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Master's Thesis of Public Administration

**A study on the effect of tax resource  
transfer on horizontal fiscal equity  
- A study of local consumption tax -**

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**Graduate School of Public Administration  
Seoul National University  
Global Public Administration Major**

**Kim Dong Jin**

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**Academic Advisor Kim Soon Eun**

**Submitting a master's thesis of Public Administration**

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**Graduate School of Public Administration  
Seoul National University  
Global Public Administration Major**

**Kim Dong Jin**

**Confirming the master's thesis written by**

**Kim Dong Jin**

**December 2017**

**Chair            Hong, Joon Hyung (Seal)**

**Vice Chair     Kwon, Huck Ju (Seal)**

**Examiner       Kim, Soon Eun (Seal)**

## **Abstract**

# **A study on the effect of tax resource transfer on horizontal fiscal equity**

## **- A study of local consumption tax –**

**Kim Dongjin**

**Global Public Administration Major**

**The Graduate School of Public Administration**

**Seoul National University**

This study explored the effect of introducing Local Consumption Tax (LCT) on horizontal fiscal equity among local governments by analyzing the Coefficient of Variation (CV) of Local Tax (LT) from 2005 to 2014. It demonstrated that the introduction of LCT and its weighting system contributed to mitigating the regional fiscal gap of South Korea through both an analysis of per capita and analysis of cost index considerations. The CVs of LT had significantly decreased (which can be equated to improvement of regional equity) since 2010 when the LCT was introduced. By using the subtraction methods of LT-LCT, It also confirmed that this change was caused by the introduction of LCT. This degree of change was much greater when applying weight system than when it was not applied. In short, this study had found that the introduction of LCT and the application of regional differential weights have a positive effect on fiscal equity among local governments in South Korea.

**Keywords:** Local consumption tax, weighting system, fiscal equity, cost index, Coefficient of Variation

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# Chapter 1. Introduction

## 1.1. Study Background

With the introduction of local autonomy in 1991, the intergovernmental fiscal relationship has been dramatically changed. Many authorities and responsibilities of the central government have been transferred to the local governments. Residents' demands for public services have also been increased in this era of local autonomy. As a result, it is critical for local governments to secure sufficient financial resources to meet the varied tastes of their residents autonomously as well as to carry out their own work.

However, the actual financial situation of local governments is far from approaching local financial autonomy. There are so many fiscal problems to solve in local government. Some problems are caused by political demands for free meals, free childcare, and other social welfare needs. Others are caused by the local governments themselves, such as pork barrel spending or showy projects including the construction of luxury office buildings.

The more fundamental local financial issue in Korea, however, is that tax bases and fiscal capacities are unevenly distributed between central and local governments and among regions. The revenue of central government occupies about 80% of all tax revenues, and local governments get only 20%. On the other hand, central government only spends 43% of all tax revenue while local governments spend almost 57%.

The regional financial gap is also very large. While the financial independence rate of Seoul is 84.2%, Jeonnam, which is one of provincial self-governing bodies, is just 27.1%. This fiscal imbalance among regions has been intrinsic since the 1960s when the central government executed unbalanced economic growth strategies concentrating on urban areas,



especially the national capital region centered around Seoul, rather than the rural ones. As a result, when considering the fact that economic activities underlying taxable income were concentrated in the national capital region, there has been concern that the introduction of a new local tax would exacerbate the problem of tax revenue imbalance between the regions

In order to deal with these problems with local finance and the inter-regional fiscal gap, the central government has been carrying out two kinds of fiscal decentralization policies: one is for local fiscal expansion and the other is for the mitigation of the inter-regional fiscal gap. First, the policy of local fiscal expansion focuses on enhancing the substantial financial capacity of local government and helping to maintain its adequate fiscal scale. This corresponds to the increase in the role of the local sector through the reallocation of tax resource or sharing fiscal revenue between central and local government or among local governments. The policy for mitigation of inter-regional gap is carried out in the form of a local financial adjustment system, such as local share tax and subsidies by giving more revenue to areas with weak fiscal capacity to mitigate the relative imbalance and promote more balanced development.

If we approach fiscal decentralization in terms of fiscal expenditure, both tax base transfer and tax revenue transfer from central to local government would make little difference. However, if we understand the essence of fiscal decentralization as the right for local government to determine its fiscal revenue through its own efforts, both of these policies would make a big difference. In other words, while the reinforcement of fiscal decentralization through revenue transfer has inter-regional fiscal equity advantages, it also hinders the local government's fiscal autonomy. It also makes difficult to secure permanent competitiveness for local governments since they do not need to make any additional efforts to raise revenue. Namely, their revenue is guaranteed by the fiscal revenue transfer

from the central government.

Securing the self-revenue of local governments through expanding the local tax base would fundamentally lead to fiscal decentralization and local autonomy. However, our government's local financial policies mainly focused on tax revenue transfer rather than tax base transfer under a powerful centralized regime. Although the scale of local finance has greatly expanded since local autonomy has been implemented, the portion of the local tax has actually gone down. In other words, the fiscal autonomy and financial stability of local governments have worsened (Kwack Chae-ki, 2001; Choi Byeong-ho, 2011).

Due to the rapid industrialization and urbanization process, the fiscal gaps between big and medium–small cities as well as urban and rural areas, have been deepening. So, if tax base transfer is executed under the unevenly distributed conditions of the tax base, even though vertical fiscal equity between central and local governments might improve from a broader perspective, it may actually magnify the inter-regional fiscal gap. In the end, this will damage inter-regional fiscal equity. For this reason, it is very important to expand local financial revenue by securing inter-regional fiscal equity. Solving this problem, however, will be difficult.

The Local Consumption Tax (LCT) was introduced in 2010 to part of the efforts to resolve this fiscal imbalance. This was regarded as the first actual case of the transfer of national tax to local after local autonomy was implemented. LCT, a portion of Value-added tax transferred as local tax, has two goals. One is to correct disproportionate distribution of tax revenues between central and local governments. The other is to redress the regional fiscal gap and imbalance. Although sales tax is generally taxed in areas where consumption activity occurs, when introducing the local consumption tax, we adopted a kind of coordination system. This system applies different weights by regions that allow the allocation of more local consumption tax

compared to their consumption activities to the non-national capital regions. The weighting system gives higher weight to poorer local governments: 100% for the local governments of the capital area, 200% for Metropolitan Cities in a non-capital area, and 300% for Provinces in a non-capital area.

**[Table 1] Distribution Formula for Local Consumption Tax**

<p><b>Local consumption tax = 5% of VAT ×</b> <math display="block">\frac{\text{CI}^* \text{ of local Govts} \times \text{weighting}^{**}}{\text{Total sum of CI of local Govts}}</math></p> <p>* Consumption index (CI): Private final consumption expenditure  ** Weighting: Capital Area – 100, Metropolitan City – 200, Province – 300</p>
--

However, this kind of regional equity supplementary system has been criticized since the local consumption tax is merely another form of transferring resources from the central government, rather than functioning as original local taxes.

With this criticism in mind, it is worth analyzing whether the introduction of local consumption tax affects fiscal equity among regions and whether the application of differential weightings by regions is effective in mitigating the regional fiscal imbalance.

Chapter 2 offers a theoretical discussion on fiscal decentralization and Consumption tax in OECD countries including the status of local finance in Korea. Chapter 3 reviews literature about fiscal equity and Local Consumption Tax. Chapter 4 presents research questions and methodologies, and then empirically analyzes the effects of fiscal equity on the introduction of LCT by using cost index and coefficient of variation. Finally, the policy implications of this study are presented along with the summary of study results in Chapter 5.

## **1.2. Study Scope and Method**

### **1.2.1. Scope of Study**

The purpose of this study was to analyze the fiscal policy of the government, especially the effect of LCT on regional fiscal equity. For the purpose of this study and for greater efficiency, the scope of this study was limited as follows.

First, the time scope is limited to 2005 to 2014, the period of five years before and after 2010 when LCT was introduced. Second, the spatial scope was limited to 16 metropolitan cities and provinces (hereafter, city and province) excluding Sejong City, since the LCT involves provinces and metropolitan tax money, and it is effective for data comparison. Third, the scope of content is limited to presenting policy implications for the future tax base transfer policy by analyzing the effect of the regional equity of the LCT introduced to enhance local government finances and to mitigate the regional financial power gap.

### **1.2.2. Procedures of Analysis**

First, this study measured the variation coefficient of local tax per capita by city and province from 2005 to 2014. Namely, this study compared how the CV of local tax has changed for 5 years before and after 2010—the year when the LCT was introduced—in order to judge whether there has been a notable improvement in regional fiscal equity of local tax.

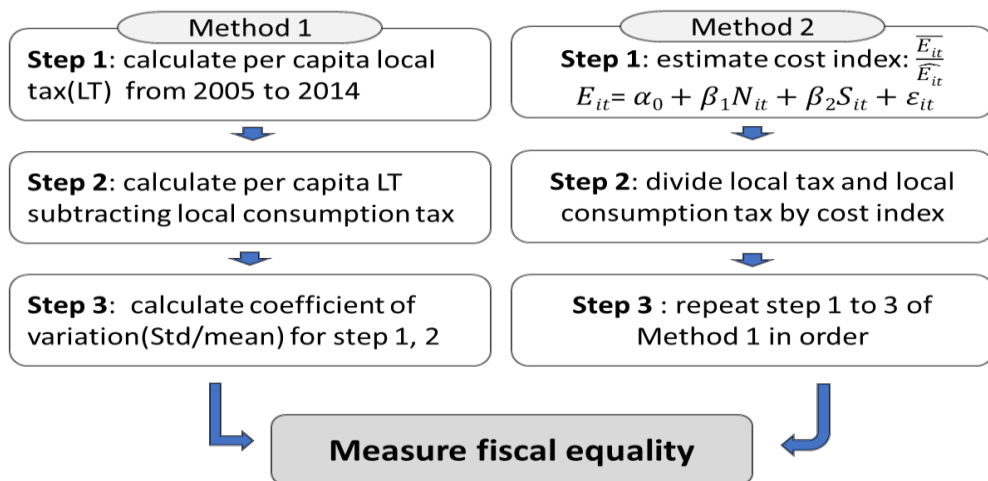
This study also analyzed the correlation between the change of CVs of the local tax and the LCT by measuring the CVs for the local tax, excluding LCT, in order to confirm the effect of LCT on the regional fiscal equity of local tax. In other words, if the CVs of the local tax excluding the LCT are increased, it can be interpreted that the LCT positively contributes to the regional fiscal equity of the local tax. Conversely, if the CVs are decreased, it can be judged that it is negative on the regional equity of the local tax.

In this case, the LCT was subtracted from the local tax in two ways to examine the effect of the weighting system. The first way was to distribute the money after applying the regional weighting using the current method, and the second method was to allocate money by using the private final consumption expenditure index itself without the regional weighting.

Meanwhile, there may be differences in the cost of supply of public services, depending on the social and geographical conditions of each local government (Kim Tae-il, 1999). In order to analyze the effect on regional fiscal equity, it was necessary to consider not only the revenue side but also the difference of the public service supply cost of each local government.

Thus, the regional cost indices were calculated with the regression model, utilizing per capita expenditure as a dependent variable and population and area as independent variables. Then, the coefficients of variation of local taxes divided by the cost indices per region were re-measured and compared with the coefficients of variation, considering only the revenue side.

**[Figure 1] Procedures for Measuring Fiscal Equity**



## Chapter 2. Theoretical Discussion

### 2.1. Local Finance in South Korea

#### 1.2.1. The scale of local finance

Since the implementation of autonomy for local governments in 1995, the size of local autonomous governments has been steadily expanding. As shown in [Table 2], the total amount of budget (general account + special account, as the net final budget) increased 3.6 times from KRW 47.0 trillion in 1995 to KRW 167.0 trillion in 2012. During the same period, the general account increased 4.3 times from KRW 31.6 trillion to KRW 136.7 trillion, while special account increased 2.0 times from KRW 15.4 trillion to KRW 30.3 trillion.

[Table 2] Trend of Size of Local Government Budget by Year

(Unit: KRW trillion won)

Year	1995	2005	2007	2009	2010	2011	2012
Total	47.0	107.1	128.0	156.7	149.8	156.2	167.0
General account	31.6	79.4	99.8	125.8	121.9	127.7	136.7
Special account	15.4	27.7	28.2	30.9	27.9	28.5	30.3

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

As shown in [Table 3], among the total national finances including the finances of central government, municipalities, and educational autonomous entities, the final financial use of the central government is KRW 146.1 trillion (42.8%), the local government is KRW 144.0 trillion (42.2%), and local educational entities account for KRW 51.0 trillion (15.0%) as of 2012. Local government and local educational entities account for more than half of the total national finances.

Therefore, it can be said that the efficient operation and management of local finance is directly related to the efficiency and soundness of the nation's financial situation as a whole.

**[Table 3] Total National Finances by Financial Entity by Year**

(Unit: KRW trillion, %)

Division	2007	2008	2009	2010	2011	2012
Central Govt.	104.8	110.5	132.7	136.2	137.4	146.1
(Ratio)	42.3	40.3	42.9	43.7	42.8	42.8
Local Govt.	108.0	123.5	133.9	133.6	136.5	144.0
(Ratio)	43.6	45.1	43.3	42.8	42.5	42.2
Local Edu.	35.1	40.0	42.7	42.1	47.4	51.0
(Ratio)	14.1	14.6	13.8	13.5	14.7	15.0

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

If you look at the scale of the local financial revenues and structural changes in [Table 4], in 2006, self-income amounted to KRW 69.6 trillion (local tax is 38.1 trillion won, and non-tax income is 31.6 trillion won), accounting for 60.3% of the total revenue, while dependent income amounted KRW 42.0 trillion (36.4% – local transfer tax is 20.9 trillion won and subsidy is 21.1 trillion won), local bonds accounted for KRW 3.89 trillion won. However, in 2012, self-income amounted to 94.4 trillion won (56.5% of the total revenues), dependent income was 68.6 trillion won (41.1%), and local bonds totaled 4.0 trillion won (2.4%). In sum, it can be said that the proportion of dependent resources was increasing and the proportion of self-income was decreasing.

