INTERGOVERNMENTAL FISCAL RELATIONSHIP AND TRANSFERS IN KOREA*

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Abstract

It was not until June 1995 that residents directly elected their chief executives and councilors in Korea. However, ever now Korea has a single law system regulated by the central government. With this as background, this paper focuses on intergovernmental fiscal relationship, and investigates effects of transfers on economic development. It could be claimed that transfers play an important role in economic development through local capital expenditure. The paper shows this on the basis of correlations between industrial structures and main items of local governments.

Key words: Korea; Intergovernmental fiscal relationship; Transfer; Economic development; Decentralization
JEL classification: H71, H72, H77, O23

I. Introduction

Korea has three-tier government structure: central government, upper-level and lower-level local governments. The upper-level local governments consist of Seoul Special Metropolitan City (*tukbyul-shi*), 6 metropolitan cities (*kwangyuk-shis*), and 9 provinces (*dos*). The lower-level local governments are composed of 72 cities (*shis*), 91 counties (*kuns*), and 69 autonomous districts (*jachi-kus*). In sum, there are 16 units in the upper-level, and 232 units in the lower-level local governments.[1]

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[1] Note that, however, the structure of administrative units is somewhat different from those of local governments. Administrative structures consist of four or five-tier hierarchies. In general, four-tier structures are ordinary: central government, upper-level local government, lower-level local government, and *Dong/Eup/Myun*. *Dongs* are under autonomous districts in Seoul and other metropolitan cities, and *Eups/Myuns* are under counties in provinces and some metropolitan cities. However, in order to implement efficient administration, cities with a population of 500,000 or more in provinces have administrative districts, under which there also exist *Dongs*. This makes the administrative structure five-tier.

Inman and Rubinfeld (1996) suggest that it is necessary to consider political institutions to implement policy agenda. Like other countries, the central government in Korea handles nationwide affairs that local governments may not control. Local governments mainly deal with affairs restricted to their own regions. The scope of affairs or activities of local government are prescribed on Article 9 of Local Autonomy Act.[2]

Korea, however, has a historical background of a governing structure with centralized authoritarian rule. Even now Korea has a single law system regulated by the central government, which causes the uniformity in the strata of local administration. In relation to this background, the meaning of decentralization is not well defined. Also there is difficulty in developing the regions with diversity. It was not until 27 June 1995 that residents directly elected local public officers such as chief executives and councilors.[3] This means that local autonomy does not have long history in Korea.

It would be meaningful to investigate the intergovernmental fiscal relationship and the effects of transfers under the system of separate of central and local governments at present. Though Korea has a separate system between central and local governments, revenues and expenditures are concentrated on central government. As a result, the transfers from central government play an important role in the economic development. Furthermore, local finance in Korea has a characteristic in that local education finance is independently operated with ordinary local finance. The local education finance is more dependent on the transfers from central government than the ordinary local finance.

Therefore, in order to show the intergovernmental fiscal relationship or the effects of transfers, it is required to take account of their local educational finance as well. Moon (1999) and KRILA (1997) explain the institutions of local government in Korea. However, they deal with only the ordinary local finance. If then, one is apt to be misunderstood about the total features of local finance and intergovernmental fiscal relationship. Recent studies discuss the design for consolidation of both finances. Park and An (1996) describes the outline for the consolidation, and Kook (1998) gives a concrete design for the consolidation of local education finance into ordinary local finance. However, Park and An (1996) and Kook (1998) do not show the effects of fiscal transfers on economic development. This paper focuses on intergovernmental fiscal relationship and provides an analysis of the effects of transfers by calculating correlation coefficients between industrial structures and main items of local governments.

According to the results, the elasticity of local capital expenditure to gross regional domestic product or GRDP is elastic, and the share of capital expenditure is the highest among items of local expenditures. In addition, the capital expenditure has a high correlation with transfer revenues. It implies that transfer revenues play an important role in regional development through the capital expenditure.

Some comments would be helpful for understanding local finance in Korea. First, the consolidation of local education finance into ordinary local finance brings out the result that local governments are more dependent on central government relative to the case of taking only the ordinary local finance into account. This says that one is apt to lay less emphasis on

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[2] See Kook (2000) for more detail.

[3] A simple majority rule is applied to the election system of public officers. The candidates who gain the majority of votes become public officers for four years.

the effects of fiscal transfers when only the ordinary local finance is taken into consideration. Secondly, though the portion of non-tax revenue appears relatively high in official data it needs to be cautious that non-tax revenue actually includes transfers at the form of carry-over not spent that year. The existence of large amounts of carry-over brings out a big difference between local revenue and local expenditure.

This paper is organized as follows. Section 2 traces intergovernmental transfer system. A brief explanation will be given about the rules of the transfer system and the revenue and expenditure structure by the level of local governments. Section 3 presents some analysis on the correlation coefficients between main items of local governments and industrial structures. Section 4 discusses the effects of fiscal transfers on economic development. Section 5 offers some concluding remarks.

