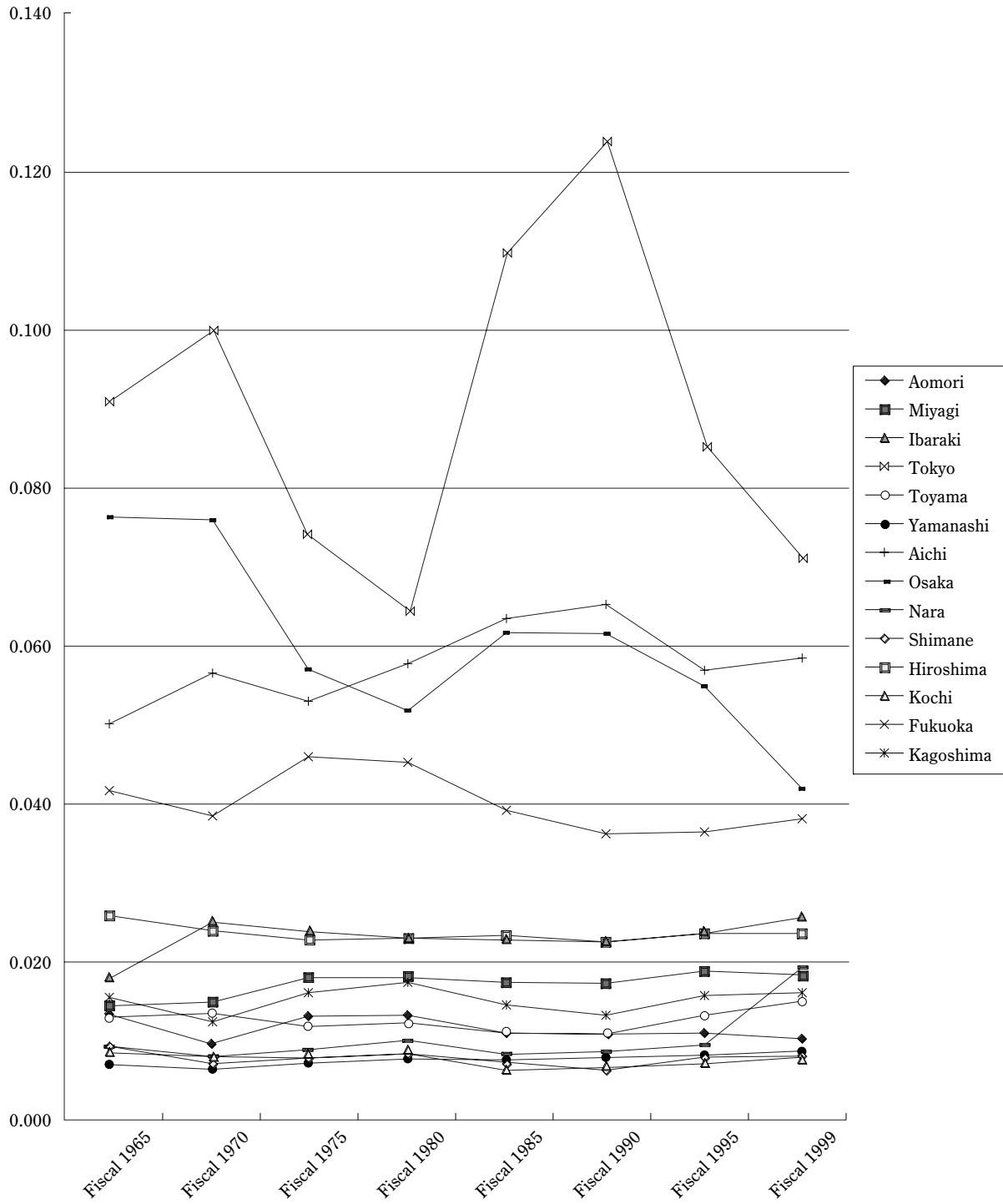
Table 4 depicts the results. In addition, Figure 2 uses the same prefectures as Figure 1 and illustrates the prefectural values of Table 4. Tokyo's welfare position experienced substantial changes in fiscal 1980 and 1990, and it can be observed that the welfare positions of many regions moved in the opposite direction of Tokyo's. Furthermore, after 1995, Nara's welfare position increased dramatically. However, in terms of absolute value, it is still lower than the cross-sectional average.

8) Here, all the prefectures are not diagrammed. All the figures and data covering 47 prefectures are available on demand.

Table 2. Value of  $\alpha$  (fiscal 1965 – fiscal 1999)