The annual growth rate of self-income from 2006 to 2012 was 5.3% (69.9 trillion won → 94.4 trillion won). On the other hand, the annual growth rate of dependent income is 8.8% (42.0 trillion won → 68.6 trillion

won). This change in the financial structure can be interpreted as a deepening of dependence on the central government for local finance, which does not fit the purpose of local autonomy, which should be “autonomy and responsibility.”

**[Table 4] Trend of Changes in Revenue Budget by Year**

(Unit: KRW trillion)

Classification		2006	2007	2008	2009	2010	2011	2012
Total		115.4	128.0	144.4	156.8	149.8	156.2	167.0
Self-income	Sub-total	69.6	78.1	84.1	86.4	85.2	87.2	94.4
	Local tax	38.1	40.7	45.1	45.2	49.3	50.8	52.9
	Non-tax	31.6	37.3	39.0	41.2	35.9	36.4	41.5
Dependent income	Sub-total	42.0	46.4	56.6	60.7	59.0	62.6	68.6
	Local hare tax	20.9	24.5	30.7	28.2	27.7	30.5	33.6
	Subsidy	21.1	21.9	26.0	32.5	31.3	32.1	35.0
Local Bond		3.8	3.5	3.7	9.7	5.6	6.5	4.0

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

### 1.2.2. Limitations of Local finance

In spite of quantitative growth, there are local finance problems, specifically its weak self-income structure and high dependency on the central government, as mentioned above. The main factors behind these problems are the tax revenue structure centered on the national tax and the local tax focusing on the property tax. The following is a detailed examination of the limitations and problems of Korean local taxation system.

First, the tax revenue structure is centered on national tax. As shown in [Table 5], the total amount of tax revenue in 2013 is 270.2 trillion won. Out of this total, national tax is 216.4 trillion won (80.1%) and local tax is 53.7



trillion won, accounting for 19.9%. In this way, the tax structure of the Korean tax system centered on the national tax is rigidly fixed: the structure of the national tax (80%) and local tax (20%) has hardly changed, even after local autonomy has been implemented.

**[Table 5] Ratio of National and Local tax**

(Unit: KRW trillion, %)

	2008	2009	2010	2011	2012	2013
Tax Revenue Total	212.8	209.7	226.9	244.7	259.6	270.2
Ratio of National Tax	78.6	78.5	78.3	78.6	79.3	80.1
Ratio of Local Tax	21.4	21.5	21.7	21.4	20.7	19.9

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

Compared with the case of foreign countries in the [Table 6], even though the proportion of the national tax and the local tax is different from country to country depending on the political and economic history of the country, in general, it can be said that the tax system of Korea is more concentrated in the central government than that of foreign countries except for the UK.

**[Table 6] National and Local Tax Share of Foreign Countries (2010)**

(Unit: %)

	Japan	U.S.A.	Germany	France	Italy	UK
National Tax	55.1	49.6	51.9	76.3	77.6	93.7
Local Tax	44.9	50.4	48.1	23.7	22.4	6.3

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

The second factor is the local tax system focusing on property taxation. Looking at the central and local tax base structure, as shown in [Table 7], in the case of the national tax, the taxation structure consists of income

taxation (45.7%), such as income tax and corporation tax, and consumption taxation (46.1%) such as value-added tax. In the case of local taxes, 44.6% of the local tax is composed of property taxation. Transaction taxes on property transactions such as acquisition tax take up the highest percentage (27.2%) of property tax. Basically, the local tax bases are mainly composed of property taxation. The proportion of income taxation (17.7%) and consumption taxation (26.5%) are relatively low compared with those of national tax.

As the main tax sources for income and consumption taxation are concentrated in the central government, it is difficult to secure stable self-revenues in the local government, even though the nation's tax revenues and economic activities have been increasing overall. Local governments' lack of funding capability make it difficult for them to demonstrate autonomy and accountability for local finance, and it also limits the efficiency of their financial operations (Lee Mi-ae, 2013).

**[Table 7] Tax Structure of Korea (2013)**

(Unit: KRW trillion, %)

Classification	National Tax		Local Tax	
	Revenue	Ratio	Revenue	Ratio
Total Revenue	202.0	100.0	53.8	100.0
Income Taxation	92.3	<b>45.7</b>	9.5	<b>17.7</b>
Income Tax	47.9	23.7	5.4	10.0
Corporation Tax	44.4	22.0	4.1	7.7
Consumption Taxation	93.0	<b>46.1</b>	13.7	<b>26.5</b>
Property Taxation	11.9	<b>5.9</b>	24.0	<b>44.6</b>
Property Tax	1.5	0.7	9.4	17.4
Inheritance Tax	4.3	2.1	0	0.0
Acquisition Tax	6.1	3.0	14.6	27.2

Source: Ministry of the Interior and Safety, 2014 Local tax hand book reconstructed

In the meantime, OECD countries have structural characteristics centering on income and consumption tax as shown in [Table 8]. Income taxation is 46.5%, consumption taxation is 45.2%, and property taxation is 7.4%. For federal states, income taxes are 53.5%, and consumption taxes are 37.7%. For unitary states, income taxes are 44.2% and consumption taxes are 47.9%. In case of the national tax, income taxation is 45.4%, consumption taxation is 51.5%, and property taxation is 2.7%. And in the case of the local tax, income taxation is 39.3%, consumption taxation is 22.2%, and property taxation is 35.9%. The overall income and consumption taxation take up a considerably large portion, and the proportion of property taxation is relatively low, in particular, in the local tax.

**[Table 8] Tax Structure of OECD Countries (2009)**

(Unit: %)

Type		Income	Property	Consumption	Others
Total Tax Revenue	Avg. of OECD	46.5	7.4	45.2	0.8
	Federal State	53.3	8.6	37.7	0.3
	Unitary State	44.2	6.9	47.9	1.0
National Tax	Avg. of OECD	45.4	2.7	51.5	0.5
	Federal State	57.8	1.1	40.8	0.3
	Unitary State	40.7	3.3	55.5	0.5
Local Tax	Avg. of OECD	39.3	35.9	22.2	2.5
	Federal State	45.2	31.0	22.4	1.4
	Unitary State	37.5	38.1	21.4	2.9

Source: Lee Young Hee et al (2012). Data Reconstruction

Finally, one of the biggest problems of local finance in Korea is that the financial independence of local governments is weak and fiscal imbalance among local governments is worsening. As shown in [Table 9], the local

financial independence rate<sup>①</sup> was 51.9% as of 2013, showing a steady decline from 53.9% in 2008. The local financial autonomy rate<sup>②</sup>, which shows the self-financing conditions of local governments, also decreased from 79.5% in 2008 to 76.6% in 2013

**[Table 9] Local Financial Independence and Autonomy Ratio by Year**

(Unit: %)

	2008	2009	2010	2011	2012	2013
Local Financial Independence Rate	53.9	53.6	52.2	51.9	52.3	51.1
Local Financial Autonomy Rate	79.5	78.9	75.7	76.7	77.2	76.6

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

As shown in [Table 10], in 2012, there are 216 out of a total of 244 local autonomous entities with a financial independence rate of less than 50%, and 157 with less than 30%. The financial independence rate of Seocho-gu in Seoul is 81.5%, while Gochang-gun in Chonbuk is only 7.8%. The gap of financial independence rate among local autonomous entities is very large.

**[Table 10] Distribution of Local Financial Independence Rate (2012)**

(Unit: Number)

	Total	Province	City	Gun	District
Total	244	16	74	85	69
Less than 10%	12	-	1	11	-

<sup>①</sup> A Financial independence rate is a measure of the extent to which local governments can finance the financing of their activities, which is calculated as the ratio of self-income (local tax and extra-territorial income) to the total financial resources of local governments.

<sup>②</sup> The financial autonomy rate is measured by including self-financing (local allocation tax, mediation grant, financial reserve) that can be used autonomously by local governments in addition to its own income. It is an indicator representing the practical ability of local governments to utilize resources.

Less than 10 - 30%	145	7	36	69	33
Less than 30 - 50%	59	3	24	5	27
Less than 50 - 70%	23	4	13	-	6
Less than 70 - 90%	5	2	-	-	3

Max	Seoul (88.7%)	Seongnam (63.0%)	Uiju (46.3%)	Seocho (81.5%)
Min	Jeonnam (14.6%)	Namwon (8.3%)	Gochang (7.8%)	Yeongdo (13.6%)

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

This gap in financial power among local governments is due to the regional imbalanced development and the gap of self-income between local autonomous entities. The taxation objects including the population are concentrated in the metropolitan and metropolitan municipalities, thereby deepening the financial power gap between metropolitan areas and non-metropolitan areas. As a result, in 2012, there were 123 local autonomous entities (50.4%) that could not resolve the labor cost with their local tax revenue as shown in [Table 11].

**[Table 11] Comparison of Labor Cost to Income (2012)**

(Unit: Number)

		Total	Province	City	Gun	District
Total		244	16	74	85	69
Is labor cost covered with local tax?	Covered	121	16	56	17	32
	Not covered	123	-	18	68	37

Is labor cost covered by self-income?	Covered	203	16	71	54	62
	Not covered	41	-	3	31	7

Source: Ministry of the Interior and Safety, Overview of Integrated Finances of Local Government for FY 2013

This is mainly because even though the demand for fiscal expenditure of local autonomous entities has increased considerably since local autonomy was implemented, local tax revenue and self-income that can be operated autonomously by local governments are increasing too slowly. Due to the increase in social welfare projects, the use of government subsidies and other fixed income have also been increasing. This is one of the reasons why the local governments' financial independence rate is low as well.

As noted above, local finance has grown significantly both quantitatively and qualitatively since local autonomy was implemented, but it still remains weak. The main problems are summarized as follows.

First, the autonomy of local finance is very weak. In addition to the low share of local tax in local finance, the local financial independence rate is low. This is mainly because of the increase in dependency resources such as local share tax and subsidy. Namely, the proportion of the local tax in the local finance has been steadily declining and the fiscal autonomy of the local government have been gradually weakening

Second, the regional financial power gap is very large. As noted above, the financial independence rate of the Seoul central government is 88.7%, while the financial independence of the Jeonnam provincial government is only 14.6%: Seoul is about 7 times stronger in terms of financial power. The imbalance of financial power among regions is deteriorating, and their financially strength can be ranked in the following order from highest to lowest: Seoul, other metropolitan areas, non-metropolitan areas, and small and medium city areas.

Third, there is a huge gap in regard to the authority in using expenditures and the distribution of revenues between central and local government. 80% of the revenue belongs to the central government. On the other hand, the local government is spending more than 50% of overall

revenue. This revenue and expenditure structure between central and local government limits the financial autonomy of the local government and weakens the local government's financial accountability.

## **2.2. Fiscal Decentralization**

An important issue in the intergovernmental financial relationship is how to appropriately allocate the functions and resources of the government between the governmental levels. In general, the central government is responsible for defense, macroeconomic policies, and foreign policy, which are purely for the public good and benefit all citizens. Administrative services that affect only small populations of residents seem to be more efficient when the local government that covers the smallest region is in charge of those (Oates, 1972).

In order to produce and supply these public services, each government requires appropriate funds, which are generally covered by taxes. The central government collects the national tax, and the local government collects the local tax. This allocation of taxation between central and local governments is called fiscal decentralization<sup>③</sup>.

The critical fiscal issue here is how to allocate the total tax revenue between the central and local government levels, and which kind of system or method should be used to accomplish this. This allocation of resources

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<sup>③</sup> Fiscal decentralization means that local governments have the authority to manage the revenue and expenditure decisions necessary to perform their own administrative functions independently from the central government under their own responsibility (Song, Sang-Hoon, 2012). Fiscal decentralization can provide a basic foundation for local governments to increase the autonomy and accountability of local administrations by transferring the central government's affairs and corresponding financial resources to local governments.

between central and local governments is closely related to the distribution of functions between the central and local governments, and the government forms, tax systems, and tax sources.

In general, two types of fiscal policies have been discussed in relation to intergovernmental financial allocation: one is the transfer of the tax resource, and the other is the transfer of tax revenue. Both methods transfer funds from the central government to local governments in accordance with the roles and functions of local governments for local financial autonomy.

### **2.2.1. Type of Decentralization**

Generally, it can be said that when we expand the self-governing ability of the local government through the transfer of tax base, self-accountability is strengthened and financial management is more likely to be efficient (Bahl, 1999). This means that administrative services are most efficiently provided when local people pay for and receive public services. On the other hand, the expansion of financial resources through the central government's fiscal transfer policies such as local share tax and subsidies—intended to supplement the deficit by allocating money from the central government's based on a formula, rather than through the efforts of local governments—is likely to reduce the incentives for local governments to use their own resources more efficiently.

If unequally distributed tax resources are transferred from central to local governments, it can be said overall that (vertical) equity between central and local government has been achieved. However, in that case, the finance gap between local governments is likely to widen. This will then hinder (horizontal) equity among local governments. Thus, it is argued that it may be more reasonable for the central government to allocate revenue in consideration of regional financial strength (Lee Mi-ae, 2013).

These different views on financial allocation between central and local



government have been discussed in terms of tax resource decentralization (policy of emphasizing self-income) and tax revenue expenditure decentralization (policy of emphasizing general income).

### ① **Transfer of Tax Resource**

First, tax-resource decentralization is basically the position that local affairs should be determined under local accountability, including revenue and expenditure. Local governments must take full responsibility for self-financing expenses themselves through their own resources (especially local taxes). To achieve this end, it emphasizes “Tax Sovereignty” (tax autonomy) to grant sufficient taxing power to local governments.

