

The Empirical Study on Influence that the Introduction of Local Government System has on Financial Balance between Regions

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< ABSTRACT >

The influence that the enforcement of local government system has on financial balance between regions is recognized as a very important issue. However, previous studies have shown antithetic conclusions. Some studies insisted that the enforcement of local government system raised financial balance, and others suggest analysis antithetic to it. To get more definite answer for these antithetic opinions, this study deduced Gini index in each year with data of the whole metropolitan and basic self-autonomous entities between 1982 and 2007, and then presumed the regression equation with using this as dependent variable. According to this, financial balance has been raised since the real revival of local government system, but this is caused by the influence following the flow of times, not by the enforcement of local government system. Therefore it can be considered that the enforcement of local government system does not have a systematic influence on financial balance between regions.

keyword : local government system, financial balance, Gini index, financial independence

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I . Introduction

Korea received a great change in the relation between central government and local government from the beginning to the middle of 1990's, that is the enforcement of local government system. The local government system which had been discontinued for long time revived with making up local congress in 1991, and enforced the election of local government head in 1995. Introduction of local government system caused several effects, and there is a controversy about those effects. First, there are some representative positive effects of local government system such as the promotion of democratical attainments, improvement of efficiency suggested by Tiebout Hypothesis, the improvement of response to residents, increase of efficiency and effect cause by political competition between local governments, etc. On the other hand, for negative influence of local government system, there are waste caused by political experiment, difficulty to realize economy economic scale, local rivalry, inefficiency caused by financial operation aware of election.

These various effects caused by local government system are recognized as very important issue, and related studies also have been considerably advanced. Along with these effects of local government system, we must be interested in financial balance between local governments. Most of all, there are many local governments whose financial situation is very depressed, so local government system in Korea supposes support for these entities. Unlike England and America, local government system of Korea was uniformly introduced without reference to financial status of each local government. Therefore if it does not suppose financial support for self-autonomous entity which has poor financial condition, the basis of local government can be placed in danger. Second, balanced development between local government entities is recognized as one of important goals Korea must promote. Eble and Yilmez(2003) mentioned "national political goal must be designed for the best achievement, and it must include efficiency, transparency, responsibility, balance between individual and region, national unification, and keeping the stability." Park Jong-hwa et al.(1995) insisted that balanced development between regions itself is regarded as an important political goal, and simultaneously as a condition to secure the effect of local government system. Third, the balance between local government entities, and the their effort to get own income are important issues as much as these issues are the most important in the relation between central government and local government. Fourth, the relation between decentralization and balance can be a target of scientific interest. If local government system is regarded as one kind of decentralization, it is not very important to consider the influence that the introduction of this system has on the balance.

Regardless of the meaning of influence that local government system has on financial balance between local government entities, there are only a few studies on the relation between both. Also some previous studies present antithetic opinion about if financial balance has been increased since the enforcement of local government system, or not. There are some studies(Park Sung-Bok, 1997; Park Wan-Gyu.Lee Jong-Chul, 2001; Yeom Myung-Bae, 2004) which mentioned decentralization rather worsens local gap, and also there are some studies(Park Yong-Chi, 1994; Jung Won-Sik, 2001; Gwon O-Sung, 2004) which the former eases the latter. Therefore it is meaningful enough to get a definite answer of this antithetic opinions with sufficient data.

On the basis of this necessity, this study aims at analyzing the influence that the election of local government head has on financial balance between regions with data of the whole local government entities from 1982 to 2007. For this, this study will presume the effect of local government system before/after the enforcement with using Gini index in each year as dependent variable, which is deduced on the basis of financial independence which presents financial power of local government entities. The differences between this study and previous studies are as follows: First, there were some studies of the influence that the enforcement of local government system has on local development or economic growth, but there are only a few studies of the influence that local government system has on the balance between regions, and there are only a few studies with using approximate change of times. Second, most of studies analyzed only metropolitan self-autonomous entity, but this study

targets on around 250 local government entities. Third, data-span of this study is longer than any other studies, and this study analyzed total 26 years before/after 13 years from 1995 when popular election was enforced.