	Fiscal '65	Fiscal '70	Fiscal '75	Fiscal '80	Fiscal '85	Fiscal '90	Fiscal '95	Fiscal '99
Hokkaido	0.0507	0.0427	0.0560	0.0594	0.0467	0.0431	0.0507	0.0495
Aomori	0.0132	0.0102	0.0134	0.0135	0.0110	0.0113	0.0135	0.0156
Iwate	0.0143	0.0119	0.0139	0.0138	0.0108	0.0113	0.0136	0.0139
Miyagi	0.0146	0.0153	0.0182	0.0181	0.0176	0.0174	0.0193	0.0186
Akita	0.0144	0.0102	0.0133	0.0127	0.0094	0.0099	0.0114	0.0124
Yamagata	0.0110	0.0101	0.0136	0.0130	0.0103	0.0100	0.0114	0.0125
Fukushima	0.0191	0.0176	0.0196	0.0208	0.0185	0.0181	0.0203	0.0206
Ibaraki	0.0185	0.0253	0.0240	0.0233	0.0230	0.0227	0.0240	0.0260
Tochigi	0.0153	0.0161	0.0146	0.0155	0.0164	0.0163	0.0174	0.0183
Gunma	0.0169	0.0147	0.0150	0.0165	0.0161	0.0156	0.0160	0.0186
Saitama	0.0267	0.0335	0.0370	0.0393	0.0395	0.0418	0.0418	0.0444
Chiba	0.0314	0.0376	0.0406	0.0407	0.0396	0.0404	0.0404	0.0391
Tokyo	0.0911	0.1006	0.0738	0.0647	0.1100	0.1244	0.0863	0.0717
Kanagawa	0.0589	0.0598	0.0474	0.0507	0.0619	0.0605	0.0529	0.0557
Niigata	0.0261	0.0231	0.0241	0.0241	0.0214	0.0211	0.0240	0.0245
Toyama	0.0132	0.0135	0.0118	0.0126	0.0113	0.0110	0.0116	0.0109
Ishikawa	0.0108	0.0101	0.0108	0.0108	0.0097	0.0094	0.0102	0.0114
Fukui	0.0090	0.0093	0.0101	0.0100	0.0082	0.0083	0.0084	0.0088
Yamanashi	0.0071	0.0066	0.0074	0.0081	0.0077	0.0082	0.0087	0.0092
Nagano	0.0207	0.0189	0.0199	0.0207	0.0202	0.0187	0.0205	0.0216
Gifu	0.0167	0.0153	0.0166	0.0165	0.0157	0.0153	0.0163	0.0174
Shizuoka	0.0262	0.0289	0.0273	0.0292	0.0300	0.0297	0.0283	0.0298
Aichi	0.0504	0.0568	0.0535	0.0584	0.0637	0.0660	0.0574	0.0590
Mie	0.0140	0.0152	0.0157	0.0157	0.0137	0.0127	0.0132	0.0132
Shiga	0.0107	0.0113	0.0112	0.0115	0.0115	0.0109	0.0123	0.0120
Kyoto	0.0267	0.0251	0.0176	0.0181	0.0196	0.0176	0.0176	0.0174
Osaka	0.0766	0.0765	0.0573	0.0523	0.0625	0.0622	0.0556	0.0426
Hyogo	0.0406	0.0458	0.0401	0.0384	0.0402	0.0420	0.0506	0.0401
Nara	0.0088	0.0082	0.0091	0.0104	0.0086	0.0092	0.0100	0.0199
Wakayama	0.0108	0.0087	0.0112	0.0113	0.0085	0.0084	0.0087	0.0104
Tottori	0.0052	0.0047	0.0059	0.0064	0.0050	0.0054	0.0061	0.0065
Shimane	0.0093	0.0074	0.0081	0.0088	0.0076	0.0067	0.0083	0.0086
Okayama	0.0175	0.0231	0.0210	0.0180	0.0163	0.0147	0.0159	0.0155
Hiroshima	0.0261	0.0242	0.0229	0.0229	0.0237	0.0228	0.0243	0.0240
Yamaguchi	0.0208	0.0176	0.0185	0.0163	0.0140	0.0127	0.0132	0.0135
Tokushima	0.0071	0.0067	0.0088	0.0081	0.0063	0.0065	0.0075	0.0081
Kagawa	0.0083	0.0086	0.0096	0.0090	0.0076	0.0077	0.0085	0.0085
Ehime	0.0139	0.0145	0.0138	0.0137	0.0123	0.0111	0.0120	0.0121
Kochi	0.0092	0.0083	0.0084	0.0087	0.0067	0.0071	0.0077	0.0084
Fukuoka	0.0417	0.0389	0.0465	0.0453	0.0397	0.0365	0.0368	0.0386
Saga	0.0077	0.0071	0.0086	0.0087	0.0069	0.0067	0.0081	0.0083
Nagasaki	0.0155	0.0119	0.0140	0.0145	0.0121	0.0119	0.0140	0.0149
Kumamoto	0.0152	0.0128	0.0167	0.0170	0.0141	0.0138	0.0160	0.0160
Oita	0.0108	0.0130	0.0146	0.0128	0.0103	0.0111	0.0121	0.0125
Miyazaki	0.0119	0.0098	0.0116	0.0118	0.0094	0.0095	0.0105	0.0108
Kagoshima	0.0155	0.0125	0.0165	0.0175	0.0148	0.0136	0.0161	0.0167
Okinawa			0.0101	0.0103	0.0097	0.0086	0.0106	0.0116

Figure 1. Value of  $\alpha$  (fiscal 1965 – fiscal 1999)