The tax resource decentralization is regarded as the most faithful approach to securing the autonomy and accountability of the local administration, which is the basic idea of the local autonomy system. In other words, in order to provide local public services appropriately and autonomously, it is preferable for each local government to have sufficient self-funding resources and be responsible for the financial expenditures for their residents. This approach expands local finance by sharing tax revenue between central and local governments, or transferring national taxes to local taxes. LCT introduced in 2010 is part of this effort.

The disadvantage of tax resource decentralization is that when the regional deviation of the transferable tax-resource is large, the central-local financial power gap (vertical equity) may be improved, but the inter-regional financial gap (horizontal equity) may deteriorate. In terms of efficiency, there is a possibility that the X-inefficiency may occur due to the difficulties in minimizing administration costs and effectively controlling expenditure.

In regard to the issue of what kinds of taxes should be transferred to the local government, three basic functions of government (economic

stabilization function, income redistribution function, and resource allocation function) have been discussed in combination with the basic principles of the traditional local tax (Lee Mi-ae, 2013).

First, the function of economy stabilization is the role of the government to adjust the aggregate demand of the whole country to compensate for market economy activities. Generally, it is preferable that for the central government to be responsible for this function rather than local government units, considering the movement of consumption expenditures or the external effects. Accordingly, the income tax and corporation tax that contribute to the stabilization of the national economy are appropriate for the central government.

Second, the income redistribution function redistributes income and improves equity of income through active government intervention such as social security, progressive taxation system, or unemployment insurance and life insurance. In general, income distribution is affected not only by the individual's ability but also by social factors such as inheritance and educational opportunities. The results of these income distributions often lead to unpreferable results such as income bipolarization in society as a whole. The active involvement of the central government is required to achieve social equity. To deal with these social problems, progressive income tax and inheritance tax are considered to be appropriate as tax items handled by the central government.

Third, the function of resource allocation is the supply of public services—judicial (justice), defense, firefighting, security, etc.—that cannot be provided by the private sector or social overhead capital, such as roads and ports. In general, public goods with non-exclusion and non-competitive characteristics in consumption cannot be supplied efficiently through the market. Therefore, the efficiency of resource allocation can be enhanced by government intervention, encouraging or restraining the supply of public

goods through the tax system and subsidies. In the resource allocation process, the local government has more information than the central government on how much administrative service should be provided in order to reflect and meet the administrative demand of the local residents.

It is generally preferable to assign benefit taxation items to the local government units. Namely, fixed income tax such as property tax, proportional income tax for residents, and local income tax for production factor as local taxes are suitable as local tax items. According to governmental functions, the national tax usually composed of mainly income tax, wealth tax, inheritance tax, etc. Local taxes are allocated mainly to property tax based on land, houses, and businesses.

## ② **Transfer of Tax revenue**

Another aspect of central-local revenue allocation is the principle of expenditure decentralization. Basically, there is the opinion that tax revenue transfer from central to local government can increase the autonomy of local finance so long as their use is not specified (general financial resources). In other words, if the local government can freely spend the funds received from the central government, it does not necessarily need to raise revenue in their region. Instead of directly switching or sharing the national tax into/with the local tax, the central government can raise the statutory tax rate of local share tax or give more subsidies whose purpose is not specified to regions that are poorly funded.

As discussed above, it is preferable to cover the necessary expenses of local governments for administrative functions with local resources such as local tax and non-tax income. However, due to unbalanced regional development and imbalanced tax sources, there have been concerns that the reorganization of the tax system that transfers national taxes to the local taxes will further deepen the regional financial gap between regions and

promote the phenomenon of the rich getting richer and the poor getting poorer among local governments. Therefore, it is necessary to make a system that compensates the structure of weak local finance by assigning tax sources distributed evenly across the region as local tax and tax sources localized in large cities and some regions as national tax. This is also another way to distribute tax revenue that the central government has collected to the local finance directly.

The local financial adjustment system<sup>④</sup> belongs to this category. The local fiscal adjustment system ensures that local governments have the necessary funds to maintain a minimum national administrative standard. In order to mitigate the financial power gap between local governments, it distributes a portion of the national tax revenues or other funds to local governments according to certain criteria.

In this way, the local financial adjustment is a system that attempts to reconcile contradictory propositions. Fiscal disparities across jurisdictions, which occur inevitably as capitalism develops, must be resolved, and the residents should be able to enjoy a national minimum level of administrative service regardless of the local government or resident area.

This financial transfer policy is designed for the central government to ensure the regional economic and financial gap between municipalities, secure a national minimum standard for providing basic public services provision, and improve the spillover effect between regions. In turn, this can contribute to increasing the efficiency and equity of distribution.

However, excessive reliance on transfer of tax revenue from the central

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<sup>④</sup> The Local Finance Adjustment System is meant to encompass intergovernmental financial cooperation, in which the central government grants funds to local governments, or between local autonomous entities. This is a mechanism for transferring resources to support the role of local governments

government may weaken the tax effort of local autonomous entities or incentives for regional economic development. This can also lead to a waste of financial resources due to unethical abuse of this system. In addition, this system has been criticized as the central government may have too much power if no clear allocation rules are made for the transfer of financial resources. This would then harm the fiscal autonomy of local governments.

## **2.3. Consumption Tax**

### **2.3.1. Suitability to Local Tax**

Many scholars have presented various local tax principles. The basic requirements for local taxation include Accountability and Transparency, Benefit/Tax-Price link, Neutrality: non-distortion, Taxpayer's equity/fairness, Regional Equity, Administration and Compliance, Reliability, Stability, Buoyancy, and Elasticity (Weist, 2002).

Despite the variety of rational, theoretical arguments, the reality is that the application of tax theory is considerably difficult. Some countries operate their tax systems in ways that deviate from sound theory, simply because they are more practical.

According to the conventional theory of the distribution of tax sources, local tax generally includes taxation on benefits, taxation on low-movable tax sources, and taxation on universal tax sources. However, Consumption tax is taxation on people's ability. So, it has been regarded to be preferable to be distributed as national tax; it is inadequate for local taxes (Choi, Byeong-ho and Jung, Jeong-phil, 2009).

However, these traditional theories and opinions have recently faced new challenges due to the lack of funding, which was caused by the expansion of

the functions of local government. The local governments account for a substantial part of the allocation of resources among the three functions of governments: macroeconomic stability, income redistribution, and resource allocation. As a result, local government should have a sufficient tax revenue system and strengthen its taxation on benefits. Thus, it is reasonable to structure them to enhance the local government 's financial resources. Local taxation system should also secure the adequacy and stability of tax revenues and guarantee the principle of benefit taxation and burden equity. On the basis of these local tax principles, the consumption tax is considered to be suitable as a local tax (Choi Myeong-geun, 2001).

First, in terms of the principle of stability of tax revenue, it is preferable to distribute tax revenue so that it is unaffected by changes in the economic situation as much as possible to local governments. Consumption tax is resistant to economic change compared to income or property taxes. Therefore, it can be an effective means of stable expansion of local finance. Also, in terms of the extensibility of tax revenue, which indicates whether tax revenue can be continuously increased in response to administrative demand, consumption tax is relatively non-responsive to the economic cycle and increase in proportion to the increase in consumption expenditure. Therefore, consumption tax is suitable as a local tax

Second, in terms of the universality of tax allocation, assuming that the purpose of the existence of the local autonomous entity is to provide the administrative service to meet the needs of the residents, it is reasonable that the tax base which is similar to the distribution of the population should be allocated as a local tax. In this sense, the LCT has a similar distribution to the population, so it is claimed that consumption tax has universality for a local tax.

Third, various types of public services should be provided based on the selection and burden of the residents based on the benefit taxation principle

as applied to local tax. The consumption tax is considered to be a very effective tax source for solving the disagreement between benefits and costs caused by the difference of the residential area and the area providing benefit. In other words, if administrative services provided by local governments have a positive external effect, or if a tax source is established when facilities are used in an area closely related to local economic activities, then from the aspect of the benefit taxation principle, it is preferable for the local government with the jurisdiction to tax on the benefit and get that tax revenue. Therefore, it is said that the consumption tax conforms to the principle of benefit taxation.

### **2.3.2. Case of LCT in OECD countries**

Tax allocation is a system that allocates tax funds vertically between central and local governments or horizontally between local governments. Traditional tax allocation preferred independent taxation systems, but recently, there is a strong tendency to increase the tax revenue by sharing the tax revenue among the government, especially in OECD countries (Park Ji-hyun and An Jeong-seo, 2016). Generally, even in countries that jointly use tax resources between central and local governments, individual local governments have no authority to determine tax rates or a standard of assessment. However, local governments can negotiate and participate in the decision-making process in relation to changes in the allocation formula or tax rate. The following is an examination of the type of tax allocation between central and local governments through the case of introducing local consumption tax by country.

#### **① Introduction types by country**

As shown in [Table 12], consumption tax can be classified into three types: Value Added Tax (VAT), sales tax, and other general consumption taxes. Each country has adopted their own types of consumption taxes.

**[Table 12] Type of Consumption Tax by Country**

	Consumption Tax Type			
	VAT	Sales Tax	Mixed	Others
Federal Country	Germany, Austria	U.S.A.	Canada (VAT & Sales Tax) Spain (VAT & Others)	-
Unitary Country	Italy, Japan, Korea	Estonia	Portugal (VAT & sales tax), Turkey (VAT & other)	Greece Iceland

Source: Park Ji Hyun et al. (2016) Data reconstruction

Among the OECD federal states, Germany, Austria, the United States, Canada, and Spain are imposing consumption taxes such as value-added tax, sales tax, and other general consumption taxes. As of 2013, Germany, the United States, and Canada have included consumption tax in local revenue. Germany adopts Value Added Tax (VAT), and the United States of America adopts Sales Tax. Canada adopts a mixed type of Value Added Tax and Sales Tax. To be more specific, Germany's VAT is not attributable to federal tax revenue. The VAT is divided into the federal, state, and local autonomous entities according to the prescribed ratio. In the United States, sales tax has been levied in the state in the form of retail sales tax. As a result, these taxes have been developed in various forms according to regional characteristics, and the structure of sales tax is very different according to individual tax law. Canada is a country where there are various forms of consumption tax, and the state maintains its own consumption tax system with its own tax rate in consultation with the federal government.

Among the OECD unitary countries, Italy, Japan, Korea, Estonia, Portugal, Turkey, Greece, and Iceland impose the Consumption Tax. As of 2013, there are six countries that include consumption tax in local tax revenue: Italy, Japan, Turkey, Portugal, Korea, and Hungary. Italy, Japan, and Korea use VAT, Hungary uses a general consumption tax, Turkey and



Portugal uses both VAT and other sales taxes. In particular, Hungary classifies business turnover tax and tourist tax as other consumption tax sources. Turkey allocates 9.25% of the central government revenues, mainly composed of personal income tax, corporation tax, and value-added tax, to the provinces. Portugal allocates 35% of the VAT on tourism in the region to local income, and if it invests in tourism infrastructure, the proportion increases to 50%. However, there is no authority for local governments to change the portion of shared tax amount arbitrarily in any countries.

## ② Taxation type of LCT by country

As mentioned earlier, the local tax is introduced in two ways: type of revenue sharing between central and local government or type of independent local tax with local revenue autonomy (the power of decision on tax rate and tax base). As shown in [Table 13], the LCT can be classified into three types, depending on whether it has the power to decide the tax rate and tax base: both tax rate and tax base, tax rate or tax base, and finally tax revenue sharing. Countries with autonomy on the decision of tax rate and tax base (as of 2005) are the U.S. and Canada. In the United States, municipalities have autonomy over tax rates, and Canada gives autonomy over tax rates and tax resource to each state.

**[Table 13] Taxation Type of Consumption Tax by Country**

	Independent LCT		Tax Sharing
	Both Tax Rate and Tax Base	Tax Rate or Tax Base	
Federal Country	U.S.A. (state, county), Canada	U.S.A. (municipal) -Tax rate only	Germany, Belgium, Switzerland, Australia, Austria
Unitary Country	-	-	Spain, Norway, Sweden, Italy, Portugal France, Finland

Source: Park Ji Hyun et al., (2016). Data reconstruction

In many countries, local governments are sharing tax revenue because of the additional administration costs. These countries include Germany, Belgium, Switzerland, Austria, Australia, Spain, Norway, Italy, Portugal, France, and Finland. In Germany, for example, the share of VAT in 2011 is 53.94% for the federal state, 44.07% for the state, and 1.99% for the basic autonomous entities. In Belgium, part of the VAT is allocated to local communities in the form of grants rather than shared taxes. Spain allocates 35% of the value-added tax collected by the central government to regional, provincial, and local governments (Park Ji Hyun et al., 2016).

### ③ Distribution index by country

When central and local governments share or allocate value-added tax, the distribution methods applied to inter-government differ by institutional specificity by country. As we have seen in the [Table 14], there are two main ways to distribute LCT: One is the way of using local consumption index similar to LCT in Korea. The other is to use the indicators for fiscal equity such as fiscal condition rather than the consumption index in a manner similar to the local share tax in Korea

[Table 14] Distribution Index of Consumption Tax by Country

Type	Country	Distribution Index
Consumption index	Spain	Consumption level, population
	Austria	Consumption level, financial condition
	Italy	Consumption level
	Japan	Consumption level, population, employee
Equity index	Germany	Population (75%), fiscal condition (25%)
	Mexico	Population, tax expansion rate
	Turkey	Population
	Australia	Population, fiscal condition

Source: Park Ji Hyun et al. (2016) Data reconstruction

Basically, the standard indicator for distributing tax revenue in accordance with the consumption is the consumption index. However, even in countries that allocate tax revenue using the consumption index, indicators such as population number are added in order to compensate for the imbalance in tax revenue between regions. For example, Austria, Czech Republic, Italy, Spain, Japan, Nigeria, and China use the consumption index as the main allocation method, but the population, financial condition, etc. are also used as additional indicators to compensate for the imbalance of the tax revenue. In Spain, the consumption index and the population share of the local government are applied. Japan allocates consumption tax according to the ratio of consumption index 6/8, population 1/8, and number of employees 1/8. In this case, the consumption index uses the sum of retail sales and personal service industry income. Nigeria and China allocate consumption tax based on the areas where taxation occurred.