II. *Intergovernmental Fiscal Relationship*

1. Central-Local Relationship

Like other countries the central government in Korea has a close relationship with local governments. Figure 1 shows the intergovernmental fiscal relationship in Korea.

Central government revenue, which is equal to 16.3% of GDP in 1997,[4] is collected from national taxes and non-tax revenues. Almost all revenues of the central government depend on national taxes composed of internal taxes (71.3% of total central revenues) and earmarked taxes (16.4% of them). The fact that the ratio of earmarked taxes to total revenues of central government is high is one characteristic of the central revenue system in Korea.[5] Both internal taxes and earmarked taxes are closely related to the revenue of local government.

There are three types of transfers in 'ordinary' local finance;[6] local shared tax, local transfer tax, and national subsides. The sum of these three types of transfers to local government in 1997 is equal to 22% of ordinary local finance. Their shares in the expenditure of central revenues are 23.2%: with local shared tax 10.5%, local transfer tax 4.4%, and national subsidy 8.3%.

The local shared tax makes for fiscal equalization and fiscal support for local government as a general grant.[7] The size of local shared tax is determined by 13.27% of the internal tax revenues of the central government. Ten-elevenths of it is used for ordinary purposes, one-eleventh for special purposes. However, the central government provides additional grants if the ordinary local shared tax is not enough for the fiscal needs of the local governments, or if unexpected fiscal needs occur due to disasters. The formula of the ordinary local shared tax is calculated on the basis of the difference between standard fiscal need (SFN) and standard fiscal revenue (SFR).

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[4] Calculated from *Economic Statistics Yearbook* 1999 published by Bank of Korea.

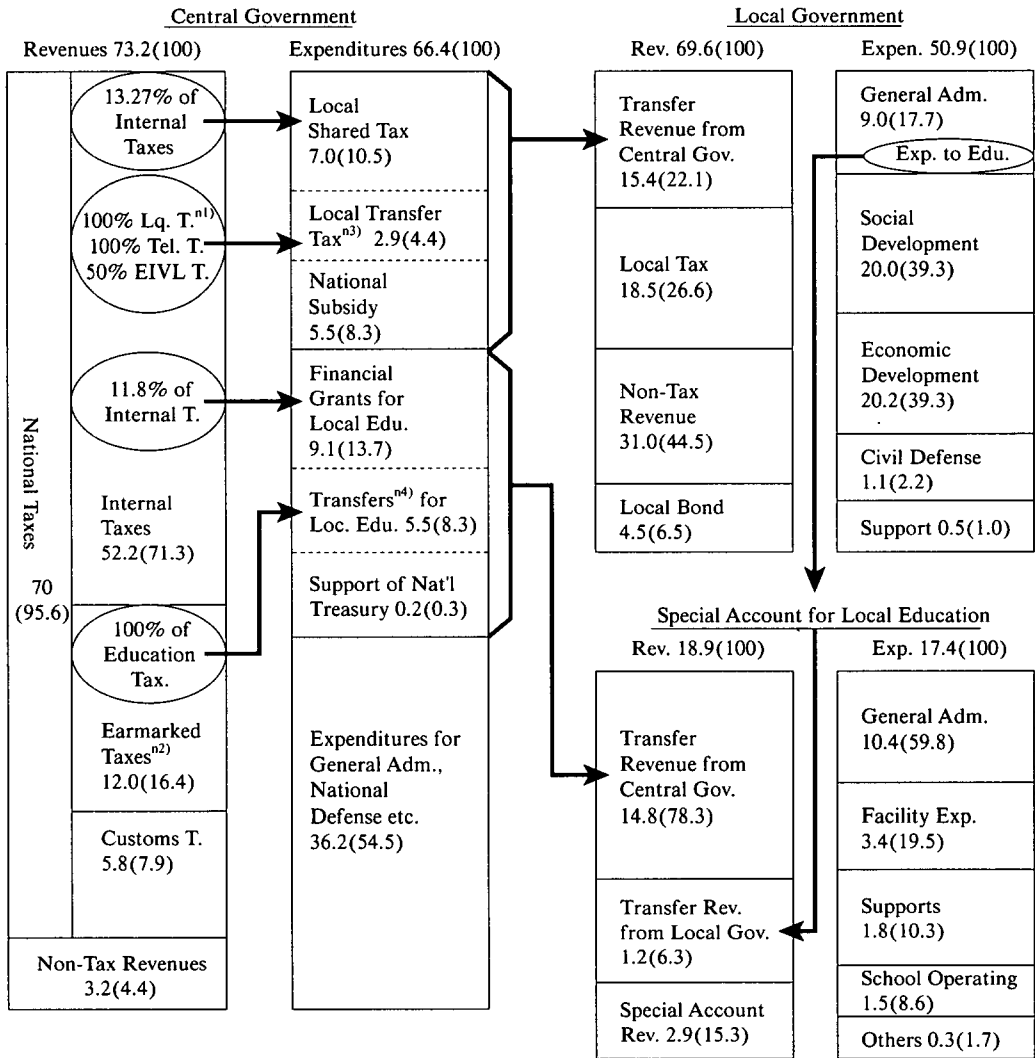[5] Earmarked taxes have the items such as transportation tax, education tax, and special tax for rural development.