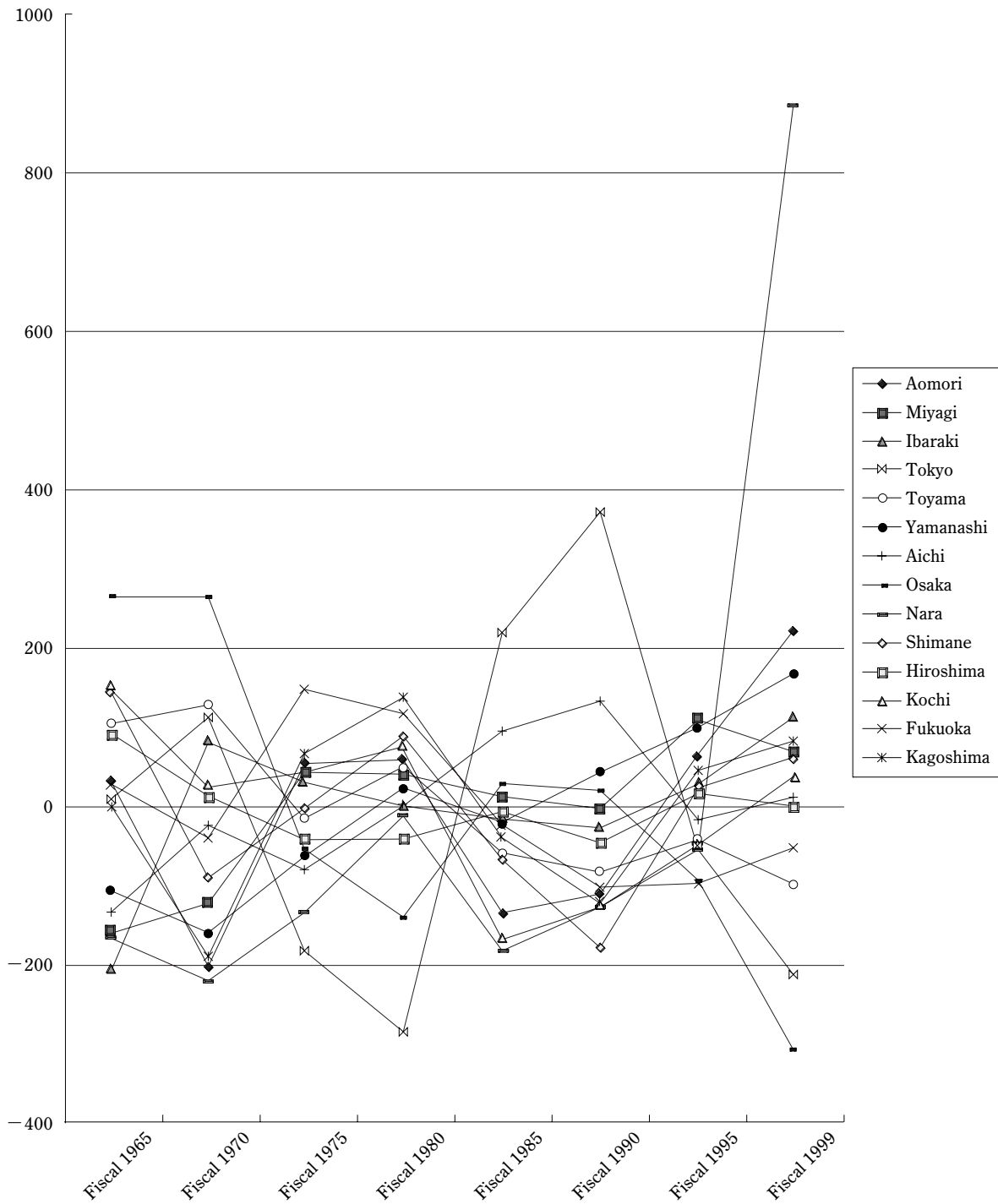
**Table 3. Divergence from the national average value of  $\alpha$  (fiscal 1965 – fiscal 1999)**

	Fiscal '65	Fiscal '70	Fiscal '75	Fiscal '80	Fiscal '85	Fiscal '90	Fiscal '95	Fiscal '99
Hokkaido	133.1	96.5	163.2	179.4	119.7	102.6	138.1	132.7
Aomori	-39.5	-53.2	-37.0	-36.6	-48.1	-46.7	-36.3	-26.6
Iwate	-34.1	-45.4	-34.7	-35.1	-49.2	-47.0	-36.2	-34.8
Miyagi	-32.8	-29.7	-14.6	-14.8	-17.1	-18.2	-9.1	-12.4
Akita	-33.7	-53.0	-37.6	-40.3	-55.7	-53.7	-46.4	-41.5
Yamagata	-49.4	-53.5	-36.1	-38.9	-51.7	-52.8	-46.3	-41.3
Fukushima	-12.2	-19.2	-7.8	-2.2	-13.1	-15.0	-4.7	-3.0
Ibaraki	-15.0	16.2	13.0	9.7	8.2	6.8	13.0	22.3
Tochigi	-29.6	-25.9	-31.3	-27.1	-22.7	-23.2	-18.3	-14.0
Gunma	-22.3	-32.6	-29.6	-22.3	-24.2	-26.5	-24.7	-12.4
Saitama	22.6	54.3	73.7	84.9	85.7	96.4	96.3	108.6
Chiba	44.5	73.0	90.9	91.3	86.0	89.8	90.0	83.6
Tokyo	319.0	362.9	246.7	204.0	417.1	484.6	305.4	236.9
Kanagawa	170.8	175.1	123.0	138.5	191.0	184.2	148.5	162.0
Niigata	19.8	6.2	13.5	13.2	0.6	-0.7	12.6	14.9
Toyama	-39.2	-37.8	-44.5	-40.8	-46.8	-48.2	-45.7	-48.9
Ishikawa	-50.5	-53.6	-49.0	-49.1	-54.3	-55.6	-52.2	-46.4
Fukui	-58.5	-57.4	-52.5	-52.9	-61.4	-60.9	-60.5	-58.5
Yamanashi	-67.6	-69.5	-65.0	-62.0	-63.6	-61.3	-59.2	-56.6
Nagano	-4.8	-13.2	-6.5	-2.8	-5.2	-12.2	-3.6	1.6
Gifu	-23.0	-29.7	-22.0	-22.6	-26.4	-28.1	-23.2	-18.2
Shizuoka	20.6	32.8	28.4	37.1	40.9	39.5	32.9	40.0
Aichi	131.6	161.3	151.6	174.4	199.3	210.4	169.7	177.4
Mie	-35.5	-29.9	-26.1	-26.3	-35.8	-40.3	-37.8	-37.9
Shiga	-50.7	-47.9	-47.5	-45.9	-46.0	-48.8	-42.4	-43.6
Kyoto	22.6	15.6	-17.4	-15.1	-8.0	-17.1	-17.2	-18.2
Osaka	252.4	252.0	169.4	145.8	193.5	192.1	161.2	100.2
Hyogo	86.9	110.5	88.3	80.7	88.9	97.6	137.9	88.7
Nara	-59.7	-62.2	-57.1	-51.0	-59.4	-56.7	-53.2	-6.6
Wakayama	-50.1	-59.9	-47.2	-47.0	-60.0	-60.4	-59.1	-51.2
Tottori	-76.2	-78.3	-72.5	-69.9	-76.7	-74.7	-71.5	-69.3
Shimane	-57.3	-66.1	-62.0	-58.5	-64.3	-68.6	-61.0	-59.4
Okayama	-19.4	6.4	-1.4	-15.6	-23.5	-31.0	-25.4	-27.2
Hiroshima	19.9	11.2	7.5	7.8	11.6	7.2	14.4	12.7
Yamaguchi	-4.3	-18.9	-13.1	-23.6	-34.3	-40.3	-37.8	-36.6
Tokushima	-67.1	-69.2	-58.7	-61.9	-70.4	-69.4	-64.6	-61.8
Kagawa	-62.0	-60.5	-55.1	-57.7	-64.3	-63.6	-60.2	-60.3
Ehime	-36.1	-33.4	-35.1	-35.8	-42.4	-47.8	-43.4	-43.0
Kochi	-57.5	-62.0	-60.3	-59.1	-68.3	-66.7	-63.7	-60.4
Fukuoka	91.6	78.9	118.6	112.9	86.5	71.6	72.9	81.3
Saga	-64.8	-67.3	-59.4	-59.2	-67.5	-68.3	-62.0	-60.9
Nagasaki	-28.7	-45.4	-34.0	-32.0	-43.3	-44.0	-34.0	-30.1
Kumamoto	-30.0	-41.0	-21.6	-20.3	-33.5	-35.3	-24.9	-24.9
Oita	-50.3	-40.2	-31.2	-39.7	-51.4	-47.9	-43.1	-41.1
Miyazaki	-45.4	-54.8	-45.3	-44.5	-55.7	-55.6	-50.7	-49.1
Kagoshima	-28.8	-42.4	-22.5	-17.5	-30.3	-36.3	-24.2	-21.4
Okinawa			-52.4	-51.4	-54.4	-59.6	-50.2	-45.5