After all, the distribution methods of consumption tax differ from country to country according to its institutional specificity. Some countries that emphasize the principle of tax of price function use the consumption index as the main indicator. Some countries that emphasize the regional fiscal equity use an equity index such as population or fiscal condition. Of course, even if the tax-revenue equity function is included, it plays a secondary role in solving the dysfunction of the tax imbalance caused by the consumption index.

The other method of distribution by consumption index is to distribute the part of the VAT with equity factors like population, regardless of consumption. The general local share tax in Korea is an example of this. Representative countries that apply this are Germany and Australia, where the local consumption tax is used as a source of subsidy to mitigate regional fiscal imbalance. Germany has a joint tax system that regulates local finance by sharing tax revenue such as income tax, corporation tax, value-added tax

between federal, state, and local government. Among the shared tax bases, the VAT is distributed horizontally through transferring the revenue from the state to the state. When allocating between the states, they are allocated according to the state's fiscal power and population. Specifically, 75% of VAT revenue is distributed based on the population, and the remaining 25% is distributed according to the horizontal allocation formula in the form of reverse grants. Primary transfer is distributed from high income areas to low income areas, and secondary transfer is distributed according to the per capita tax income of the regions. Australia is operating a fiscal equity system funded by the GST (Goods and Services Tax). It allocates GSTs based on populations and indicators reflecting the financial conditions of each state in order to ensure that financially distressed provinces are provided with services comparable to those of the rich states. In other countries such as Mexico and Turkey, VAT is integrated with other tax items such as personal income tax, corporation tax, and property tax, and then distributed to local governments according to specified standards. The main distribution indicator that they use is population.

To summarize, most OECD with local consumption tax have adopted the method through which central and local governments share tax revenue. Particularly in the case of a unitary state, it is hard to find a country where local governments have authority to decide the tax rate and tax base arbitrarily and independently.

After all, the important issue when the central and local governments share tax revenues is how to allocate the tax revenue among local governments. The distribution of tax revenues among local governments can be summarized in two cases: the distribution based on the consumption performance of the region, and the distribution based on the regional fiscal equity by reflecting the population and financial condition. However, when allocating by using the consumption index, many countries used a mixture

of population and equity functions to mitigate the regional fiscal imbalance of consumption tax revenue sources. In the case of countries that do not use the consumption index, most of them reflect the number of people who represent the level of fiscal expenditure to mitigate regional fiscal imbalance.

### **2.3.3. Local consumption tax in South Korea**

#### **① Background and progress.**

As seen in Chapter 2, the financial independence rate of local autonomous entities is very low and self-income resources are poor. This means that local governments are heavily reliant upon the central government, and the central government still plays a key role in resource allocation. After all, these chronic financial problems of local autonomous entities limit the ability of self-governing bodies to choose differentiated policy instruments from other regions. Consequently, it is difficult to establish a local autonomy system in reality.

Many opine that the current, weak local tax system is one of the major reasons why the local governments' financial resources are lacking. Since the tax system was centered on the national tax, the ratio of local tax was lower than that of other developed countries. There is also a great gap between revenue and expenditure between central and local government. In addition, the industries that have been leading the national economy have changed from agriculture, manufacturing, and construction to distribution, service, finance, and tourism. Nevertheless, because local tax was centered on the property tax, it is difficult to connect economic growth with the growth of local finance, which results from the quality and quantity increase of consumption (Choi Myeong-geun, 2001). Thus, a variety of measures and policies have been taken over a long time to expand the financial power of local governments and correct the disparity in the distribution of the tax base.

Discussions about strengthening local finance have offered the three following suggestions to resolve this issue.

First, the proportion of local taxes can be increased through tax base adjustment between national tax and local tax. This focuses on eliminating vertical disparities by exchanging tax items between central and local governments, and metropolitan and municipalities with the idea of solving the tax imbalance problem among different level of governments through the exchange of tax items. However, because the exchange of tax items is directly linked to the tax revenue, there is a risk that the tax base adjustment will only pose conflicts between local governments according to their own financial conditions.

Second, taxation sovereignty can be granted to local governments so that they can determine the basis of assessment of local tax and their tax rate. This means that local governments have the right of taxation for a particular tax base, set an object of taxation and tax rates on consumption behavior, and collect taxes on each region. This is similar to creating a local consumption tax, like the U.S. sales tax. This means that a portion of the VAT or the individual consumption tax is converted into a local tax. In general, retail, food, and lodging businesses are considered to be the most ideal local consumption tax objects because they are consumed and calculated locally. However, because the Korean tax system adopts the purchase tax amount deduction method, this form of tax administration would be too difficult and complex to enact.

The third solution would be to share a tax base. Namely, the central government and the local government jointly establish taxation rights for the use of tax revenue. This would be an efficient system for converting national taxes into flexible local taxes and has the advantage of minimizing administrative costs. However, there is a disadvantage as this method cannot guarantee that local autonomous entities can decide the taxation subjects and

tax rates independently.

Therefore, the introduction of LCT in the form of sharing VAT with Korea's central government was expected to increase the proportion of local independent tax resources, improve financial independence, secure financial accountability, and strengthen autonomous economic activities to enhance the linkage between tax revenue and local economic activities. Heightened economic activities would induce competition among regions to increase the efficiency of overall resource allocation, ultimately securing more tax revenue (Kim Jae-hoon, 2009).

Under the basic direction of local fiscal policy called "decentralization-autonomy-competition," the government emphasized the following two policy goals while introducing the LCT (Oh Dong-ho, 2013).

The first goal was to overcome the limitations in the local finance and local tax structure. Since the implementation of local autonomy, local finances have been very weak in terms of quality despite the large growth in quantity. In other words, the degree of independence of local finances continued to decline, and financial dependence on the central government continued to rise. Therefore, it is necessary to introduce a new local tax to expand the local self-revenue.

Second, it aimed to strengthen linkages between local economy and local tax revenue. There was a structural contradiction in the current tax structure. Local governments tried to revitalize the local economy, but this did not lead to the increase of local tax revenue. For example, if a province attracts businesses and establishes factories in its area to activate the local economy, taxes on profits earned through business would all be attributed to the nation due to current tax system, even though pollution and noise are generated in that area and the city view is destroyed, which, of course, are all local problems. Even if local governments hold festivals and develop attractions

to attract more tourists, taxes on the activities that tourists consume are also attributed to the nation. This is partly the reason why local governments complain that they are only paying for waste treatment.

Again, the fundamental reason for these problems is that the tax system is heavily centered on the national tax. The local tax is too confined to property tax as mentioned above. Of course, it is clear that property taxes are the most appropriate tax for local tax because they have the nature of being imposed as the cost of providing services to local residents. In Korea, however, the portion of tax base on income and consumption is much smaller than that of the OECD average. Therefore, efforts to revitalize the local economy do not actually lead to increased local tax revenues. It also causes another problem in that local financial instability fluctuates rapidly, depending on the real estate economy.

In order to increase the proportion of income tax or consumption tax in local tax revenue, the government revised the existing income-proportional resident tax, designating it as local income tax, and introduced an LCT that allocates a certain percentage of VAT to local governments. As a result, the fundamental purpose of introducing the LCT is to strengthen the fiscal autonomy and financial accountability of local governments through expanding the local tax revenue.

## ② Legal structure of LCT in Korea

The local consumption tax structure based on the content specified in the Local Tax Law and the VAT Act is as follows.

### [LOCAL TAX ACT]

#### ▪ Article 65 (Objects of Taxation)

Article 4 of the Value-Added Tax Act shall apply mutatis mutandis to the taxable objects subject to local consumption tax.



▪ **Article 66 (Persons Liable to Pay Tax)**

A Do having jurisdiction over the address or location of a person who consumes goods and services under Article 65 shall impose local consumption tax on the person liable to pay the value-added tax pursuant to Article 3 of the Value-Added Tax Act.

▪ **Article 67 (Place of Tax Payment)**

The place of payment of local consumption tax shall be the place of tax payment under Article 6 of the Value-Added Tax Act.

▪ **Article 68 (Persons Responsible for Special Collection)**

The person responsible for special collection is the head of the tax office having jurisdiction over the place of tax payment under Article 67, or the head of the customs office who collects value-added tax on the importation of goods pursuant to Article 58 (2) of the Value-Added Tax Act.

▪ **Article 69 (Tax Bases and Amount of Tax)**

(1) The tax base for local consumption tax shall be the amount of tax calculated by subtracting the reduced, exempted, or deducted amount of the value-added tax prescribed in the Value-Added Tax Act and other Acts from the amount of the valued-added tax paid under the Value-Added Tax Act plus additional taxes.

(2) The amount of local consumption tax shall be calculated by applying 11/100 to the tax base referred to in Paragraph (1). In such cases, the amount equivalent to 6/100 of 11/100 shall be appropriated for making up for acquisition taxes, local education taxes, taxes allocated to local governments, and subsidies for local education, which are reduced pursuant to Article 11 (1) 8.

▪ **Article 70 (Tax Returns, Payment, Etc.)**

(1) Where local consumption tax and value-added tax is returned, paid,

corrected, or refunded, such tax return, payment, correction or refund shall be made based on the amount of local consumption tax under Article 69 (2) plus the amount of value-added tax under Article 72 of the Value-Added Tax Act, notwithstanding Article 69 (2).

(2) Where a person has filed a return of and paid value-added tax pursuant to Articles 48 through 50, 52, 66, and 67 of the Value-Added Tax Act, he/she shall be deemed to have also filed a return and have paid local consumption tax.

▪ **Article 71 (Payment)**

(1) The person responsible for special collection shall pay the collected local consumption tax to the Do Governor prescribed by the Presidential Decree (hereinafter referred to as "payment manager"), along with an assessment notice prescribed by Ordinance of the Ministry of the Interior, by the 20th day of the following month, considering the population, etc. of the area under his/her jurisdiction.

(2) Although a person liable for special collection under Paragraph (1) fails to pay or insufficiently pays the amount of tax he/she has collected or is to collect by a deadline under the aforementioned paragraph, no additional tax under Article 53 - 5 of the Framework Act on Local Taxes shall be imposed on the person liable for special collection.

(3) A payment manager shall remit the local consumption tax paid pursuant to Paragraph (1) to the head of each local government and the superintendent of the office of education of each City/Do within a period prescribed by the Presidential Decree, according to proportional distribution standards and methods prescribed by the Presidential decree in consideration of consumer spending in each area, the reduced amount of acquisition tax, etc. under Article 11 (1) 8.

(4) Where the person responsible for special collection refunds local consumption tax pursuant to Article 70 (1), he/she shall deduct an amount

equivalent to the local consumption tax (hereafter referred to as "local consumption tax refund" in this paragraph) out of refunds from an amount to be paid to the payment manager. For this to apply, the local consumption tax refund must exceed the amount to be paid, and any over-refunded local consumption tax shall be carried forward to the following month.

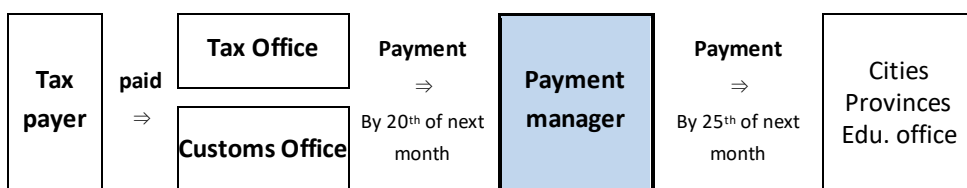
▪ **Article 72 (Special Cases concerning Imposition, Collection, etc.)**

The imposition and collection of local consumption tax, procedures for raising objections, and other relevant matters shall be dealt with in the same manner as national taxes are dealt with. In such cases, the person responsible for special collection under Article 68 shall be deemed to be the managing authority.

Meanwhile, 35% of the LCT in the three metropolitan areas (Seoul, Gyeonggi, and Incheon) will be donated to establish a Regional Mutual Development Fund (RMDF), and then it will be transferred to non-metropolitan areas to ease the concentration of LCT in metropolitan areas.

[Figure 2] provides a brief look at the local consumption tax collection workflow. First, tax payers pay the LCT. Then, the head of the tax or customs office is required to pay the LCT collected from the taxpayer to the Seoul Metropolitan Government, which is the payment manager, by the 20th of the next month together with the tax collection statement. Then, the Seoul Metropolitan City Mayor, who is the payment manager, shall pay the total amount of the LCT paid by the special collection observer to the city/provincial governor after applying the consumption index and weight for each region.

**[Figure 2] Workflow of LCT Collection**



This method is different from the general local tax administration practice. The taxpayers of the LCT do not pay the local tax to the city or province that is the subject of the taxation, but report and pay collectively to the tax office or customs office when making the VAT report and paying the taxes. The benefit is that it ensures tax administration convenience for taxpayers and taxation costs can be reduced, but it has drawbacks in terms of weakening the independence of local taxation and recognition of taxpayers' local taxes (Lim Seong-il, 2012).

## **Chapter 3. Literature Review**

The purpose of this study is to analyze the effect of horizontal fiscal equity of LCT, which was first introduced as a tax resource transfer policy since local autonomy was implemented in 1991. As examined above, even though tax is not a means of fiscal equalization, if the central government transfers tax resources which were distributed unevenly among regions to local governments, it will deepen the social and economic inequity among regions and may also cause social conflicts. Therefore, the horizontal equity issue in the tax resource transfer policy requires serious consideration.

In this context, this study analyzed the previous literature, dividing it into two categories: fiscal equity studies and local consumption tax studies.