[6] In Korea, local education finance is separate from local finance as a special account. This is the reason that I use the term of 'ordinary'.

[7] Instead of local shared tax the term of 'local allocation tax' is also used, for example, see Moon (1999) and *Statistical Yearbook of Local Government*.

FIGURE 1. FISCAL RELATIONSHIP BETWEEN CENTRAL AND LOCAL GOVERNMENT (1997)

In trillion Won, (%)

Central Government

Revenues 73.2(100)

Expenditures 66.4(100)

Local Government

Rev. 69.6(100)

Expen. 50.9(100)

National Taxes

- 13.27% of Internal Taxes
- 100% Lq. T.[n1] 100% Tel. T. 50% EIVL T.
- 11.8% of Internal T.
- Internal Taxes 52.2(71.3)
- 100% of Education Tax.
- Earmarked Taxes[n2] 12.0(16.4)
- Customs T. 5.8(7.9)

70 (95.6)

Non-Tax Revenues 3.2(4.4)

Local Shared Tax 7.0(10.5)

Local Transfer Tax[n3] 2.9(4.4)

National Subsidy 5.5(8.3)

Financial Grants for Local Edu. 9.1(13.7)

Transfers[n4] for Loc. Edu. 5.5(8.3)

Support of Nat'l Treasury 0.2(0.3)

Expenditures for General Adm., National Defense etc. 36.2(54.5)

Transfer Revenue from Central Gov. 15.4(22.1)

Local Tax 18.5(26.6)

Non-Tax Revenue 31.0(44.5)

Local Bond 4.5(6.5)

General Adm. 9.0(17.7)

Exp. to Edu.

Social Development 20.0(39.3)

Economic Development 20.2(39.3)

Civil Defense 1.1(2.2)

Support 0.5(1.0)

Special Account for Local Education

Rev. 18.9(100)

Exp. 17.4(100)

Transfer Revenue from Central Gov. 14.8(78.3)

Transfer Rev. from Local Gov. 1.2(6.3)

Special Account Rev. 2.9(15.3)

General Adm. 10.4(59.8)

Facility Exp. 3.4(19.5)

Supports 1.8(10.3)

School Operating 1.5(8.6)

Others 0.3(1.7)

n1) 100% Lq.T. , 100% Tel. T., and 50% EIVL T. refer to 100% of the revenue of the liquor tax, 100% of that of the telephone tax, and 50% of that of the excessively increased value of land tax, respectively.

n2) 19/150 of the revenue of the special tax for rural development, which is one of the earmarked taxes, is also financed for transfers for local education.

n3) Local transfer tax is carried out as a special account.

n4) Transfers for local education also include 0.7 trillion Won of improvement grants for the educational environment.

Sources: Ministry of Gov. Adm. and Home Affairs, *Financial Yearbook of Local Government* 1998.
          Ministry of Education, *Statistical Yearbook of Education* 1998.
          Ministry of Finance and Economy, *Tax Summary, or Josegaeyo,* 1998.
          Ministry of Finance and Economy, *Settled Budget Summary, or Kyulsangaeyo,* 1998.

$$\text{Ordinary Local Shared Tax} = \Sigma_i \, (SFN_i - SFR_i) \, a_i, \tag{1}$$

where a_i is an adjustment factor. SFN is determined by taking account of unit cost and adjustment factors according to the kinds of public services. SFR consists of basic revenue and adjusted revenue. Basic revenue is counted by 80% of estimated ordinary local tax revenue. Adjusted revenue is calculated by taking other revenues such as earmarked taxes of local governments into consideration.[8]

The local transfer tax was introduced in 1991 to support some local government projects: road-improvement, regional development, water quality improvement, and adolescent education. This transfer tax is financed by 100% of liquor tax revenue, 100% of telephone tax revenue, 50% of revenue of excessively increased value of land tax, and 19/150 of revenue of special tax for rural development. The central government supervises whether the projects are eligible for local transfer tax.

National subsidies are conditional grants transferred to local governments for specific purposes. The Local Finance Law, the Law on the Budgeting and Management of Subsidies, and other laws prescribe specific purposes for national subsidies. For example, these subsides are provided when local governments implement some administrative functions on behalf of the central government, need to promote local business, and carry out projects also beneficial for the central government.