The composition of this study is as follows. Chapter II includes the theoretical discussion about effect of local government system on the balance between local government entities. Chapter III deduces the model for empirical analysis, and Chapter IV suggests data and analysis result. The last Chapter contains conclusion and limit of study.

II. Local Government System and Financial Balance

Local government system can be understood as a phenomenon that the authority and responsibility are delegated from central government to each local government. This local government system essentially has financial decentralization. That is, central and local government must share financial function to enable local government to supply independent financial resources, and operate free finances by being independent from central government. Because the introduction of local government system cannot show anything, but its appearance, if there is no financial decentralization and freedom.

Although financial decentralization and necessity are acknowledged, on the other hand, we must consider financial balance between self-autonomous entities. We have already examined in previous section that the financial balance is important in local government system. Local government system introduced in Korea is different from Anglo-American self government supposing the satisfaction of financial condition, so this financial balance becomes more important. The biggest theoretical basis of financial balance is that if financial balance is damaged too much, it will hinder the balanced local development. There is an antithetic opinion of the relation between decentralization, financial decentralization, and national balanced development. On the basis of public choice theory, it can be expected that there is less imbalance between regions in decentralized country. Also from the viewpoint of 'The second generation' model¹⁾ of finances federalism, foreign scholars emphasize the role of attracting competition between regions following fiscal devolution. On the other hand, from the viewpoint of Keynesian approach, it is considered that relatively stronger central government plays much more definite role in redistributing income of local government. World Bank(1975) suggests that the policy of centralized central government has promoted the gap between regions by ignoring the demands in each region, and developing specific region. Therefore decentralization must be promoted first for national balanced development. On the other hand, if the decentralization is promoted with leave financial gap between local government entities as it is, that gap will make social and economic complaints between regions or between classes deepened more (Ter-Minassian, 1997). According to this opinion, central government must keep playing an role of finances control to solve financial gap between local government entities also when promoting decentralization.

There are various mechanisms that local government system can have influence on financial balance. These various mechanisms can be categorized into two types, a mechanism related to the change in financial support of central government, and a mechanism related to the change in behavior of local government. First, central government give financial support to local government to improve financial status of local government, but the behavior of central government can be changed, thus it makes financial balance raise or worse. There are local grant and subsidy from national treasury, these are the local finance control system used in Korea to raise financial balance between local government entities.²⁾ Local grant performs the function of preserving financial resources to local finances, and the function of balancing finances between local government entities. In particular, for general grant, relatively greater amount is distributed to self-autonomous entity which has greater amount of financial shortage to solve financial gap between self-autonomous entities. That is, large amount of general grant is distributed as financial demand is greater, and financial incomings is lower. On the

other hand, unlike local grant which is distributed to each entities according to formula, scale and target of supporting subsidy from national treasury are determined every year by central government project judgment. This subsidy from national treasury also considers financial status of self-autonomous entities although it is limited in distributing them. This is supported for the protection of local government entity expenses, and this applies graded support rate according to financial power of self-autonomous entity, thus this also can be considered to contribute to the ease of horizontal financial gap between self-autonomous entities. Like this, the effect of financial balance will be changed by how central government operates local finances control system. Therefore, it is considered that, if local finances control system was operated differently before/after the enforcement of local government system, financial balance between local government entities may have been changed.

Additionally, financial balance between local government entities can be changed by the change in behavior of each local government entity after the enforcement of local government system. Authority related to finances must be delegated from central government to local government first to enable local government entity to perform free financial activity. For example, to make local government entity expand tax revenues, the right to decide tax items must be delegated to local government entity or freedom of tax rates must be secured. Also although finances have been decentralized, financial balance can be influence by how local government entity it applies well. Financial balance will be different, depending on how many efforts local government entity makes to expand independent financial resources such as expansion of tax resources or prevention of tax evasion, etc.