### **3.1. Literature on Financial Equity**

The purpose of analyzing the effects of fiscal equity is to ensure that the various systems of transferring tax revenue resources are appropriately performing the role of mitigating the fiscal gap in local governments. The previous studies could be categorized into three ways as seen in [Table 15] below: the analysis based on of tax revenue data (Park, Wan-Gyu, 1996; Park, Jung-Soo, 1997; Seo, Jung-seop, 1997; Lee, Hyo, 1997; Park, Wangyu, Lee, Jong-cheol, 2001); the analysis considering the regional difference of cost of local public services (Kim Tae-il, 1999; Kim Tae-il, Kim Jae-hong, Hyun Jin-kwon, 2001); and finally analysis measuring the imbalance distribution between sub-regions (Lee, Mi-ae, 2013).

These studies on the effects of fiscal equity mainly analyzed the effect of equity of the transferred financial resources by focusing on local adjustment grants such as local share tax and similar national subsidies. Most of the studies also used a variety of equity indices (Geni's coefficient, and

coefficient of variation, etc.). They identified the effects by comparing the index values before and after transferring funds or comparing with the effects of other transfers. After analyzing the indices, much of the research suggested the consequences of denying the fiscal equity effects of transferring fiscal resources between local governments. On the other hand, Kim, Tae-il (1999) etc. concluded that there was a positive equity effect of the transferred financial resources through applying the difference between the service supply costs of local governments.

**[Table 15] Literature on Equity of Financial Policy**

Researcher	Analysis Objects	Analysis Method	Variables	Results
Park, W. K. (1996)	1994 City, County	Theil Index	Local Share Tax	City: Equity (+) County: Equity (-)
Park, J. S. (1997)	1970 - 1995 Province	Geni's Coefficient	Local Tax, Local Share Tax	After 1990, Interregional Fiscal Inequity (-)
Seo, J. S. (1997)	1980 - 1994 City	Coefficient of Variation	Local Share Tax	Before 1990: Equity (+) After 1994: Equity (-)
Lee, H. (1997)	1995 City, County	Coefficient of Variation	Local Share Tax	City: Equity (-) County: Non-Effect
Park, W. K. Lee, J. C. (2001)	1995, 1997 City, County	Inequity Index	Revenue, Expenditure	Interregional Fiscal Inequity: Overall (-)
Bae, I. M. (2003)	1998 - 2001 Seoul, Busan, Incheon	Coefficient of Variation	Local Adjustment Grants	Seoul, Incheon: Equity (+) Busan: Equity (-)
Kim, T. I. (1999)	1995, 1997 City, County	Cost Index, Coefficient of Variation	Local Share Tax, Local Transfers, National Subsidy	City: Equity (+) County: Equity (+)

Lee, S. M. Yu, J. W. (2006)	2000 - 2004 Province	Cost Index, Coefficient of Variation	Local Adjustment Grants, Collection Grants	Financial Power Index - Upper 30%: Equity (+) - Lower 30%: Equity (-)
Lee, M. A. (2013)	1997 - 2011 city, county, district	Inequality Coefficient of Coulter, Adjustments Factor	Local Tax, Local Share Tax, National Subsidy, Local Transfer	Property Tax: Equity (+) Income/Consumption Tax: General Equity (-) Remaining: Equity (+)

Source: Lee Mi-ae (2013), data reconstruction

### 3.2. Literature on LCT

The study on the LCT in Korea began with the study of the introduction of the LCT of Japan from the 1980s. Since 2000, local finance and tax scholars have been actively discussing the necessity for LCT's introduction and methods to carry it out. In the process of introducing the LCT, two arguments came up: one was the argument that the LCT is necessary because it expands the independent revenue of local finance, and the other was that the LCT may widen the regional financial power gap. As a result, many studies had focused on analyzing the impact of regional fiscal equity in LCT or allocating methods to improve fiscal equity. This was examined more detail in the next section.

#### 3.2.1. Study on the necessity of introduction of LCT

The studies that claimed the necessity of introducing the LCT emphasized benefit taxation, strengthening the linkage between the local economy and the local tax, expanding local finance, and strengthening local self-governing capacity.

First, there was a study suggesting the introduction of LCT is needed to operate the price function of the tax as a compensation for benefits from local public goods or services.

Oh Yeon-cheon (2001) argued that the local tax base is necessary to provide various types of local public services on the basis of the choice and burden of the local residents. Kim Hyun-a (2003) argued that as local governments have more accurate local information than the central government and they are responsible for the public service, it is reasonable for local government to impose a consumption tax since it suits the nature of benefit taxation.

Kwak Chae-ki (2008) argued that it is necessary to accommodate tax sources in the local taxation system that can bring about the reconciliation between the benefits of local administrative services and the cost burden at the local government level to improve the efficiency of local finance management. La Hui-moon (2005) and others argued that LCT should be introduced to promote autonomous economic revitalization efforts by strengthening linkages between local economy and local taxation. Considering the effects of local economic activity are less linked to local finance, there is a need to expand the proportion of income and consumption taxation in local tax revenue, which has a more direct link with the local economic investment of local governments. In addition, some people argued that LCT is necessary for local finance expansion. This is because there is a limit to securing tax revenue in the current local tax structure centered on property taxation with low income elasticity.

Choi Myung-geun (2001) pointed out that while central government monopolizes the consumption tax base such as VAT, special consumption tax, alcohol tax, transportation tax and customs, there are few useful consumption tax sources except for the tobacco consumption tax.

In addition, Song Ssang-jong (2001) asserted that it is structurally difficult to secure tax revenues corresponding to the natural increase in fiscal demand without an artificial tax reform or upward revision of the basis of assessment. The national tax has a high taxation portion on



consumption of goods and services with high tax expense and a high-income elasticity, but the local tax only has a tax structure based on property taxes, even though it has a wide range of fixed amount taxation.

### **3.2.2. Study on the problem of LCT**

Previous research has mainly pointed out the problems of LCT in terms of distribution index, weighting system, scale of LCT, etc.

“Private final consumption expenditure,” which is the distribution index used to allocate resources between regions, is a consumption indicator based on the principle of residence, not consumption expenditure in a specific area. It has been pointed out that it does not reflect the actual consumption level of the region (Ju Man-soo and Lim Sung-il, 2006). Originally, the purpose of introducing LCT was to link the economic revitalization of a specific region to the rise of local tax revenue in that region. However, the distribution indicator counted by the current residence is likely to result in concentrating the results of the economic development in the metropolitan, giving metropolitan areas an economic advantage.

In the allocation of LCT revenue, the regional weighting has been pointed out to have hampered the price function of tax as well as failed to achieve the initial goal of achieving regional fiscal equity (Choi Byeong-ho, 2010; Ju Man-soo, 2013). According to Choi Byeong-ho (2010), if the general local share tax was increased by the increase of the total local resources due to the introduction of the LCT, the allocation amount to the local governments might be almost similar to the distribution of the LCT. This raised questions about the identity of the LCT with equity instruments, arguing that the LCT was not significantly different from the general local share tax in terms of distribution of resources. Instead, Choi Byeong-ho asserted that the horizontal fiscal imbalance should be resolved by normalizing the existing local fiscal adjustment system or establishing a

new type of grant for equity.

Ju Man-soo (2013) analyzed the effect of increase of size of LCT based on simulation analysis and calculation of distribution formulas. He argued that under the existing distribution system, if the LCT rate increased from 5% to 10% of VAT, there would be a large deviation in the allocation of resources between regions. It could be interpreted that the regional weight of LCT did not properly perform the intended financial equity function. Therefore, he proposed to find new distribution indices based on the principle of consumption area and to remove the weight of each region.

### **3.2.3. Study on the improvement of LCT**

There are many studies that suggest the development of a new distribution index as a solution to the problems of the current LCT.

First, Kim Jung-wan (2010) proposed a new distribution index such as a share of regional gross domestic product, financial independence, and outflow of local production to improve the vertical and horizontal equity and the efficiency of resource allocation. Choi Gil-su and Seol Young-hoon (2011) said that as there is a wide variety of interests between governments, regardless of using any allocation criterion, so it is preferable not to stick to only one allocation criterion but to apply a combination of variables in a range that does not significantly impair the effectiveness of the tax administration.

Lim Sung-il (2012) and Lee Sang-hoon and Kim Jin-ha (2013) suggested using the index of indigenous industry sales, utilizing the sales of industrial classification of the Korea Standard Industrial Classification (KSIC). Lee Sang Hoon and Kim Jin-ha (2013) posit that if the indices of indigenous industry sales are used as distribution indices of LCT, the possibility of implementation of the principle of taxation of consumption area of LCT will increase. As a result, the achievement of regional

economic revitalization can be linked to the increase of the local taxation in the area rather than other regions. They suggested that by excluding the application of the regional weights, it should make it so that the LCT no longer functions as another local share tax. Ju Man-soo (2012) also proposed that the LCT must be established as a local tax by excluding the regional weight. A method must then be developed to mitigate the expansion of the financial income gap between local governments by utilizing regional differentiating financial expenditure responsibility according to financial power.

Yoo Tae-hyeon (2012) suggested changes must be made so the LCT only performs its own revenue financing function in accordance with its name. The regional consumption tax gap between the regions should also be improved through the local financial adjustment system.

Kim Tae-young and Park Ki-hyeok (2013) argued that since there is no significant improvement in the local government's financial independence and expansion of LCT, even after the introduction of the local consumption tax, the LCT should be gradually expanded to improve vulnerable local finances and to strengthen local taxation. Lee Sang Hoon and Kim Jin-ha (2011) considered that it was appropriate to increase the transfer ratio of VAT to 20%. In addition, Yoo Tae-hyeon (2014) claimed that it should increase LCT gradually every three years: 10% in 2014 (16% in total), 15% in 2017 (21% in total), and more than 20% since 2020 (more than 26% in total)

Finally, there were also studies that the local governments should have taxation autonomy, such as the right to determine tax rates. The current LCT to which part of the VAT is transferred does not have the right to determine the tax rate. Therefore, policy changes by the central government that can't be affected by the local governments seriously influence their financial operation. In order to maintain the neutrality of local finance by the large-scale tax cuts policy on the national tax, it was argued that improvements

should be made to establish an independent tax source or tax rate (Jeong Yu-seonk, 2010).

### **3.3. Review and Study Significance**

In regard to fiscal relations between central and local governments, discussions over the government's fiscal policy to strengthen the fiscal capacity of local governments has largely supported two different methods. One is to transfer tax resource from to the central level to local. The other is to transfer tax revenue through the local fiscal adjustment system, such as local share tax.

Up to now, even though inter-regional fiscal equity is one of the critical policy considerations in financial policy, as fiscal policies on financial allocations between the central and local levels have been executed in transfer-oriented revenue, previous research efforts on fiscal equity of tax resources transfer policy are lacking compared to those on local financial adjustment system.

Furthermore, previous studies on fiscal equity of LCT mainly just suggest the direction of LCT improvement by analyzing the increase and decrease of tax revenue and difference between before and after the introduction of LCT based on the results of the numerical simulation analysis and distribution formula.

Therefore, this study focused on the inter-regional fiscal equity of tax resource transfer policy, the Local Consumption Tax, and used the statistical method-coefficient of variation in the studies on horizontal fiscal equity of the local financial adjustment system. It also used time series data for ten years from 2005 to 2014. Based on the study results, this study aimed to provide policy implications for the promotion of the tax resource transfer policy by analyzing whether the LCT had impact on regional fiscal equity.

## **Chapter 4. A Frame of Analysis**

### **4.1. Research Questions and Hypothesis**

Basically, there was concern that transfer of tax resource from central to local governments might worsen regional financial disparities due to the imbalanced distribution of the tax base on a regional level. Transferring parts of the national tax to local tax increases the absolute level of financial self-income for local governments as a whole, but considering Korea's local fiscal reality, which is characterized by significant disparities in economic power and tax resources among individual autonomous entities or regions, it is also inevitable that the fiscal gap between local governments will widen. Therefore, the expansion of local self-income through the transfer of national tax resources can have a negative impact on the fiscal equity between regions.

When we introduced the LCT in 2010, which is regarded as actually first policy of tax base transferring, a weighting system was applied in LCT distribution along with the regional share of the private final consumption expenditures by the Local Tax Act. The weighting system gives higher weight to poorer local governments: 100% for the local governments of the capital area, 200% for Metropolitan Cities outside of the capital area, and 300% for Provinces in order to mitigate concentration of LCT in certain regions, such as those in the capital area.

Based on the local financial background and the structure of LCT, the following research questions explored whether the introduction of LCT had indeed affected regional fiscal equity or not.

**[Research Question 1]** Does the introduction of LCT, which is one of the tax base transfer policies, affect fiscal equity among regions?

**[Research question 2]** If any positive effects are found, can they be determined to be the result of the regional weighting system (100% in the capital area, 200% in non-capital metropolitan areas, and 300% in non-metropolitan area) applied when allocating LCT?

To empirically explore these questions, two null hypotheses were set as follows.

**[Hypothesis 1]** The introduction of LCT will have a positive impact on the fiscal equity of local tax among local governments

**[Hypothesis 2a]** The weighting system associated with LCT will explain observed changes in fiscal equity.

**[Hypothesis 2b]** The LCT distributed by private final consumption expenditures without regional weightings will have a negative or limited impact on the regional fiscal equity of local tax

## 4.2. Data and Concepts

### 4.2.1. Data

For this study, it is necessary to collect yearly data on population and area, local tax, LCT, and private final consumption expenditure of each city and province. The population and area of each year and the private final consumption expenditure data were collected by Statistics Korea and the Ministry of Interior. Statistical data related to local taxes such as the total amount of local taxes and the amount of LCT by city and province of each year were collected by referring to the annual budget of each province and the budget summary of local governments on the Local finance integrated Open System website (<http://lofin.moi.go.kr>).

### 4.2.2. Fiscal Equity

As it deals with the concept of intergovernmental horizontal financial equalization, this study defined the degree of leveling in the fiscal gap between similar local governments as fiscal equity like in many previous studies (Kim, Tae-il, 1999; Kim, Tae-il et.al, 2001). According to Musgrave (1989), if the same tax is levied on residents in the same economic position in a local government where the same tax system is adopted, the level of public service benefits from the local government should be the same.