While Ministry of Government Administration and Home Affairs or MGAHA controls ordinary local finance, the Ministry of Education controls the local education finance or the special account for local education. Even so, the transfer system in local education finance has almost the same pattern as ordinary local finance. Financial grants for local education, transfers for local education, and the support of national treasury in local education finance correspond to local shared tax, local transfer tax, and local subsidy in ordinary local finance, respectively. The transfers to local education finance from the central government are confined to only upper-level local governments: Seoul special metropolitan city, other metropolitan cities, and provinces. In other words, the decentralization of local education finance is not established in lower-level local governments. Financial grants for local education are general grants for education whose purposes are not specified. 11.8% of internal taxes are transferred to this special account. As shown in Figure 1, transfers for local education are financed from 100% of education tax[9] revenue for the purpose of the improvement of education, and the improvement of the welfare of teachers. In spite of the purposes of the transfers for education, in practice, the special account for local education is in a position that the places for use of these transfers are not distinguished from financial grants for local education.

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[8] See Moon (1999) and KRILA (1997) for more detail.

[9] The structure of the education tax is much complicated. Tax bases and tax rates of education tax are composed of various items of revenue of national and local taxes. Its tax bases (basic tax rate in parenthesis) are gross receipts of banking and insurance business (0.5%), the amount of following tax revenues: liquor tax (10%), special excise tax (30%), inhabitant tax (10%), registration tax (20%), horse race tax (50%), property tax (20%), aggregate land tax (20%), automobile tax (30%), tobacco consumption tax (40%), and transportation tax (15%). See Ministry of Finance and Economy, *Korean Taxation,* 1999 in detail.

TABLE 1.   REVENUE AND EXPENDITURE STRUCTURE BY THE LEVEL OF
LOCAL GOVERNMENTS(1997)

	Per capita (In 1000 Won)		As percentage of Total	
	Revenue	Expenditure	Revenue	Expenditure
Seoul Special Metro. City	903	623	13.4	12.6
Autonomous Districts in Seoul	219	280	3.2	5.7
Metropolitan Cities	1,044	612	18.8	15.0
Auto. Dis'ts in Metro. Cities	153	249	2.7	6.1
Provinces	644	251	22.3	11.8
Cites	1,146	1,034	26.6	30.3
Counties			13.0	18.5
Total	1,145	1,088	100.0	100.0
Upper-level Local Governments	808	429	54.4	39.4
Lower-level Local Governments	677	659	45.6	60.6

Source: MGAHA or Ministry of Government Administration and Home Affairs, *Financial Yearbook of Local Government* 1998.
Moon (1999).

2.   Fiscal Structure by the Level of Local Governments

Let us look at the fiscal structure by the level of local governments. Table 1 shows per capita total revenues and expenditures, and the shares of them by the level of local governments.

Upper-level local governments account for 54.4% of total revenues and 39.4% of total expenditures. This means that in lower-level local governments the shares of expenditure are higher than those of revenues because there are transfers from upper-level local governments to lower-level. As a result, Table 1 shows that the share of lower-level government is 60.6% in total expenditures while 45.6% in total revenues.

The sum of Seoul's and other metropolitan cities' shares in total revenue accounts for 32.2%(=13.4+18.8), which is much higher than that of the provinces, 22.3%. At lower-level local governments the sum of cities' shares in total revenue is 26.6%, which is double of that of counties, 13.0%. Table 1 presents that all the shares of expenditure of lower-level local governments are higher than those of revenue. In particular, the transfers from the province to counties are noticeable among them. Table 1 depicts that the provinces' expenditure is 11.8%, however, their share of total revenue is 22.3%. In contrast, the counties' share of total expenditure is as high as 18.5% of total expenditure, compared with 13.0% of total revenue. This illustrates that the counties are more highly dependent on transfer revenue than other lower-level local governments.

Almost the same things mentioned above can be said with regard to per capita revenue and expenditure, which is shown the second and third columns in Table 1. The per capita ratio of upper-level local governments to lower-level changes from 1:0.84 (=808:677) in revenue to 1:1.54 (=429:659) in expenditure.

The per capita revenue and expenditure, however, show various patterns at each level of local government. Metropolitan cities have the highest per capita revenue among upper-level while cities and counties have it among lower-level. Autonomous districts in metropolitan

TABLE 2.   REVENUES STRUCTURE AMONG REGIONS (1997)

(%)

	Share of Each Item to Total Revenue				Ratio of Total Revenue to GRDP
	Transfer Revenue	Local Tax	Non-Tax Revenue	Local Bond	
Seoul Special Metro. City	9.4	43.7	41.6	5.3	14.3
Metropolitan Cities	20.4	27.7	45.1	6.8	—
Pusan	18.7	30.2	43.9	7.2	19.3
Taegu	17.6	24.9	39.9	17.7	26.1
Inchon	23.7	29.6	41.3	5.5	17.6
Kwangju	27.5	21.1	44.6	6.8	26.0
Taejon	28.2	29.5	37.0	5.4	19.7
Ulsan	35.6	25.7	37.8	0.8	—
Provinces	47.8	14.3	34.2	3.7	—
Kyonggi	18.8	28.1	48.8	4.2	20.2
Kangwon	47.4	12.5	37.0	3.1	37.6
Chungbuk	44.2	15.3	37.4	3.0	22.5
Chungnam	49.7	15.1	31.3	3.9	23.4
Chonbuk	48.3	12.1	36.8	2.9	32.5
Chonnam	55.6	9.5	32.2	2.7	26.9
Kyongbuk	50.6	17.0	29.0	3.4	20.6
Kyongnam	40.2	18.0	38.4	3.4	13.3
Cheju	40.4	16.0	27.0	16.6	32.6
Total	30.9	24.4	39.6	5.1	20.3