As examined above, local government system can have an influence on financial balance between local government entities with behavioral changes of central and local government. Also according to this discussion, we can know the orientation this influence has not been determined theoretically yet. Namely, balance between local government entities can be changed by local government system, but if the balance is not raised, it cannot be determined theoretically if it was not worsened or not. Therefore, we must consider the change in financial balance between local government entities caused by local government system empirically, not theoretically.

Regardless of this meaning, there are few empirical studies which considered if the financial balance between regions have been improved or not since he enforcement of local government system in Korea and foreign countries. Additionally, even these studies don't present the correspondence of opinion. There are antithetic opinions in previous foreign studies, one is that imbalance of geographical distribution of financial resources is increased as finances are decentralized more and more(B. Qiao et al, 2008; Prudhomme, 1995), and the other is that financial decentralization reduces imbalance between regions(C. Gil et al, 2005; R. Ezcurra, et al, 2008). As examined in domestic studies, Park Sung-Bok(1997) kept an eye on the point that this influence can be changed in each situation, and he deduced the result that decentralization rather worsens local gap in the situation of serious local gap. Also, Park Wan-Gyu.Lee Jong-Chul(2001), and Yum Myung-Bae(2004) presented that financial balance has rather been worsened since the introduction of local government system.. They emphasized that decentralization does not ensure national balanced development automatically. On the other hand, there are some other studies which suggest that, promoting local development, local government system draws healthy development of local government entity, and make it possible to accomplish the balanced development between regions(Park Yong-Chi, 1994; Jung Won-Sik, 2001; Gwon O-Sung, 2004).

Like this, there are small number of empirical studies on the influence that local government system has on financial balance between regions, and local balanced development. Furthermore, most of them analyzed the gap in specific years, or during short period, or they analyzed metropolitan self-autonomous entities or specific local government entities only. In addition to this, most of them were performed without considering any other variables, although they presented overall change of specific index related to financial balance, or used Gini index.

<Table 1> Summary of Previous Studies

Classification	Researcher	Measured index /mechanism	Data	Variable	Result
The Study on the negative relation between decentralization and local gap	B.Qiao et al. (2008)	financial balance index	1985-1998, panel data integrated at the provincial level	financial decentralization index, financial balance index, tax rate, growth rate of nominal GDP per person, extraordinary disbursement rate	Financial decentralization in China reduced balance in distribution of financial resources between regions
	Park Sung-Bok (1996)	all-items index of local development, local imbalance index Gini index, coefficient of variability	1997, 15 metropolitan self-autonomous entities	local economy, localization, local administration, local overhead capital, scientific technique level, formation of human resources, living environment, social unification	In the situation that there is serious gap between regions, decentralization makes gap between regions worse
	Park Wan-Gyu Lee Jong-Chul (2001)	imbalance index of tax revenue and annual expenditure items	1995, 1997 66 cities 86 counties	tax revenue and annual expenditure items of each local government	Imbalance of overall local finances in Korea has been deepened
	Yum Myung-Bae (2004)	Gini index	1995-2001 (total for 7 years), data of finances of metropolitan self-autonomous entity	annual expenditure per person, local tax revenue, municipal bond revenue, GRDP per person, financial independence, income tax, corporation tax, value-added tax	vertical and horizontal balance of local finances have been worsened since the introduction of local government system
The Study on the positive relation between decentralization and local gap	C. Gil et al (2005)	Sigma(natural log standard deviation of GDP per laborer), Gini, Theil, Atkinson index	1990-1997, 19 member nations of OECD	GDP per laborer, decentralization index, reduced volume of central government tax income, weight of local tax against total tax revenue, weight of central government tax against total tax revenue, financial freedom	financial decentralization imbalance in labor productivity between regions