**Table 4. Divergence from the time series average value of  $\alpha$  for each prefecture (fiscal 1965 – fiscal 1999)**

	Fiscal '65	Fiscal '70	Fiscal '75	Fiscal '80	Fiscal '85	Fiscal '90	Fiscal '95	Fiscal '99
Hokkaido	16.4	-143.1	123.4	192.3	-62.5	-135.6	16.2	-7.1
Aomori	34.2	-199.8	53.7	60.6	-132.3	-109.2	64.8	228.1
Iwate	108.8	-82.0	75.0	67.8	-163.9	-128.0	50.0	72.3
Miyagi	-160.4	-121.6	44.3	41.1	13.9	0.2	111.0	71.4
Akita	230.7	-128.0	133.0	84.1	-195.3	-158.8	-27.1	61.3
Yamagata	-42.6	-119.8	183.6	130.2	-105.4	-126.9	-5.3	86.3
Fukushima	-11.7	-91.1	15.0	76.5	-43.1	-63.5	49.5	68.3
Ibaraki	-208.8	81.2	29.1	-1.1	-15.0	-27.9	29.0	113.5
Tochigi	-57.7	-9.1	-101.0	-45.6	11.9	5.1	69.9	126.4
Gunma	43.3	-94.5	-74.7	22.2	-3.7	-33.5	-10.5	151.4
Saitama	-298.5	-117.2	-27.3	35.7	39.8	99.7	99.4	168.4
Chiba	-188.7	-28.8	48.8	51.1	21.9	43.0	43.9	8.9
Tokyo	8.5	114.1	-183.2	-283.8	218.2	377.2	-44.9	-206.2
Kanagawa	51.7	68.4	-152.5	-93.7	106.0	80.0	-55.6	-4.3
Niigata	106.6	-18.8	25.6	23.2	-90.7	-102.3	17.5	38.9
Toyama	103.0	127.6	-14.6	49.7	-55.9	-80.2	-36.1	-93.5
Ishikawa	34.3	-30.6	41.8	40.4	-65.3	-93.5	-23.0	95.8
Fukui	0.7	25.3	120.3	111.1	-89.9	-79.1	-67.8	-20.6
Yamanashi	-105.8	-159.2	-57.0	26.3	-18.9	42.8	100.8	171.0
Nagano	27.9	-62.7	-12.1	26.3	1.7	-73.0	18.6	73.4
Gifu	32.1	-57.6	22.9	14.2	-35.0	-56.8	7.4	72.8
Shizuoka	-85.1	7.0	-47.0	17.9	46.0	35.8	-13.8	39.0
Aichi	-134.0	-23.0	-79.5	3.9	95.2	135.6	-13.3	15.2
Mie	-10.9	73.7	109.0	105.8	-37.7	-104.2	-67.0	-68.8
Shiga	-62.4	-8.8	-22.2	8.3	6.8	-45.5	73.0	50.8
Kyoto	335.7	258.9	-119.2	-95.0	-19.2	-116.6	-117.0	-127.6
Osaka	262.3	260.8	-55.4	-138.3	29.1	24.1	-84.5	-298.1
Hyogo	-38.1	83.6	-51.3	-89.9	-48.4	-4.5	198.4	-49.6
Nara	-167.4	-218.4	-132.9	-10.3	-180.1	-124.8	-53.7	887.6
Wakayama	111.0	-107.4	151.9	154.7	-128.4	-136.3	-108.3	62.7
Tottori	-83.1	-161.8	39.0	136.7	-120.1	-45.8	76.9	158.2
Shimane	147.7	-90.5	-1.9	90.3	-61.8	-175.5	24.9	66.8
Okayama	-12.7	304.2	183.0	12.3	-82.6	-172.8	-104.9	-126.6
Hiroshima	92.5	12.9	-41.5	-39.1	-5.1	-44.5	20.0	4.6
Yamaguchi	314.6	114.0	169.0	27.5	-116.8	-197.3	-163.9	-147.1
Tokushima	-34.1	-94.5	188.0	94.4	-147.7	-120.9	17.0	97.8
Kagawa	-24.3	16.6	130.2	64.6	-102.9	-84.9	1.2	-0.5
Ehime	75.5	120.2	68.6	56.6	-51.4	-140.8	-67.7	-60.8
Kochi	145.0	21.8	46.1	78.1	-165.5	-122.9	-44.8	42.2
Fukuoka	28.8	-39.6	148.7	118.9	-20.0	-98.1	-91.4	-47.3
Saga	-14.2	-85.3	112.2	117.8	-110.4	-132.7	40.8	71.9
Nagasaki	139.7	-126.5	32.8	64.0	-112.8	-123.8	32.5	94.0
Kumamoto	1.9	-155.2	97.5	115.9	-68.8	-94.7	51.2	52.2
Oita	-112.2	68.3	203.6	54.3	-149.6	-89.1	-5.4	30.1
Miyazaki	113.1	-79.1	91.3	107.0	-117.6	-114.1	-16.2	15.5
Kagoshima	4.3	-187.1	70.1	138.7	-37.1	-120.5	46.0	85.7
Okinawa			-2.8	18.2	-45.1	-153.2	42.4	140.5