Note: Ulsan became metropolitan city in 1997.
Sources: Ministry of Gov. Adm. and Home Affairs, *Financial Yearbook of Local Government* 1998.
        Ministry of Education, *Statistical Yearbook of Education* 1998.
        National Statistical Office, *Gross Regional Domestic Prduct in 1997,* 1999.
        Moon (1999)

cities have small per capita revenue and expenditure. This means that in the case of the metropolitan cities revenues are mainly collected and expended from the upper-level local governments.[10] In the case of the provinces, on the contrary, more revenues are obtained from the lower-level local governments. The reason that the sum of per capita revenue or expenditure of metropolitan regions is smaller than that of the provincial regions is because metropolitan regions have much higher populations per km^2 than provinces.[11]

III.   *Correlations between Main Items*

Table 2 shows the revenue structure after consolidation of local education finance into

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[10] There are adjustment grants to let metropolitan cities have a tool to equalize the revenue of autonomous districts. Metropolitan cities finance them by a certain proportion of the revenues of acquisition tax and registration tax, and distribute adjustment grants in a way almost identical to the formula of local shared tax.

[11] The population per km^2 amounts to 17,007 persons in Seoul, 2,663 in other metropolitan cities on average, and 255 in the provinces on average.

ordinary local finance.[12]

It is presented in Table 2 that Seoul special metropolitan city has the lowest transfer revenue among upper-level local governments, equal to 9.4% of its total revenue. It means that Seoul has the highest ratio of the sum of local tax revenue and non-tax revenues among local governments. In the case of other metropolitan cities transfer revenues account for 20% of total revenues while provinces, except Kyonggi Province surrounding Seoul, 47.8%. In particular, the shares of local taxes are much higher in metropolitan cities than in the provinces. Table 2 documents that the share of local tax revenue is highest in Seoul, next in metropolitan cities, last in the provinces. It implies that transfer revenues (TR) are inversely related with local tax revenues (LT) and non-tax revenues (NT).

Let us make certain this fact with a calculation of the correlation coefficients between TR and LT, and between TR and NT. They are -0.912, -0.744, respectively, which shows strong inverse relationships between them. The inverse relationship between TR and LT is stronger than that between TR and NT. However, TR has a more inversely close relationship with local revenue (LR), the sum of LT and NT; the correlation coefficient between TR and LR is -0.944. This means that transfer revenue is carried out on the basis of the sum of local tax and non-tax revenues.

Local governments have an important role in social development and economic development. As presented in Figure 1, local governments in Korea have a 39.3% share in social development, also 39.3% in economic development of ordinary local expenditure. On the same token on revenue side, it is necessary to consolidate the local education expenditure into ordinary local expenditure as an item of education expenditure. When the local education expenditure is included as one item of the ordinary local expenditure, the shares of these two main items decrease to 29.8% and 30.2%, respectively. The local education expenditure in 1997 accounts for 25.8% of total expenditure after consolidation. From this expenditure structure it can be said that local governments take an important role in education services as well.

When the expenditures are classified by their characteristics, the share of capital expenditure in 1997 decreases from 54.7% of ordinary local expenditure to 47.8% after consolidation. The reason that it decreases is that personnel expenditure in local education finance is high.[13] In spite of the decrease in capital expenditure by consolidation, the share of capital expenditure is still most high. Table 3 presents the calculation results about the ratio of total expenditure, capital expenditure, and transfer revenue to GRDP after consolidation, and industrial structures among regions.

As depicted in Table 3 the ratio of total expenditure to gross regional domestic products (GRDP) is 17.7% on average. One characteristic in these ratios, on the whole, is that relatively more developed areas such as Seoul, Inchon, and Kyongnam account for low ratios of total expenditures to GRDP. Contrary to this, relatively underdeveloped areas such as Kangwon, Chungbuk, and Cheju have high ratios.

Let us look at the disparities among regions in GRDP. Local governments' revenue

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[12] Kook (2000) presents a consolidation formula taking the characteristics of each item of local education finance into account.

[13] For example, the share of personnel expenditure in local education finance is 60.8% in 1997. As a result, its share after consolidation increases from 10.1% to 21.6%. On the contrary, the share of capital expenditure in local education finance is 19.6% in 1997.