R. Ezcurra et al (2008)	population-weighted coefficient of variation	1980-1999, GDP and population of 132 regions in 12 European countries	coefficient of variation(CV), financial decentralization index, GDP per person, degree of opening trade, population density, structural fund, degree of productive specialization	Financial decentralization reduces imbalance between regions
Hong Jun-Hyun (1999)	coefficient of variability, Gini index	1990-1997	local economy, local finances, human resources, social overhead capital, living environment	there is local gap between metropolitan area and non-metropolitan area, local gap between YoungNam and Honam, it is gradually lessened
Jung Won-Sik (2001)	coefficient of variability	1990, 1998	urban income, industrialization(population of employee), population, manufacturing industry-oriented, governmental role, producer service, consumer service	coefficient of variability at both points of view, local gap between cities is lessened
Gwon O-Sung (2004)	Gini index, financial decentralization index	1986-2000, 59 urban self-autonomous entities	financial independence, local tax revenue, total income of local government is used as index to measure financial power	financial decentralization reduces the gap of financial power between local governments
Kim Gyung-Soo, Kim Hyung-Bin (2006)	coefficient of variability, Gini index	1995-2002, 16 self-autonomous ward and counties	individual index is selected from 7 sections; population, education, social welfare, culture, transportation, industrial economy, living environment	gap between regions in Busan is still high, its degree is gradually lessened

As examined above, there were some studies using imbalance index to research the gap between regions, but there was few study using Gini index. Also studies which tried to perform empirical analysis to describe the gap between regions showed two antithetic results, one is that local government system had a positive influence on local balance, and the other is that it had a negative influence. Of course, it can be presumed that target or period, variable, and method may be different in this analysis. Therefore, unlike previous studies, this study tried to perform empirical analysis with large analysis period targeting on the whole local government entities.

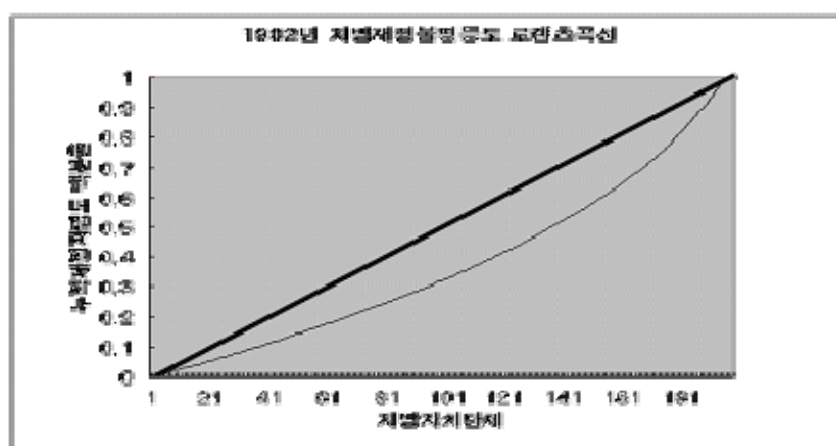
III. Empirical Analysis Model

This study considers the influence that local government system has on financial balance between regions in priority. This study particularly aims at examining if financial imbalance between local government entities have been improved or worsened since 1995 when local government system was introduced in earnest. For this, this study uses ‘Gini index’ as a dependent variable, which is based on financial independence of local government entity. This study deduces Gini index with using financial independence of local government entity in each year, and applies this as measure of financial imbalance between regions. Gini index is one of imbalance index used most widely. If this measure is used to measure financial imbalance between regions, it must be presumed that all the residents in self-autonomous entity are in identical financial and economic situation. Also Gini index has scale invariance³⁾ which is not affected by measure unit of variate, and does not have 1:1 homologous relation with specific distribution, and has identical measure can be calculated also in different distribution(Kim Yun-Sang, 1986).