Thus, intergovernmental fiscal equity can be measured by comparing how much the regional financial power gap before the fiscal coordination is equalized after the allocation of transferred resources (Choi, Jeong-yeul et al., 2012).

Many of the previous studies illustrate the meaning of horizontal fiscal equity among local governments with an example as shown in [Table 16]. First, a cost index ( $C$ ) represents the difference of the supply cost per unit of public service. It differs according to the social, economic, and geographical conditions of the local government. For example, the cost of supplying water to a certain number of households will be higher in rural areas than in urban areas due to differences in population density. In the case of road construction, local governments with large administrative districts or mountainous areas will spend more to build roads than those in the plains with a smaller area. Next, if the taxable income per person is  $i$  and the tax rate is  $t$ ,  $t \times i$  means the per capita revenue of each region, assuming that there is no other source than local tax. Then, the level of service provision per capita can be expressed by  $T/C$ . If there is any central governmental transfer resource ( $G$ ), the level of service provision per capita becomes  $(G + T)/C$ .

In this case, the difference of the values of  $T/C$  between local governments represents the fiscal disparity. If the difference in the values of

$(G + T)/C$  between local governments is reduced compared to the values of  $T/C$ , this means that the central government's fiscal transfer has had a horizontal fiscal equity effect. If the  $(G + T)/C$  values between local governments are equal, it means that complete horizontal equity has been achieved. Therefore, as in the table below, if the central government allocates grants ( $G$ ) of 0.2 for Area A and 0.8 for Area B, the public service level  $(G + T)/C$  of both areas becomes equal to 1 (coefficient of variation 0). When this happens, it can be judged that fiscal equity between two areas is achieved.

**[Table 16] Horizontal Fiscal Equity among Local Governments**

Classification	Symbol	Region A	Region B	CV
Cost Index	C	1	2	
Revenue	$T (I \times t)$	0.8	1.2	0.20
Taxable Income	i	16	24	
Tax Rate	t	0.05	0.05	
Service Level Before Grant	$T/C$	0.8	0.6	0.14
Grant	G	0.2	0.8	
Service Level After Grant	$(G + T)/C$	1	1	0.00

Note: All indicators are for per capita  
Source: Choi, J. Y. et al. (2012). Data reconstruction

#### 4.2.3. Coefficient of Variation (CV)

To analyze the degree of equity, this study measured the CV of local tax. In general, the Coefficient of Variation, the Gini coefficient, the Atkinson index, and so on are used to measure the gaps or inequities between



variables or groups. While there is little difference in the results of each index, the advantage of the CV is that the measurement method is simple, clear, and readily available to anyone. Since it is a method of measuring the relative degree of dispersion, it is possible to effectively measure the financial inequity among regions. Because there is no unit in the coefficient of variation, it can be used to compare the distributions of data sets with different units or different averages instead of standard deviations. Therefore, the CV was used in this study.

Coefficient of Variation (CV) is defined as the standard deviation divided by the mean. The smaller the CV, the closer the data are distributed around the mean (in other words, equalization). On the other hand, the larger the CV, the more distant the data are from the mean (non-equalization). While we can know the directionality of the quantitative change of the coefficient of variation ( $CV = 0$ ,  $CV < 0$  or  $CV > 0$ ), it is difficult to objectively determine what degree of change is actually meaningful. Therefore, it is inevitable to make judgments based on relativity, comparing how much the CV has changed to the previous one in the time-series analysis, and by comparing to other changes in a cross-sectional analysis.

In this study, we measured three types of variation coefficients on local tax: 1) yearly coefficients of variation for local taxes itself (LT) before and after the introduction of the LCT, 2) yearly variation coefficients for local taxes excluding the LCT with regional weightings (LT-LCT\_wt), and finally, yearly variation coefficients for the local taxes excluding LCT allocated to the private consumption index without weightings (LT-LCT\_ci).

If CV for LT has changed significantly after introducing the LCT, it could be adopted as evidence that the LCT has affected the regional fiscal equity of local tax. If variation coefficients for LT-LCT\_wt are higher (this means the degree of fiscal equity has worsened) than those for LT, it could

be concluded that the introduction of LCT has a positive impact on the regional fiscal equity of local tax. Similarly, if the coefficients of variation for LT-LCT\_wt are higher than those for LT-LCT\_ci, it will be adopted as evidence that the weighting system of LCT has contributed to the regional fiscal equity.

### **4.3. Empirical Analysis**

The following section is an analysis of the effect of the introduction of LCT on the regional fiscal equity and the difference according to the distribution method with or without the regional differential weighting system by using Coefficient of Variation.

#### **4.3.1. Estimation of Cost Index**

To measure the fiscal equalization effect of the LCT between local governments, it is first necessary to measure the regional gap of the per capita service provision levels before and after the introduction of the LCT. Even if the per capita funding is distributed equally, if the service supply cost differs according to the region, the level of services actually enjoyed by residents from the same amount of resources may eventually change. Therefore, it is necessary to calculate each region's financial scale, reflecting the supply cost of public service that can differ for each local government.

According to the study of Kim Tae Il et. al. (2001), a method of reflecting the difference of supply cost per unit of each region was suggested by applying the method of allocation for the general local share tax. When measuring the fiscal demand and cost of each local government, an adjustment factor is calculated to reflect the difference in the supply cost per local government. Similarly, they estimate a cost index by using a regression model in which the expenditure per capita is used as a dependent

variable and the population and area are used as independent variables. The specific calculation methods are explained as follows.

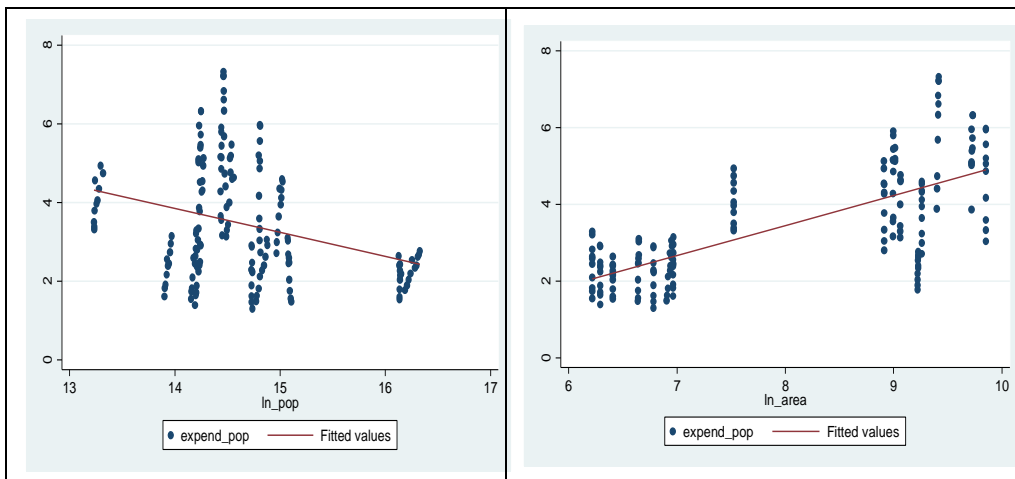
First, we estimate the per capita fiscal spending model for each local government by using population and area variables.

$$E_{it} = \alpha_0 + \beta_1 N_{it} + \beta_2 S_{it} + \varepsilon_{it} \dots\dots\dots \langle \text{Equation 1} \rangle$$

(  $E_{it}$ : per capita fiscal expenditure,  $N_{it}$ : logarithm of number of population,  $S_{it}$ : logarithm of area,  $i$ : each local government,  $t$ : 2005 - 2014)

As shown in [Figure 3] below, the difference between the population and the area leads to the difference in the fiscal expenditure among local governments. Namely, the financial expenditure required to provide the same level of service will tend to decrease as the population size increases due to the economy of scale. The larger the size of administrative districts of local government, the greater the financial expenditure required.

**[Figure 3] Scatter Diagram for Expenditure Per Capita**



Meanwhile, if we use Equation (2) by applying the results of the estimation for Equation (1) above, the estimates of per capita expenditure for each local government can be obtained.

$$\widehat{E}_{it} = \widehat{\alpha}_0 + \widehat{\beta}_1 N_{it} + \widehat{\beta}_2 S_{it} \dots\dots\dots \langle \text{Equation 2} \rangle$$

In this case,  $\widehat{E}_{it}/\overline{E}_{it}$  means the calculated cost index, in which  $\widehat{E}_{it}$  is each estimate of fiscal expenditure by region and year in Equation (2),  $\overline{E}_{it}$  is its average values. This represents the deviation of the per capita supply cost for each local government. The actual per capita revenues divided by the cost index are the per capita service level of each local government.

According to the study by Kim Tae Il et al. (2001), as the denominator  $\overline{E}_{it}$  is the same for all local governments, the difference in the per capita supply cost depends on the per capita expenditure estimate  $\widehat{E}_{it}$  of each local government. In other words,  $\widehat{E}_{it}$  is the per capita average service cost corresponding to the population and area of each local government. Therefore, when the actual fiscal expenditure for a local government,  $E_{it}$ , is larger than the estimate,  $\widehat{E}_{it}$ , it can be interpreted that it provides more services relative to its population and area. On the other hand, if  $E_{it}$  is smaller than  $\widehat{E}_{it}$ , it means that the region is less serviced.

In a real data analysis, [Table 17] below shows the results of estimating  $\langle \text{Equation 1} \rangle$  using the per capita budget expenditure, population size, and area data of 16 metropolitan areas and provinces (except Sejong City) from 2005 to 2014. As seen in the table, coefficients for population are all negative, and the coefficients for areas are positive. This means that the per capita expenditure of local governments shows a tendency to decrease as the population size increases, and it increases as the area increases. In addition, the value of  $\overline{R^2}$  is close to 0.8, indicating that population and area are important factors explaining the difference in spending per capita of local government.

**[Table 17] Regression Analysis for Estimating Fiscal Expenditure**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Constant	5.595 (.132)	5.954 (.112)	5.311 (.159)	5.985 (.119)	7.588 (.162)	6.781 (.148)	7.314 (.156)	7.860 (.116)	10.283 (.032)	9.746 (.061)
Population	-5.525 (.046)	-5.597 (.027)	-5.548 (.043)	-6.609 (.028)	-7.748 (.046)	-6.675 (.036)	-7.713 (.037)	-7.772 (.028)	-9.908 (.006)	-8.862 (.016)
Area	.559 (.000)	.678 (.000)	.687 (.000)	.762 (.000)	.897 (.000)	.831 (.000)	.849 (.000)	.923 (.000)	.910 (.000)	.899 (.000)
$\overline{R^2}$	.795	.803	.810	.802	.797	.799	.792	.794	.812	.812

Note: The values in parentheses represent p-value ( $p > |t|$ ).

[Table 18] below shows the result of calculating the cost index by using <Equation 2> and equation of  $\widehat{E}_{it}/\overline{E}_{it}$ . The index values are distributed between approximately 0.3 and 1.5. Gangwon-do showed the largest index values, and Seoul was the lowest over the whole period. This result reflects the characteristics of this regression model, which is inversely proportional to population and proportional to area. That is, Gangwon Province has the smallest population per unit area (about 91 persons /km<sup>2</sup>), and Seoul has the largest population per unit area (about 16,800 persons/km<sup>2</sup>).

The difference in the cost indices between the two regions has gradually decreased since 2008, when the larger cost index was 6.15 times bigger. It still seems to be considerable considering that the larger cost index is nearly more than 4 times bigger over the entire period.

**[Table 18] Technical Statistics of Cost Index by Year**

	Max	Min	Max/Min	Std. Dev.
2005	1.49 (Gangwon)	0.29 (Seoul)	5.06	0.36
2006	1.53 (Gangwon)	0.25 (Seoul)	6.15	0.39
2007	1.50 (Gangwon)	0.31 (Seoul)	4.81	0.36
2008	1.49 (Gangwon)	0.33 (Seoul)	4.55	0.36
2009	1.48 (Gangwon)	0.33 (Seoul)	4.47	0.35
2010	1.48 (Gangwon)	0.34 (Seoul)	4.36	0.35
2011	1.48 (Gangwon)	0.34 (Seoul)	4.36	0.35
2012	1.48 (Gangwon)	0.33 (Seoul)	4.45	0.35
2013	1.46 (Gangwon)	0.34 (Seoul)	4.24	0.33
2014	1.44 (Gangwon)	0.37 (Seoul)	3.86	0.32

#### **4.3.2. Analysis of Effect of LCT**

Since the LCT is one out of the 11 local tax items, it is more meaningful to examine how the regional fiscal equity of the total local tax has been changed before and after the introduction of the LCT rather than the level of regional equity of the LCT itself. Therefore, in this study, we examined the effect of the LCT on the regional equity of total local tax revenues in the following order.

##### **① Fiscal Equity Analysis on Per Capita Local Tax**

This study analyzed the degree of regional fiscal equity change of local tax and the degree of contribution of LCT to the fiscal equity of local tax through calculating the CV of local tax in three ways from 2005 to 2014 as

follows: coefficients of variation for 1) per capita Local tax (LT) itself, 2) per capita Local tax (LT-LCT\_wt), where LCT allocated by the current regional weighting system is deducted, 3) and local tax (LT-LCT\_ci), in which the LCT distributed according to the private final consumption index without regional weighting is deducted from LT.

First, as we see the results of the analysis in the below graph, the CV for the local tax (LT) was 0.40 to 0.43 between 2005 and 2009. However, since 2010 when the LCT was introduced, the coefficients of variation for the local tax (LT) were 0.35 (2010, 2011), 0.38 (2012), 0.40 (2013), and 0.37 (2014). It was found that the overall size of the CV after the introduction of LCT was reduced by 0.4 pt. on average for five years from 0.41 to 0.37. After all, it seems that the fiscal equity of LT has been improved since the introduction of LCT.