TABLE 3.   RATIO TO GRDP AND INDUSTRIAL STRUCTURE AMONG REGIONS (1997)

(%)

		Ratio to GRDP of			Industrial Structure		
		Total Expend.	Capital Expend.	Transfer	Primary	Secondary	Tertiary
Seoul Special City		13.2	5.8	1.3	0.3	20.1	79.6
Metro. Cities	Pusan	18.2	8.1	3.6	2.3	26.5	71.2
	Taegu	23.7	12.5	4.6	1.0	25.0	74.0
	Inchon	14.8	6.9	4.2	0.8	32.1	67.1
	Kwangju	20.5	9.4	7.2	5.1	11.8	83.1
	Taejon	20.0	9.3	5.5	0.7	21.9	77.4
Provinces	Kyonggi	16.3	8.8	3.8	5.2	30.1	64.7
	Kangwon	31.5	15.1	17.8	27.0	13.0	60.0
	Chungbuk	19.6	9.0	9.9	12.1	39.2	48.7
	Chungnam	21.8	10.6	11.6	44.0	13.0	43.0
	Chonbuk	27.8	13.1	15.7	17.4	25.8	56.8
	Chonnam	23.3	10.8	15.0	41.2	11.3	47.5
	Kyongbuk	18.7	8.6	10.4	35.1	16.2	48.7
	Kyongnam	12.0	5.5	5.3	7.1	53.7	39.2
	Cheju	30.0	16.0	13.2	33.1	3.9	63.0
	Total	17.7	8.5	6.3	−	−	−

Source: Ministry of Gov. Adm. and Home Affairs, *Financial Yearbook of Local Government* 1998.
Ministry of Education, *Statistical Yearbook of Education* 1998.
National Statistical Office, *Gross Regional Domestic Prduct in 1997,* 1999.
Moon (1999)

relative to GRDP is 20.3% on average, which is shown at the end of the last column below right in Table 2. On the whole, relatively developed regions such as Seoul and Kyongnam show relatively small government size, and underdeveloped areas such as Kwangwon and Chungbuk show relatively large size. It may be difficult, however, to make the conclusion that industrial structure is closely related to the size of local government. It is because a developed metropolitan city such as Taegu has a relatively high ratio of revenue relative to GRDP.

It is the size of transfer revenues relative to GRDP that is more closely related with the industrial structure. Seoul and other metropolitan cities account for very low weights of primary industry, and at the same time the share of transfer revenue in GRDP is also very low. From the fourth and fifth column in Table 3 we can conjecture that the ratio of transfer revenue to GRDP is closely related with the weight of primary industry. This is backed up by the result that the correlation coefficient between the ratio of transfers to GRDP and the share of primary industry is 0.790. Judging from this value, it can be said that the ratio of transfers to GRDP has a strong positive relationship with the weight of primary industry. On the contrary, the correlation coefficients between the ratio of transfers to GRDP and the weight of secondary, and tertiary industry are −0.455, and −0.501, respectively. This implies that the transfers are closely related with industrial structures or regional economic policies.

The ratio of capital expenditure to GRDP shows very different patterns among regions. On the whole, capital expenditure plays an important role in economic development. It can be expected that the shares of capital expenditure in less developed areas are relatively high while

those in developed areas are relatively low. The correlation coefficients between the ratio of capital expenditure to GRDP and the weight of primary, secondary, and tertiary industry are 0.496, −0.610, and −0.021, respectively. This means that the capital expenditure, as in the transfers, has also a positive relationship with primary industry and a negative relationship with secondary industry.

IV. *Effects of Fiscal Transfers and Some Comments*

1. Effects on Economic Development

Before the discussion of the effects of transfers on economic development let us look at the size of local governments relative to the central governments briefly. The sum of revenues of both the central and local governments is equal to 27.8% of GDP in 1997 after exclusion of the double counting of transfers between both governments. The ratio of local government revenue to general (central plus local) government is 65.9% if transfers are included, 42.0% if they are excluded. In the case of expenditure the size is smaller than in the case of revenues because of the existence of carry-over not executed that year. The expenditure size of the general government is equal to 22.8% of GDP. The ratio of the expenditure size of local government to general government is 66.1% if transfers are included, 36.9% if they are excluded. From these figures it can be claimed that the revenue and expenditure in Korea are concentrated on central government. On the other point of view, this means that the transfers from central government play an important role to regional economic policy.

While the national tax revenues in Korea are mainly composed of income and consumption taxes,[14] the local tax revenues are heavily reliant upon property taxes. For example, the share of property taxes is 80.4% of local tax revenues in 1997.[15] In general, the elasticity of property tax is not high on account of the difficulty in appreciating property values and in counting them into property tax bases. If this characteristic of property taxes is taken into consideration, it can be expected that local government revenue would be inelastic for GRDP. This can be confirmed by calculating the elasticity of each type of local revenue to GRDP. The elasticity of local tax revenue, that of non-tax revenue, and that of the sum of both to GRDP are 0.960 (the *t*-value is 8.78), 0.837 (9.87), and 0.880 (11.5), respectively, each of which is inelastic.[16] Recently, however, Korea has taken efforts to raise the share of revenue of consumption taxes or that of income taxes in order to raise the elasticity of local revenue.[17]

How about the effect of local expenditure on GRDP? Here let us calculate the elasticity of GRDP to capital expenditure. This can be obtained by regression of GRDP on capital expenditure in the form of log linear. According to an estimation using the consolidation data of upper-level local governments, the elasticity of GRDP to capital expenditure in 1997 is 1.23

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[14] Income, consumption, and property taxes accounted for 41.3%, 45.7%, and 2% of the national tax revenues in 1998, respectively, calculated from the data of the Ministry of Finance and Economy.