Figure 2. Divergence from the time series average value of  $\alpha$  for each prefecture (fiscal 1965 – fiscal 1999)



#### 4. Factors Determining the Welfare Position

The welfare positions obtained in section three imply that the central government places a greater amount of weight on urban areas.

According to formula (3), parameters determining  $\alpha$  for each prefecture are

$$b_i, t_i, \text{ and } F_i + I_i.$$

$\alpha$  becomes larger as  $b_i$  grows smaller,  $t_i$  grows smaller, and  $F_i + I_i$  grows larger.

As can be seen from Figure 1, Tokyo's evaluation at two points, fiscal 1980 and 1990, differs strikingly. Consequently, if common characteristics of urban and non-urban areas can be extracted at these two points, it may be possible to directly express the nature of the welfare position for each region in Japan.

Table 5 depicts the values for  $b_i$  and  $t_i$  for these two fiscal years. In urban areas, values for  $b_i$  are generally large, while a trend toward small values of  $b_i$  can be seen in non-urban areas. With respect to  $t_i$ , urban areas are shown to have larger values than non-urban. Therefore, regarding the first term in formula (3),  $(1 - cb_i t_i)$ , urban areas have smaller values whereas non-urban areas have larger values.

Table 6 depicts the values for  $F_i + I_i$ ,  $F_i$  and  $I_i$ . From Table 6 it can be seen that while the first term in formula (3) for urban areas is small, their values of  $\alpha$  are large because values for  $F_i + I_i$  are large. Conversely, the reason why non-urban values for  $\alpha$  are small while the first term in formula (3) is large is found in the fact that values for  $F_i + I_i$  are small. Moreover, from Table 6 it can also be observed that in regions where  $\alpha$  is large, that is to say, in regions where  $F_i + I_i$  is large, the ratio of  $I_i$  is high, while in regions where  $\alpha$  is small, or where  $F_i + I_i$  is small, the ratio of  $F_i$  is high.

From this result it can be understood that the widely accepted evaluation stated in section one, that "the system of fiscal adjustment gives preferential treatment to non-urban areas," differs from the evaluation of each region's welfare position. According to the concept of the welfare position, it is urban areas instead of non-urban that receive preferential treatment, due to the high appraisal given to production capacity (expressed in this paper as private investment). Obviously, in so far as the value of  $F_i$  is large, it will raise the value of  $\alpha$ . Thus, even for regions with the same production capacity, the larger  $F_i$  becomes, the higher is the evaluation of the welfare position.

Table 5.  $b_i$  and  $t_i$  for fiscal 1980 and fiscal 1990

	$b_i$	$t_i$	$b_i$	$t_i$
	Fiscal '80	Fiscal '80	Fiscal '90	Fiscal '90
Hokkaido	1.978	0.089	2.031	0.111
Aomori	1.949	0.072	1.938	0.074
Iwate	1.888	0.057	1.918	0.073
Miyagi	2.177	0.116	2.088	0.134
Akita	1.938	0.063	1.920	0.074
Yamagata	1.847	0.065	1.965	0.082
Fukushima	1.987	0.059	1.968	0.088
Ibaraki	2.436	0.072	2.313	0.098
Tochigi	2.559	0.093	2.283	0.100
Gunma	2.202	0.095	2.263	0.111
Saitama	3.034	0.065	2.956	0.086
Chiba	2.452	0.078	2.635	0.107
Tokyo	2.686	0.289	2.010	0.385
Kanagawa	2.813	0.132	2.596	0.137
Niigata	1.993	0.083	1.963	0.100
Toyama	2.004	0.097	1.840	0.126
Ishikawa	2.215	0.083	2.129	0.126
Fukui	1.643	0.095	1.682	0.126
Yamanashi	2.022	0.060	1.856	0.109
Nagano	2.166	0.072	2.136	0.117
Gifu	2.487	0.076	2.358	0.107
Shizuoka	2.385	0.114	2.288	0.118
Aichi	2.270	0.155	2.147	0.175
Mie	2.273	0.090	2.469	0.115
Shiga	2.155	0.071	2.235	0.083
Kyoto	2.702	0.133	2.400	0.179
Osaka	3.049	0.174	2.493	0.240
Hyogo	2.567	0.123	2.195	0.148
Nara	2.351	0.059	2.472	0.087
Wakayama	1.877	0.091	1.777	0.145
Tottori	1.838	0.072	1.795	0.080
Shimane	1.633	0.063	1.658	0.085
Okayama	2.117	0.100	2.218	0.125
Hiroshima	2.549	0.109	2.273	0.127
Yamaguchi	1.904	0.093	1.937	0.126
Tokushima	2.020	0.062	2.047	0.099
Kagawa	2.231	0.104	2.160	0.143
Ehime	2.145	0.076	2.062	0.099
Kochi	1.857	0.072	1.627	0.087
Fukuoka	2.157	0.097	2.069	0.128
Saga	1.982	0.060	1.924	0.081
Nagasaki	1.984	0.063	1.889	0.076
Kumamoto	2.106	0.066	2.093	0.080
Oita	1.827	0.081	1.736	0.091
Miyazaki	1.574	0.076	1.643	0.082
Kagoshima	1.805	0.066	1.866	0.075
Okinawa	1.772	0.070	1.895	0.094