To confirm the correlation between the reduction of these coefficients of variation of local tax and the introduction of LCT, this study measured and compared the coefficients of variation for LT-LCT with those of LT from 2010 to 2014.

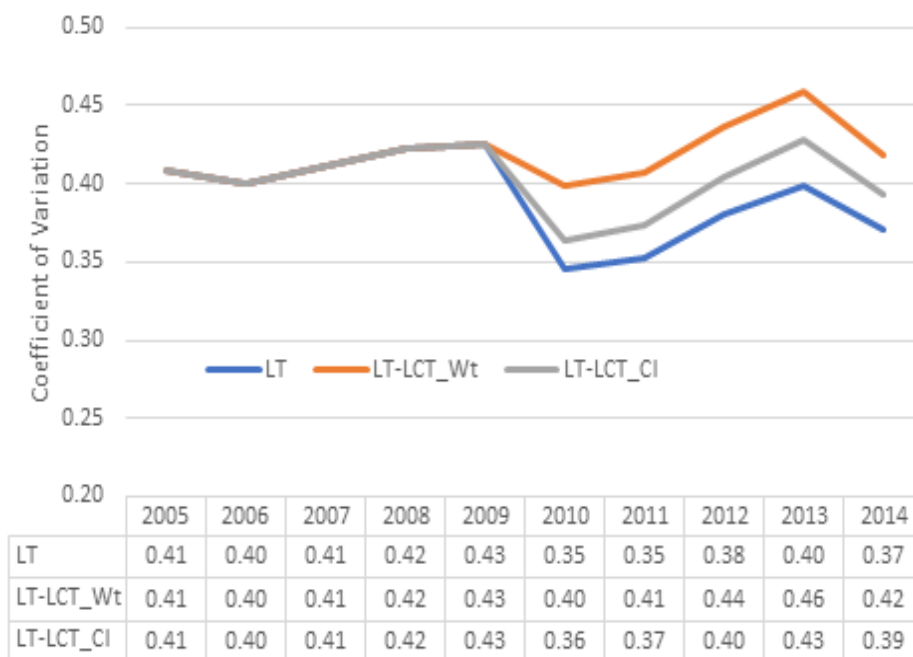
In this case, the LCT was analyzed in two allocation ways: one was applied with current regional weightings, and the other was allocated by the private final consumption index without weighting in order to confirm the effect of the regional weighting system.

First of all, when excluding the LCT calculated in the current methods of applying regional weights from the local tax, the coefficients of variation of the local tax (LT-LCT\_wt) were 0.40 (2010), 0.41 (2011), 0.44 (2012), 0.46 (2013), and 0.42 (2014). These coefficients of variation became larger than those of the existing local tax itself (LT). Therefore, this can be taken as evidence that the introduction of LCT contributes positively to the regional fiscal equity of local tax.

If the LCT is distributed based on the private final consumption index without applying weights for each region, the coefficients of variation of the local tax excluding the LCT from the LT (LT-LCT\_ci) had changed to 0.36 (2010), 0.37 (2011), 0.40 (2012), 0.43 (2013), and 0.39 (2014), which were also larger than the previous local tax itself coefficient. This means that it also has positive impact on the regional fiscal equity of local tax. However, they are smaller than those of LT-LCT\_wt. Therefore, it can be concluded that the current distribution method of applying the regional weights is more effective in terms of the regional fiscal equity of local tax than the distribution method of not applying regional weights.

In conclusion, analysis shows that the introduction of LCT contributes to the mitigation of regional fiscal imbalances of local tax. In addition, regional weights applied in allocating the LCT can be considered to be effective in improving local fiscal equity by comparing with CVs of LT-LCT\_ci.

**[Figure 4] Trends of CVs of Local Tax**





## ② Fiscal Equity Analysis on per capita Local Tax After Considering Cost Index

In the previous section, we analyzed the effect of regional fiscal equity on the basis of per capita local tax and per capita LCT. However, as the per unit cost of supply for public services may vary from region to region, it is also necessary to examine whether the same result as the analysis outcome in the previous section is derived when considering the difference in service supply cost.

To do this, the cost index of each region for public service provision was calculated as in [Table 17] in consideration of the population and the area of each region, which are considered to affect the public service provision of local governments in general. Next, we divided the per capita local tax and LCT by the cost index. After that, in the same way as in the previous section, we calculated the CV and analyzed how LCT affected regional fiscal equity.

As a result, the variation coefficients of the local tax reflecting the service supply cost were considerably higher overall than the coefficients of variation measured in the previous section. Given the cost index, the level of regional fiscal equity of local tax has deteriorated compared to before the cost index was applied. However, the coefficients of variation generally decrease over time, and the patterns of change of LTs are similar to those of per capita local tax seen in the previous section.

As seen in [Figure 5], coefficients of variation between 2005 and 2009 before the introduction of the LCT were above 1.00, from 1.00 to 1.15. However, since 2010 when the LCT was introduced, the coefficients of variation are 0.87 (2010), 0.89 (2011), 0.91 (2012), 0.88 (2013), and 0.79 (2014). When comparing the five-year average before and after the introduction of LCT, the size of the CV for local tax has been reduced by 0.18 pt. from 1.05 to 0.87. This means that the regional fiscal equity of LT has improved since 2010 when LCT was introduced. It also has decreased

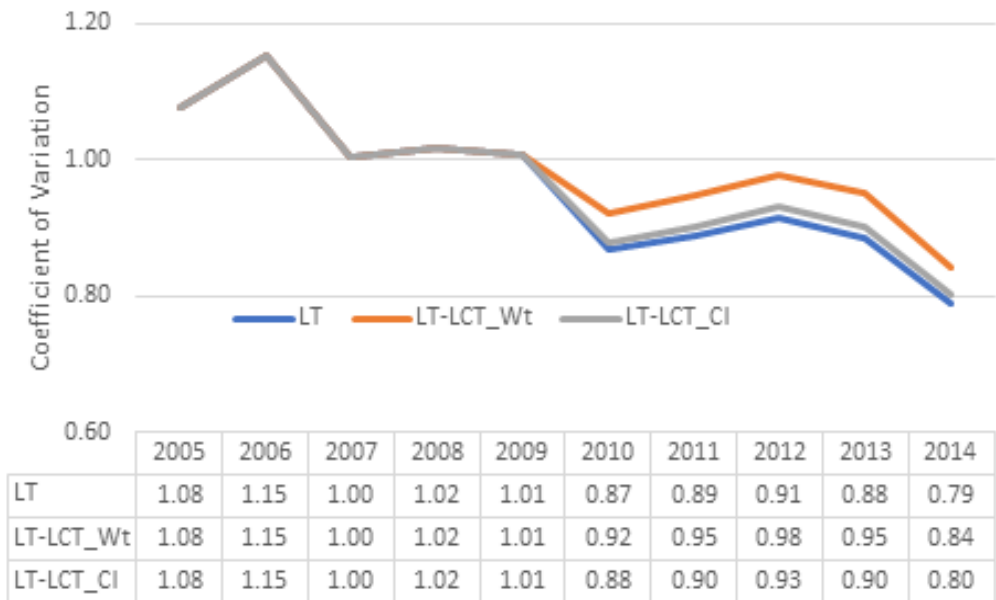
over time. It is also apparent that the regional equity of local tax after applying cost index has improved over time.

In order to examine the correlation between the decrease of this CV of local tax and the introduction of LCT, this study measured and compared the coefficients of local tax variation excluded the LCT from 2010 to 2014.

First, when excluding the LCT calculated in the current fashion from local tax, the CV of the local tax (LT-LCT\_wt) slightly increased to 0.92 (2010), 0.95 (2011), 0.98 (2012), 0.95 (2013), and 0.84 (2014), comparing with those of the local tax itself. Thus, this also shows that the introduction of LCT had a positive effect on the regional financial equity of local tax.

Upon subtracting LCT that was distributed based on the private final consumption index without applying the weight for each region, the coefficients of variation of the local tax (LT-LCT\_ci) were 0.88 (2010), 0.90 (2011), 0.93 (2012), 0.90 (2013), and 0.80 (2014), which were also slightly larger than the local tax itself coefficients. However, they are smaller than those when the LCT distributed by the current method of applying regional weights was excluded from the previous section results. Therefore, in the analysis of the regional equalizing effect of local tax in consideration of cost index, we can conclude that the current allocation method of applying the regional weights is more effective in terms of the regional fiscal equity of local tax than the distribution method that does not apply the weight.

**[Figure 5] Trend of CVs of Local Tax after Applying Cost Index**



In summary, the introduction of LCT and the application of regional weights were found to have a positive effect on the fiscal equity among local governments according to the analysis of the effects of LCT on horizontal fiscal equity after considering the difference of public service supply cost.

## **Chapter 5. Summary and Policy Implication**

### **5.1. Summary**

Before and after the implementation of local autonomy in South Korea, the government has executed a variety of financial policies such as the introduction of new local tax, discovery of additional tax bases, and coordination of tax rate, as well as reform of local share tax and subsidies in order to expand local finance and to mitigate the inter-regional fiscal gap. Nonetheless, local finance has still heavily relied on the central government, and the fiscal gap among local governments has been widened as well.

This regional fiscal gap hinders balanced regional development and creates a sense of discomfort between the financially wealthy local governments and the poor local governments. After all, this may decrease the level of social welfare of the nation as a whole.

Of course, the regional fiscal capacity gap depends on a variety of conditions associated with the regions' social and cultural characteristics to some extent. This would be accepted as the reason for any allowable difference between regions. The differentiation of the quantity and quality of public services among local governments has also been admitted as a driving force for competition, which is another goal of local autonomy. However, it is necessary to adjust the capacity of local governments so that they can provide the national minimum level of public services to their residents, wherever they may live.

With these backgrounds and purposes in mind, this study empirically explored the effect of introducing LCT as a kind of tax base transfer policy on horizontal fiscal equity among local governments. For this end, it

measured the CV of local tax from 2005 to 2014, which are five years each before and after the introduction of LCT in 2010.

First, the analysis showed that the introduction of LCT and its weighting system had contributed to mitigating the regional fiscal gap in both analysis of per capita local tax and analysis of cost index. According to the result of analyzing the CV of the per capita local tax from 2005 to 2014, The CVs had significantly decreased since 2010 when the LCT was introduced, which meant that the regional equity of LT had improved. This study confirmed that the introduction of LCT contributed to improvements of regional fiscal equity of LT by comparing CVs of LT and CVs of LT-LCT. It has also proven that this effect of the LCT on the regional fiscal equity was largely reliant on on the weighting system that was applied differently according to region.

Second, the analysis of CVs of LT applying Cost index, which represents the actual financial power of the region by reflecting the gap in the cost of supplying the public service in each region, showed overall similar change patterns to the previous analysis. However, the values of CVs of LT applying cost index had high values around 1.00 (it was about 0.4 before applying the cost index). Namely, the regional equity of LT after applying the cost index was deteriorated, compared with those of LT before applying cost index as a whole.

In sum, the introduction of LCT and the application of regional differential weights have a positive effect on the fiscal equity of LT among local governments.

## 5.2. Policy Implications

The policy implications that can be drawn from this study are as follows.

First of all, given the realities of local finance of Korea that tax bases and fiscal capacities are unevenly distributed across regions and the financial capacity of central government is also limited, it will be necessary to prepare complementary measures for securing horizontal fiscal equity among local governments when introducing a new local tax as a tax base transfer policy from central to local government.

In this context, the complementary systems such as regionally different weighting application have played positive roles in mitigating fiscal unbalance among local governments since LCT was introduced in 2010

However, as mentioned before, key purpose of the introduction of LCT is to improve the autonomy and accountability of local governments by increasing their self-financing revenue. Namely, LCT should play a role not as another form of central government's revenue transfer, but as a tax which local governments can autonomously and independently impose, collect, and use.

In the long term, it is preferable to reduce or abolish the LCT's weighting system, which artificially distributes tax regardless of a region's economic activities. Furthermore, considering the proportion (2.6%) of LCT (5.8 trillion won) for the entire local finance (225.4 trillion won) as of 2014, the effect of abolishing the regional weighting system may not be large, even though it may to some extent harm regional fiscal equity.

Actually, as we seen in this study, both in analysis based on the cost index and in analysis without applying cost index, the introduction of LCT appeared to be effective in alleviating the deviation of regional local tax revenue, even if we do not apply the regional weight(  $LT-LCT\_CI$ ). The

difference of the magnitude of the coefficient of variation before and after applying the weight was also not large.

Instead, financial assistance to local governments in poor financial condition should be done through other separate financial adjustment systems, such as the Regional Mutual Development Fund (RMDF)<sup>⑤</sup>.

Finally, it is necessary that more aggressive adjustment of tax items between central and local, or metropolitan and municipal governments should be taken for the sake of enhancement of the self-financing revenue and further realization of genuine autonomy for local governments.

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<sup>⑤</sup> Despite weighting system, the three local governments of the capital area - Seoul Special Metropolitan City, Incheon Metropolitan City, and Gyeonggi Province - still occupy about 76% of total LCT revenues in 2010. In order to mitigate such an unbalance, the capital area governments are additionally recommended to contribute 35% of their LCT revenues to the RMDF. For 10 years from 2010 to 2019, about \$10 billion is expected to be collected and planned to be loaned to local governments in favorable terms.

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# 국문초록

서울대학교 행정대학원  
글로벌행정 전공  
김 동 진

지방자치 이후 우리나라 지방재정이 양적·질적으로 크게 성장한 것은 사실이나 여전히 의존재원 위주의 재원증가로 지방재정의 자율성이 매우 취약하고, 수도권과 비수도권, 도시와 농촌 등 지역간 재정력의 격차가 매우 큰 것으로 나타나고 있다. 특히 중앙정부와 지방자치단체 간 세입규모와 세출규모가 역전되어 집행됨으로써 지방의 재정자율성을 제약하고 오히려 지방의 재정책임의식을 빈약하게 함으로써 재정집행의 효율성을 저해하는 요인으로 작용하고 있다.