[15] Income and consumption taxes account for and 9.5% and 11.0% in local tax revenues in 1997, counted from the data of MGAHA.

[16] These were estimated using the method of ordinary least squares with the consolidation data of upper-level local governments.

[17] The introduction of tobacco consumption tax as local tax in 1989 was one of such efforts.

(with *t*-value at 9.83), which is elastic. This contrasts with inelastic case of revenue structure mentioned above. It is, I think, an interesting result that even though local governments are heavily dependent on the decisions of the central government and have an inelastic structure in the revenue side, they have a structure in which capital expenditure causes GRDP to increase elastically.

In the previous section, it was shown that the ratio of transfer revenue to GRDP had a positive relation with the share of primary industry, and the ratio of capital expenditure had positive relations with the share of primary industry. Therefore, it can be expected that the ratio of transfer revenue has a positive relation with the ratio of capital expenditure. The calculation of the correlation coefficient between the two brings out the value of 0.745, which is thought to be a high value. On the basis of above results, it may be said that the transfers to local governments are an important factor in economic development through the capital expenditure. This can be also interpreted that the immigration to metropolitan cities was generated not by local governments' own decision but by the control of the central government. The fact that local public service provisions are regulated by the central government makes it difficult to adopt the concept of 'voting with feet' a la Tiebout (1956).

Explaining this in another way, it implies that each level of local government has not had a major role in developing its own region because of a scarcity of its own revenues. As Inman and Rubinfelt (1996) suggest, it might be a problem that local governments could not have taken responsibility for economic policies in their regions. Remembering that the election system for local autonomy started in 1995, it would be important to build up a scheme that local governments in Korea take a real responsibility in developing their regions.

2. Some Comments on Local Finance

Local governments have not only transfer revenues from the central government but also their own revenue items: local taxes, non-tax revenue, and local bonds. The share of transfer revenues in the total revenue of local governments is 22.1%. And 26.6%, 44.5%, and 6.5% of the local government revenues are collected from local tax, non-tax revenue, and local bonds, respectively. When we see these figures, one is apt to judge that local governments in Korea have relatively high shares of their own revenues. It is necessary, however, to be cautious about the following.

First, local taxes are levied on the basis of the Local Tax Act controlled by central government. Local tax law that prescribes tax rates and tax bases is enacted not by local councils but by National Assembly. Local governments are allowed to set their own tax rates within given ranges on some items of local taxes: resident tax, automobile tax, urban planning tax, business tax, butchery tax, and regional development tax. Until now, however, local governments have not changed the certain range of the standard tax rate to raise their own tax revenues except in a few extremely restricted cases. The reason is that these taxes have little influence on their revenue. In addition, the ratio of local tax revenues to the sum of both national and local tax revenues is very low. In the middle of the 1970's, local tax revenues accounted for at best about 10% of the sum of national and local tax revenues. Though the ratios have been increased, even in the 1990's they comprise only about 20% of them, we can see how much the local tax revenues are restricted.

Second, though the share of non-tax revenue is relatively high, the share of carry-over in

non-tax revenue not spent that year is very high. The existence of large amounts of carry-over is a main reason that makes the difference between revenue and expenditure of local governments larger. Generally non-tax revenue is composed of users' fees, charges, and interest revenues, etc., and so is in the case of Korea. However, non-tax revenue in Korea has a distinguishing feature that it includes a large portion of carry-over not used that year. For example, in case of the general account the share of carry-over is 65% of non-tax revenue in 1997. Some reasons why the carry-over is so high can be thought of. At first, in many cases, there occurs a situation that local governments cannot make an outlay of transfer revenues that year. It is because the central government transfers a large amount of revenues near the end of the year. Secondly, local governments have not inclined to estimate concretely the local revenue increase induced by policy changes such as local tax reforms. In Korea, the central government usually makes decisions to increase local tax revenue uniformly, which causes local governments not to have an incentive to estimate positively the effect on their revenue. This brings out a result that the settled account appears much larger than budget, which is called 'net annual surplus'.[18] The third reason is political. Korea had kept an appointment system of local executives by the central government before 1995. The executives of local government have had a tendency to implement a surplus budget because it was more highly evaluated, and meant success in their life, than a deficit budget. Even under the present direct election system, the large amount of revenues has been carried over by the influence of past custom. Judging from these reasons, it can be said that non-tax revenue actually includes transfer revenues of past years. It means that the real share of non-tax revenue could be much lower,[19] in other words, the real share of transfer revenue could be higher. Therefore, it is necessary to be cautious in interpreting the structure of local government in Korea.[20]

Furthermore, the ordinary local finance, as mentioned in Section 2, does not include local education finance. The one is more reliant on transfer revenue than the other. From the Figure 1 below right we can see that about 80% of revenues in local education is transfer revenues from the central government. Only 6.3% of local education revenue is transferred from ordinary local finance. The share of its own revenue as a special account is at best 15.3%. As a result, in order to calculate the revenues of local government by consolidating local education finance into ordinary local finance,[21] it is necessary to distribute the revenues of local education finance to ordinary local finance.