Table 6.  $F_i + I_i$ ,  $F_i$  and  $I_i$  for fiscal 1980 and fiscal 1990

(unit : 100 million yen)

	$F_i + I_i$	$F_i$	$I_i$	$F_i + I_i$	$F_i$	$I_i$
	Fiscal '80	Fiscal '80	Fiscal '80	Fiscal '90	Fiscal '90	Fiscal '90
Hokkaido	44,956.9	15,255.1	29,701.8	66,446.3	23,573.7	42,872.5
Aomori	9,901.1	4,294.9	5,606.3	16,785.7	6,659.2	10,126.6
Iwate	9,858.8	4,128.8	5,730.1	16,673.0	6,451.7	10,221.3
Miyagi	14,680.8	3,614.3	11,066.5	27,575.2	5,622.9	21,952.2
Akita	9,185.3	3,681.6	5,503.7	14,596.0	5,582.1	9,013.9
Yamagata	9,374.6	3,222.6	6,152.0	14,991.4	4,820.2	10,171.2
Fukushima	14,979.4	4,525.4	10,454.0	27,204.3	6,612.4	20,592.0
Ibaraki	17,630.2	3,860.4	13,769.8	35,014.8	5,368.6	29,646.2
Tochigi	12,386.1	2,620.7	9,765.4	25,203.8	3,636.8	21,567.0
Gunma	12,879.0	3,046.5	9,832.6	24,415.1	4,129.0	20,286.1
Saitama	30,346.9	5,264.8	25,082.1	65,372.7	6,143.0	59,229.7
Chiba	31,210.9	4,965.7	26,245.2	64,015.9	5,853.4	58,162.5
Tokyo	101,080.0	7,928.5	93,151.4	262,895.4	10,403.7	252,491.8
Kanagawa	46,071.1	4,424.5	41,646.6	99,581.8	4,966.1	94,615.7
Niigata	18,056.1	5,725.9	12,330.2	32,119.0	8,379.4	23,739.5
Toyama	9,679.7	2,243.1	7,436.7	17,054.7	3,311.0	13,743.7
Ishikawa	8,243.9	2,349.8	5,894.1	14,865.6	3,408.8	11,456.8
Fukui	7,457.4	1,978.1	5,479.3	12,725.7	2,862.6	9,863.1
Yamanashi	5,845.8	2,115.6	3,730.2	12,532.9	2,933.2	9,599.7
Nagano	15,359.5	4,285.3	11,074.2	29,150.1	6,299.7	22,850.5
Gifu	12,595.8	3,500.6	9,095.2	23,918.3	4,763.9	19,154.4
Shizuoka	24,031.6	3,883.1	20,148.5	46,799.0	4,819.3	41,979.7
Aichi	51,994.3	5,038.7	46,955.6	109,887.5	5,205.6	104,682.0
Mie	12,157.7	3,171.0	8,986.7	20,163.0	4,304.6	15,858.4
Shiga	8,547.3	1,904.7	6,642.6	16,484.1	2,678.3	13,805.8
Kyoto	16,202.2	3,536.3	12,665.8	30,213.1	4,737.6	25,475.5
Osaka	56,852.4	7,206.8	49,645.6	117,337.1	7,238.7	110,098.4
Hyogo	33,067.0	6,863.4	26,203.6	68,183.9	8,694.1	59,489.8
Nara	7,636.1	2,287.7	5,348.5	14,134.8	3,428.7	10,706.0
Wakayama	8,488.6	2,782.5	5,706.2	13,203.1	3,870.3	9,332.8
Tottori	4,672.0	1,971.8	2,700.2	7,966.6	2,936.4	5,030.1
Shimane	6,283.2	2,858.9	3,424.3	9,879.8	4,457.0	5,422.7
Okayama	14,004.2	3,692.7	10,311.5	23,222.1	4,928.5	18,293.6
Hiroshima	19,012.1	4,489.3	14,522.8	36,272.1	6,573.5	29,698.5
Yamaguchi	12,319.7	3,170.6	9,149.0	19,766.3	4,727.5	15,038.8
Tokushima	5,869.7	2,411.1	3,458.6	9,917.1	3,597.9	6,139.2
Kagawa	7,160.5	1,859.7	5,300.7	12,445.7	2,667.1	9,778.5
Ehime	10,217.0	3,546.8	6,670.1	16,930.2	5,046.9	11,883.3
Kochi	6,358.8	3,114.9	3,243.9	10,482.1	4,723.0	5,759.1
Fukuoka	35,285.1	8,506.9	26,778.2	57,381.9	11,221.2	46,160.8
Saga	6,257.6	2,436.4	3,821.2	10,041.8	3,675.3	6,366.6
Nagasaki	10,487.9	4,447.8	6,040.1	17,647.9	6,823.9	10,824.0
Kumamoto	12,421.2	4,512.2	7,909.1	20,608.4	6,826.3	13,782.2
Oita	9,468.6	3,269.1	6,199.4	16,530.6	5,030.8	11,499.7
Miyazaki	8,521.2	3,271.5	5,249.8	13,947.9	5,006.7	8,941.3
Kagoshima	12,649.2	5,389.1	7,260.1	20,052.0	8,123.0	11,929.0
Okinawa	7,489.9	3,574.4	3,915.5	12,961.5	5,231.1	7,730.3

## 5. Effects of the Trinity Reform of Japan

The system of revenue source distribution up to now, which has been largely based on local allocation tax, has fulfilled the roles of interregional fiscal adjustment and a national minimum guarantee for non-urban areas. Recently, however, numerous doubts have been raised regarding these roles. Non-urban residents and local governments do not think of transfer of revenue sources, including local allocation tax and national treasury disbursements, as payments based on the local taxes paid by themselves, but rather as money granted to them by the central government. Moreover, independent revenue sources, such as local taxes, are unable to cover annual local government expenditures in non-urban areas. It is true that the transfer of revenue sources including local allocation tax is founded on taxes levied on citizens, but the citizens cannot grasp the whole system. This fact leads the public and governments into so called fiscal illusion (Council for Decentralization Reform (2003b)). Consequently, local governments generate excessive financial needs, resulting in the increasing transfer of revenue sources from the central government in response. Subsequently, both central and local government fiscal expenditures have increased, resulting in fiscal deficits for both sides due to stagnant tax revenues, a primary revenue source.