이러한 우리나라 지방재정의 구조적 취약성과 지방자치단체간 재정력 격차문제를 해소하기 위해 중앙정부는 지방재정 확충과 지역간 불균형 완화라는 두 가지 측면에서 정부는 새로운 지방세목의 도입, 세원의 추가와 세율조정, 세목 통합, 지방교부세 및 보조금 제도의 개편 등 다양한 재정정책을 수행해왔다.

그러나 여전히 중앙정부에 편중된 세원배분으로 인하여 지방정부의 재정은 중앙정부에 의존하고 있는 실정이고, 지방자치단체간 재정력의 격차 또한 큰 상황이다. 그러므로 정부의 재정정책은 지방자치단체의 재정능력을 강화하여 중앙과 지방간의 재원배분의 형평성을 제고하고 지방정부간 재원의 수평적 형평성을 개선하는데 초점을 두고 추진되어야 할 것이다.

한편, OECD 국가 중 지방소비세를 가지고 있는 국가는 대부분 중앙과 지방이 세수를 공유하는 형태를 취하고 있으며, 이 경우에도 지방정부가 세율과 과표를 결정하기 보다는 중앙정부가 거둔 세입을 배분하는 형태가 일반적이었다. 지방정부간 세수배분은 크게 지역의 소비실적을 바탕으로 배분하는 경우와 인구수 및 재정여건을 반영하여 재정형평화 기능을 수행하는 경우로 구분할 수 있었다.

특히, 소비지수를 사용하여 배분하는 경우 소비세 세원이 가진 지역간 불형평성을 완화시키기 위하여 인구나 형평화 기능을 혼합하여서 사용하는 국가가 많았으며, 소비지수를 사용하지 않는 국가의 경우는 재정지출수준을 나타내는 인구수를 반영하여 재정불균등을 완화하기 위하여 배분되는 경우가 대부분이었다.

우리나라의 지방소비세의 경우도 2010. 1. 1. 국세인 부가가치세의 일부(5%)를

지방세원으로 이양하는 세수공유방식을 채택하였다. 그런데 소비지수를 기준으로 하는 배분방식으로 인해 수도권에 세수가 편중될 것을 우려하여 지역별로 가중치를 달리 적용하는 조정제도를 두고 있다. 그러나 이와 같은 형평성 보완 장치는 이미 인구수나 재정여건을 반영하여 배분되고 있는 지방교부세를 고려할 때, 지방소비세의 '조세 정체성' 문제를 끊임없이 제기하는 근본원인이 되고 있으며 이로 인해 적지 않은 전문가들이 현재의 지방소비세를 조세로서보다 또 다른 형태의 이전재원으로 간주하는 경향이 있어 왔다.

이에 본 연구는 2005년부터 2014년까지 지방세의 변동계수(Coefficient of Variation)를 분석하여 2010년 지방소비세 도입이 지방정부간 수평적 재정 형평성에 어떠한 영향을 미쳤는지에 대해 분석하였다. 분석결과, 지방비세 도입과 배분시 적용된 권역별 가중치 시스템은 1인당 지방세 분석과 비용지수를 반영한 분석 모두에서 지방세의 지역간 격차를 완화(형평화)하는데 기여한 것으로 분석되었다. 즉, 지방소비세가 도입된 2010년 이후 지방세의 변동계수가 작아졌고(지역간 형평성 개선 효과), 이는 지방세에서 지방소비세를 제외하는 방식을 통해 지방소비세 도입에 따른 변화임을 확인할 수 있었다. 권역별 가중치나 비용지수를 적용한 경우에도 유사한 패턴을 보였다. 결국, 지방소비세 도입과 권역별 가중치 적용은 지방세의 지역간 재정형평화에 긍정적인 영향을 준 것으로 판단된다.

**주요어:** 지방소비세, 권역별 가중치, 재정형평성, 비용지수, 변동계수  
**학번:** 2015 - 24547

# Appendix

## 1. Per Capita Local Tax by Year and Region

(unit: million won)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Seoul	0.87	0.98	1.01	1.09	1.06	1.06	1.14	1.20	1.16	1.31
Busan	0.56	0.65	0.64	0.64	0.69	0.77	0.79	0.80	0.79	0.94
Daegu	0.54	0.59	0.56	0.56	0.54	0.63	0.62	0.67	0.69	0.85
Incheon	0.60	0.66	0.74	0.74	0.75	0.76	0.79	0.75	0.77	0.88
Gwangju	0.51	0.58	0.56	0.57	0.62	0.68	0.66	0.69	0.70	0.83
Daejeon	0.58	0.67	0.62	0.64	0.60	0.69	0.74	0.71	0.67	0.84
Ulsan	0.59	0.69	0.74	0.77	0.73	0.88	0.92	0.97	0.89	1.04
Gyeonggi	0.50	0.59	0.58	0.55	0.53	0.59	0.56	0.56	0.53	0.64
Gangwon	0.32	0.40	0.38	0.34	0.33	0.41	0.44	0.46	0.45	0.52
Chungbuk	0.28	0.36	0.35	0.34	0.32	0.43	0.44	0.47	0.44	0.54
Chungnam	0.38	0.40	0.39	0.40	0.40	0.51	0.54	0.56	0.51	0.66
Jeonbuk	0.21	0.23	0.24	0.28	0.26	0.35	0.39	0.39	0.38	0.47
Jeonnam	0.17	0.22	0.23	0.25	0.24	0.34	0.37	0.39	0.40	0.46
Gyeongbuk	0.26	0.30	0.31	0.29	0.30	0.40	0.43	0.44	0.45	0.57
Gyeongnam	0.36	0.39	0.42	0.47	0.43	0.56	0.61	0.54	0.57	0.70
Jeju	0.44	0.78	0.80	0.79	0.74	0.91	1.01	1.17	1.29	1.50



## 2. Per Capita Local Consumption Tax with Weighting

(unit: million won)

	2010	2011	2012	2013	2014
Seoul	0.04	0.05	0.05	0.05	0.05
Busan	0.06	0.07	0.07	0.07	0.08
Daegu	0.06	0.06	0.07	0.07	0.07
Incheon	0.03	0.03	0.03	0.03	0.03
Gwangju	0.06	0.06	0.07	0.07	0.07
Daejeon	0.06	0.07	0.07	0.07	0.08
Ulsan	0.06	0.07	0.07	0.07	0.08
Gyeonggi	0.03	0.03	0.04	0.04	0.04
Gangwon	0.08	0.09	0.09	0.09	0.09
Chungbuk	0.07	0.08	0.08	0.09	0.09
Chungnam	0.08	0.08	0.09	0.09	0.09
Jeonbuk	0.07	0.08	0.08	0.09	0.09
Jeonnam	0.07	0.08	0.08	0.08	0.09
Gyeongbuk	0.08	0.08	0.09	0.09	0.09
Gyeongnam	0.08	0.09	0.09	0.10	0.10
Jeju	0.08	0.09	0.09	0.09	0.10

## 3. Per Capita Local Consumption Tax without Weighting

(unit: million won)

	2010	2011	2012	2013	2014
Seoul	0.07	0.08	0.08	0.08	0.08
Busan	0.05	0.06	0.06	0.06	0.06
Daegu	0.05	0.05	0.06	0.06	0.06
Incheon	0.05	0.05	0.05	0.06	0.06
Gwangju	0.05	0.06	0.06	0.06	0.06
Daejeon	0.05	0.06	0.06	0.06	0.07
Ulsan	0.05	0.06	0.06	0.06	0.06
Gyeonggi	0.05	0.06	0.06	0.06	0.06
Gangwon	0.04	0.05	0.05	0.05	0.05
Chungbuk	0.04	0.05	0.05	0.05	0.05
Chungnam	0.04	0.05	0.05	0.05	0.05
Jeonbuk	0.04	0.05	0.05	0.05	0.05
Jeonnam	0.04	0.04	0.04	0.05	0.05
Gyeongbuk	0.04	0.05	0.05	0.05	0.05
Gyeongnam	0.05	0.05	0.05	0.06	0.06
Jeju	0.05	0.05	0.05	0.05	0.05

#### 4. Cost Index by Year and Region

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Seoul	0.29	0.25	0.31	0.33	0.33	0.34	0.34	0.33	0.34	0.37
Busan	0.57	0.54	0.57	0.59	0.59	0.60	0.60	0.60	0.62	0.63
Daegu	0.69	0.66	0.68	0.69	0.70	0.70	0.70	0.70	0.72	0.73
Incheon	0.71	0.68	0.70	0.71	0.71	0.71	0.71	0.71	0.73	0.74
Gwangju	0.68	0.65	0.65	0.66	0.67	0.67	0.67	0.67	0.71	0.72
Daejeon	0.69	0.66	0.66	0.67	0.68	0.68	0.68	0.68	0.72	0.73
Ulsan	0.92	0.90	0.88	0.89	0.89	0.89	0.90	0.89	0.93	0.92
Gyeonggi	0.94	0.96	0.99	0.98	0.97	0.97	0.96	0.96	0.91	0.92
Gangwon	1.49	1.53	1.50	1.49	1.48	1.48	1.48	1.48	1.46	1.44
Chungbuk	1.30	1.32	1.30	1.29	1.29	1.29	1.29	1.29	1.28	1.27
Chungnam	1.28	1.30	1.28	1.27	1.27	1.27	1.26	1.26	1.24	1.23
Jeonbuk	1.27	1.30	1.28	1.28	1.27	1.27	1.27	1.27	1.26	1.25
Jeonnam	1.36	1.39	1.37	1.37	1.36	1.36	1.36	1.37	1.34	1.33
Gyeongbuk	1.39	1.43	1.42	1.41	1.40	1.40	1.40	1.40	1.36	1.36
Gyeongnam	1.22	1.24	1.24	1.23	1.22	1.23	1.22	1.22	1.19	1.19
Jeju	1.19	1.19	1.15	1.15	1.16	1.15	1.16	1.16	1.19	1.17

## 5. Per Capita Local Tax After Applying Cost Index

(unit: million won)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Seoul	2.97	3.95	3.25	3.34	3.20	3.13	3.37	3.60	3.38	3.52
Busan	0.98	1.19	1.12	1.10	1.16	1.30	1.32	1.33	1.27	1.49
Daegu	0.79	0.89	0.82	0.82	0.78	0.90	0.88	0.96	0.95	1.17
Incheon	0.84	0.96	1.05	1.05	1.06	1.06	1.10	1.06	1.06	1.20
Gwangju	0.74	0.89	0.86	0.87	0.92	1.01	0.98	1.04	0.97	1.15
Daejeon	0.83	1.02	0.94	0.96	0.88	1.02	1.08	1.05	0.92	1.16
Ulsan	0.65	0.78	0.84	0.87	0.82	0.99	1.03	1.08	0.96	1.13
Gyeonggi	0.53	0.62	0.59	0.56	0.54	0.60	0.58	0.58	0.59	0.70
Gangwon	0.21	0.26	0.25	0.23	0.22	0.28	0.30	0.31	0.31	0.36
Chungbuk	0.21	0.27	0.27	0.26	0.25	0.33	0.34	0.36	0.35	0.43
Chungnam	0.30	0.31	0.31	0.31	0.31	0.40	0.43	0.44	0.41	0.53
Jeonbuk	0.16	0.18	0.19	0.22	0.20	0.27	0.31	0.30	0.30	0.38
Jeonnam	0.13	0.15	0.16	0.19	0.18	0.25	0.27	0.29	0.30	0.35
Gyeongbuk	0.19	0.21	0.22	0.21	0.21	0.28	0.31	0.32	0.33	0.42
Gyeongnam	0.29	0.32	0.34	0.38	0.35	0.46	0.50	0.44	0.48	0.59
Jeju	0.37	0.65	0.69	0.69	0.64	0.79	0.87	1.01	1.09	1.28

## 6. Per Capita Local Consumption Tax with Weighting After Applying Cost Index

(unit: million won)

	2010	2011	2012	2013	2014
Seoul	0.12	0.13	0.14	0.14	0.13
Busan	0.10	0.11	0.12	0.12	0.12
Daegu	0.08	0.09	0.09	0.09	0.10
Incheon	0.04	0.04	0.04	0.04	0.05
Gwangju	0.09	0.10	0.10	0.10	0.10
Daejeon	0.09	0.10	0.10	0.10	0.11
Ulsan	0.07	0.08	0.08	0.08	0.08
Gyeonggi	0.03	0.04	0.04	0.04	0.04
Gangwon	0.05	0.06	0.06	0.06	0.07
Chungbuk	0.06	0.06	0.07	0.07	0.07
Chungnam	0.06	0.07	0.07	0.07	0.07
Jeonbuk	0.06	0.06	0.06	0.07	0.07
Jeonnam	0.05	0.06	0.06	0.06	0.06
Gyeongbuk	0.05	0.06	0.06	0.07	0.07
Gyeongnam	0.07	0.08	0.08	0.08	0.09
Jeju	0.07	0.08	0.08	0.08	0.08

## 7. Per Capita Local Consumption Tax without Weighting After Applying Cost Index

(unit: million won)

	2010	2011	2012	2013	2014
Seoul	0.21	0.23	0.23	0.23	0.22
Busan	0.09	0.09	0.10	0.10	0.10
Daegu	0.07	0.08	0.08	0.08	0.08
Incheon	0.07	0.08	0.08	0.08	0.08
Gwangju	0.08	0.08	0.08	0.08	0.09
Daejeon	0.08	0.09	0.09	0.09	0.09
Ulsan	0.06	0.07	0.07	0.07	0.07
Gyeonggi	0.05	0.06	0.06	0.07	0.07
Gangwon	0.03	0.03	0.03	0.04	0.04
Chungbuk	0.03	0.04	0.04	0.04	0.04
Chungnam	0.03	0.04	0.04	0.04	0.04
Jeonbuk	0.03	0.04	0.04	0.04	0.04