When we take account of both ordinary local finance and local education finance, the degree of the dependence of the local government on central government becomes much higher. It rises from 22.1% to 34.6% in 1997.[22] The result is mainly caused by the increase of local shared tax. The share of non-tax revenue in total revenue decreases because non-tax revenue from the special account is very low. When both finances consolidated, the sum of local tax's and non-tax revenue's shares becomes 64%. The share of local bonds shows lower at 5% after consolidation.[23]

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[18] This share is very high. For example, net annual surplus is 39.2% of total carry-over in 1997.

[19] According to the calculation of An (1997), the real share of non-tax revenue reaches only about 10%.

[20] On the other hand, central government interferes with the process of the issuance of local bonds.

[21] The amount of the sum of both is used in *Reference Documents for Budget Summary*.

[22] The calculation formula in Figure 1 is $(15.4+14.8)/(69.6+14.8-1.2)$. Note that the transfers from local government to the special account for local education should be excluded from the sum of both revenues to avoid double counting.

[23] However, the share of local tax revenue is almost unchanged even after consolidation, which means the portion of revenue of local taxes for education tax bases is so high.

V. Concluding Remarks

In general, the degree of decentralization would depend on whether local governments have their own power to collect revenues and to spend expenditures without interference of central government. It has not been long before that local residents could directly elect their public officers such as chief executives and councilors in Korea. Local elections for public officers were held for upper and lower-level local government simultaneously on June 1995 for the first time. With this as background, even now local governments highly rely on transfer revenues from the central government.

In the case of Korea it is required to note that: (1) local tax act is prescribed by the central government (National Assembly), (2) a large portion of non-tax revenue actually includes not only tax revenue and transfer revenue of past years, and (3) the central government interferes with the process of the issuance of local bonds. Judging from these, it can be said that local governments are much confined in their authority in collecting their own revenues. Furthermore, in Korea local education finance is separately operated from ordinary local finance as special account whose revenue is heavily reliant on transfer revenue from the central government.[24]

This paper showed the correlations between the main items of local governments and industrial structures using the consolidated data of local educational finance into ordinary local finance. Transfer revenues (TR) are inversely related with local revenues (LR) or the sum of local tax revenues and non-tax revenues. The correlation coefficient between TR and LR is -0.944, which means transfers are carried out on the basis of local governments' own revenue.

Local taxes in Korea are heavily reliant upon property taxes whose share in local tax revenues accounts for about 80%. The elasticity of local tax revenue, that of non-tax revenue, and that of the sum of both to GRDP are 0.960, 0.837, and 0.880, respectively, which are inelastic. In addition, the ratio of tax revenues to the sum of both national and local tax revenues is at best about 20%. Therefore, it can be said that the economic development has contributed relatively little to the increase of local tax revenue. On the contrary, the elasticity of GRDP to capital expenditure is 1.23. That is, the local government has an elastic structure in expenditure side while it has an inelastic structure in revenue side.

This paper demonstrated the effects of transfers on regional development focusing on intergovernmental fiscal relationship. The industrial structure was made use of to investigate the relationship between decentralization and economic development. According to calculation, the correlation coefficient between the ratio of transfer revenue to GRDP and the share of primary industry is 0.790. On the contrary, the correlation coefficients with secondary, and tertiary industry are -0.455, and -0.501, respectively. From this result it would be certain that transfers were an important factor for regional economic development. The correlation coefficient between the ratio of capital expenditure and transfer revenue to GRDP shows the value of 0.745, which is a high value. Consequently, it can be said that the transfers to local governments have an important role in regional development through the capital expenditure.

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[24] About 80% of revenues of local education finance in 1997 depends on transfer revenues from central government.

As well known, Tiebout (1956) says that there appears 'voting with feet' by the differences of the public services that local governments provide. In Korea, however, the immigration of people to metropolitan or other cities was generated by the regional policy under the influence of the central government. This means that it would be difficult to adopt the concept of Tiebout's voting with feet in Korea.

This paper has focused on fiscal transfers determined by the central government. As the decentralization proceeds, however, local governments tend to have their own power in making decisions on their own revenues and expenditures responsive to the decision of central government. If then, the method or result proposed in this paper will also be changed because it is necessary to take the responsive functions of both national and local governments into account.

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