A local government is assumed to attain its objective mainly based on its local revenue sources, the current fiscal circumstances are, however, at an antipode to it. For local governments to determine their own functions, it is evident that the current division of functions between the central and local governments needs to be revised. Accompanying the restructure of this division of functions, the reform of the financial system, in particular, the distribution system of revenue sources, which has allowed the central and local governments to conduct their affairs so far, obviously needs to be undertaken as well.

The trinity reform purports to take the aforementioned circumstances into consideration. According to the Council for Decentralization Reform (2003a), objectives of the trinity reform are:

- To shift from the current centralization system to new decentralization to create a system consisting of independent and voluntary regional societies based on a clear division of roles between central and local governments;
- To reduce the level of involvement of the central government in annual local government expenditures and revenues to create a local financial system in which residents are able to select the due proportion of benefits and burdens related to administrative services; and
- To clarify the relationship of benefits and burdens of local governments and reduce, as much as possible, the divergence between local annual expenditures and tax revenues, through revising the method of tax resource distribution corresponding to the appropriate division of central and local government roles in administration and functions, as well as reforming the method of securing revenue sources.

Proposals and time schedules to accomplish these objectives have been submitted to the government; however, concrete details of the reforms, such as which subsidies could be reduced or which national taxes should be transferred to local governments, are still under discussion. Therefore, in accordance with the policy of the Council on Economic and Fiscal Policy (2003), this paper assesses the trinity reform by calculating the welfare position. According to the Council (2003), the framework of the trinity reform can be summarized as:

- Reducing national treasury disbursements by 4 trillion yen; and
- Among projects eligible for national treasury disbursements, transferring national taxes in full for mandatory projects and approximately 80 percent of the abolished national treasury disbursements for other individual projects; fundamental tax revenue is to be allotted for these transfer resources.

Accompanying this transfer of fundamental tax, however, local allocation tax, whose revenue source is fundamental tax, will also be reduced.

This paper examines fiscal year 1999 and calculates welfare positions assuming that the trinity reform is undertaken subject to following assumptions 1 to 5. Factors not subject to change under the reform are assumed to conform to the current rules.

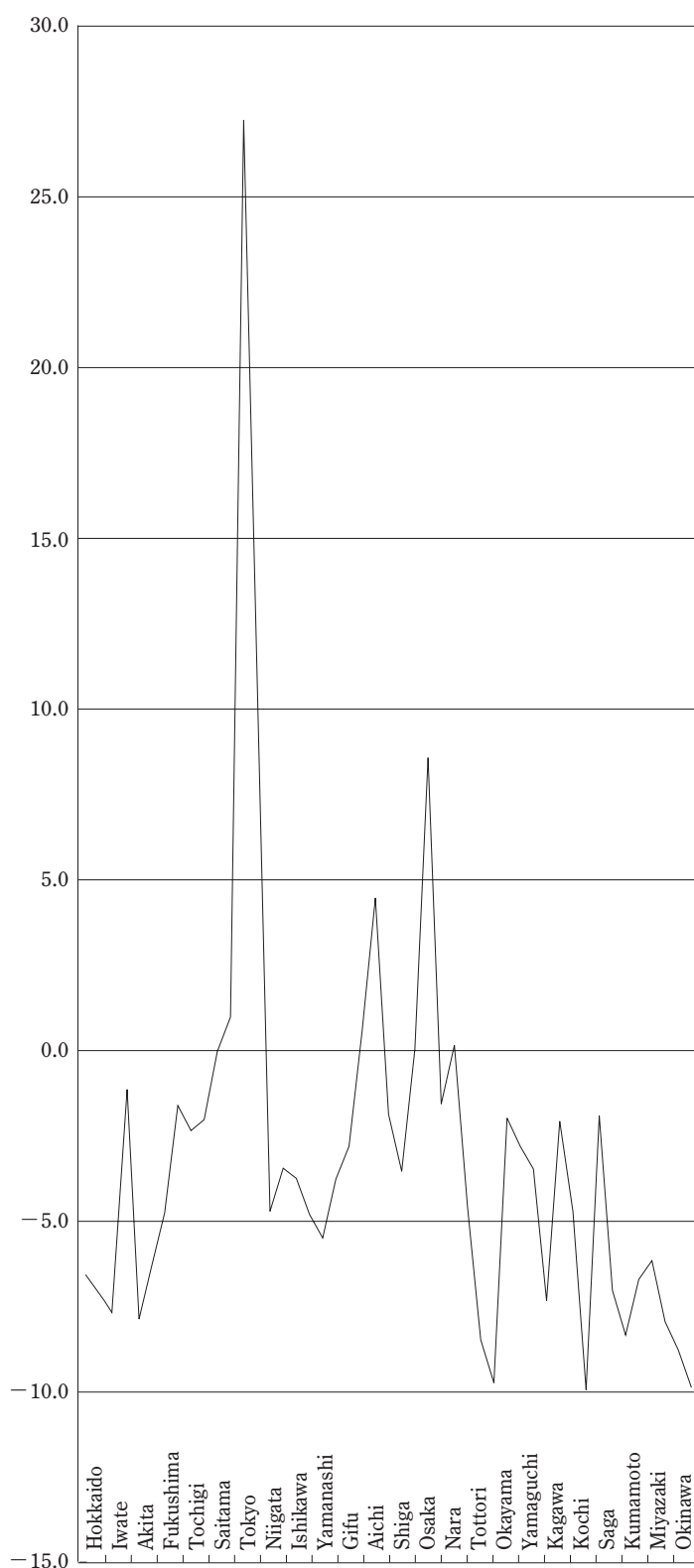
- (Assumption 1) National treasury disbursements are simultaneously reduced by 4 trillion yen. The amount of reduction for each prefecture is determined according to its share of the disbursements received prior to the reduction.
- (Assumption 2) 80 percent of all national treasury disbursements are for government agency proxy administrative costs, corresponding to national taxes worth 3.2 trillion yen, which is transferred to local governments. 80 percent of the remaining 800 billion yen is also transferred to local governments, making a total of 3.84 trillion yen in national tax reduction. At the same time, local taxes are increased by 3.84 trillion yen. The distribution among prefectures corresponds to each prefecture's portion of national and local taxes before the reform.
- (Assumption 3) Fundamental tax is presumed to be transferred to local governments from national taxes. Local allocation tax is reduced by an entry base of 32 percent of the transferred amount of fundamental tax, with each prefecture's reduction according to the share of local allocation tax prior to the reform.
- (Assumption 4) Basic financial revenues increase with the transfer of fundamental tax. The proportion of prefectural reserved revenues is assumed to be 75 percent from fiscal 2003. Considering 75 percent of the transferred amount would account for the increase in basic financial revenues, local allocation tax would be reduced by the same amount, with each prefecture's reduction according to the share of local allocation tax prior to the reform.
- (Assumption 5) The amount of standard financial needs does not change before or after the reform.

Table 7 depicts the welfare position as calculated under these assumptions. Looking at the table, it is immediately clear that the five prefectures whose welfare positions will improve due to the reform are Chiba, Tokyo, Kanagawa, Aichi and Osaka. In particular, Tokyo's rate of increase is quite prominent. As the Tokyo Metropolitan Government does not receive local allocation tax, she will be unaffected by its reduction and benefit from an increase in newly distributed local taxes. Finally she will become even more enriched after the reform in comparison to other regions. Furthermore, Figure 3 shows the change of  $\alpha$  for prefectures after the trinity reform. It illustrates the contrasting change in welfare positions between urban and non-urban areas. As is fairly apprehended, the trinity reform would further enrich already wealthy regions through interregional fiscal distribution.



**Table 7. Welfare position before / after the Trinity Reform (fiscal 1999)**

	Original $\alpha$	Post-reform $\alpha$
Hokkaido	0.0495	0.0463
Aomori	0.0156	0.0145
Iwate	0.0139	0.0128
Miyagi	0.0186	0.0184
Akita	0.0124	0.0115
Yamagata	0.0125	0.0117
Fukushima	0.0206	0.0197
Ibaraki	0.0260	0.0256
Tochigi	0.0183	0.0179
Gunma	0.0186	0.0183
Saitama	0.0444	0.0443
Chiba	0.0391	0.0395
Tokyo	0.0717	0.0912
Kanagawa	0.0557	0.0578
Niigata	0.0245	0.0233
Toyama	0.0109	0.0105
Ishikawa	0.0114	0.0110
Fukui	0.0088	0.0084
Yamanashi	0.0092	0.0087
Nagano	0.0216	0.0208
Gifu	0.0174	0.0169
Shizuoka	0.0298	0.0299
Aichi	0.0590	0.0617
Mie	0.0132	0.0130
Shiga	0.0120	0.0116
Kyoto	0.0174	0.0173
Osaka	0.0426	0.0462
Hyogo	0.0401	0.0396
Nara	0.0199	0.0199
Wakayama	0.0104	0.0099
Tottori	0.0065	0.0060
Shimane	0.0086	0.0078
Okayama	0.0155	0.0152
Hiroshima	0.0240	0.0233
Yamaguchi	0.0135	0.0130
Tokushima	0.0081	0.0075
Kagawa	0.0085	0.0083
Ehime	0.0121	0.0116
Kochi	0.0084	0.0076
Fukuoka	0.0386	0.0378
Saga	0.0083	0.0078
Nagasaki	0.0149	0.0136
Kumamoto	0.0160	0.0149
Oita	0.0125	0.0118
Miyazaki	0.0108	0.0100
Kagoshima	0.0167	0.0153

**Figure 3. Ratio of change in  $\alpha$  after the Trinity Reform**

## 6. Summary

The objective of this paper is to evaluate the fiscal redistribution system in Japan using given data covering the period after World War II.

- During the observed period, urban areas received higher welfare positions than non-urban areas; and
- Urban areas will receive further higher welfare positions after the trinity reform.

In particular, the first finding is counter to widely accepted conventional wisdom and directly against a series of research findings on the post-war system of fiscal redistribution to non-urban areas. The meaning of this conclusion, leaving aside the aspect of ensuring a national minimum through the system, casts doubt on the assumed function of fiscal redistribution, which is to transfer funds from urban regions with high tax revenues to non-urban regions with insufficient revenue sources, thus playing the role of giving relatively preferential treatment to non-urban areas.

Although the second finding was expected, the direction of national and local financial reform in the future may take a different course depending on how the finding is interpreted. Decentralization through the trinity reform is expected to achieve a certain goal by transferring some functions to local governments along with the revenue sources to carry them out. However, in many regions it may become difficult to achieve the national minimum that has been guaranteed so far by the central government, if interregional fiscal disparity increases by this reform.

Consequently, the only choice may be to correct interregional fiscal disparity through revision of the overall system of fiscal redistribution among central and local governments, or to create a new system of horizontal redistribution of interregional fiscal resources. Such a choice requires analysis of welfare from an economic perspective, which is an issue for further study.

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