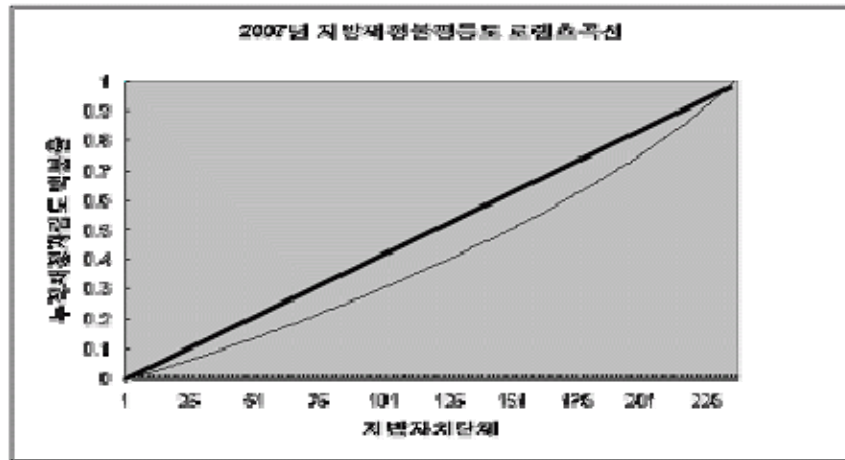
Gini index has a close relation with Lorenz curve. Lorenz curve deduces population and their income by accumulating population on horizontal axis after making an order of people according to incomes, and their income on vertical axis. Of course, the target of Lorenz curve is not necessary to be in the status of distributed incomes, and welfare level, economic resources, and property can be its target. In this study, local financial power status is its target. To get Lorenz curve of local gap according to financial independence, this study deduced Lorenz curve by arranging each local government entity on horizontal axis in order of financial independence from lower to higher, and by accumulating and adding up(total accumulative rate=1) index value for target local government entities on vertical axis from among the value which added the index value of the whole financial independence. And Gini index was calculated on this curve. If Lorenz curve corresponds to diagonal toward the upper right, it means financial power between regions is completely equal. On the other hand, Lorenz curve becomes more distant from perfect equal line(45° line) as financial imbalance between regions is bigger and bigger.

Following figure shows financial imbalance in 1982 and 2007 calculated in this method. financial imbalance was reduced <Fig.2> as compared with <Fig.1>.

<figure 1> Lorenz curve of financial imbalance in 1982

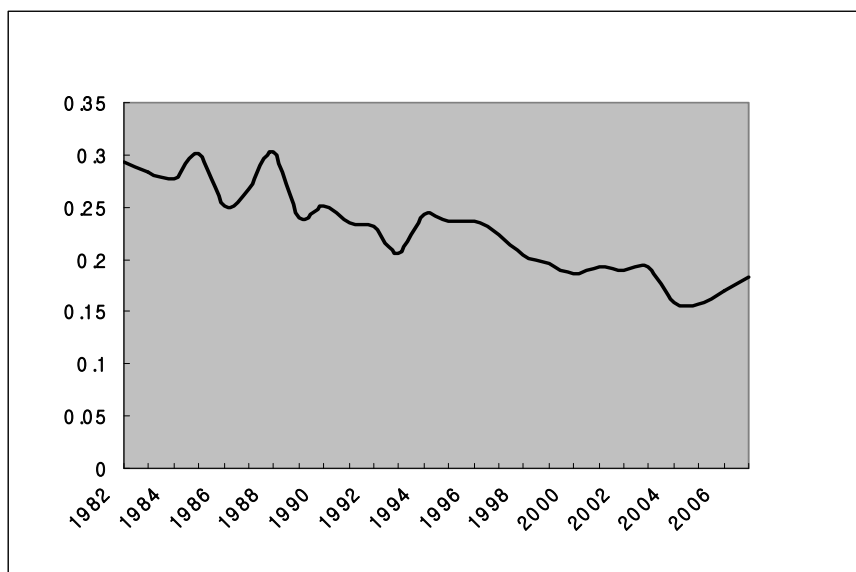


<figure 2> Lorentz curve of financial imbalance in 2007



<Figure 3> shows the yearly trend of Gini coefficients calculated with all local governments from 1982 through 2007. As can be seen in the figure, Gini coefficients tend to decrease over time. This implies that inequality of fiscal condition among local governments is alleviated during the period.

<Figure 3> yearly trend of Gini coefficient



Gini coefficients are based on fiscal independence index, and they function as a measure of horizontal fiscal inequalities among local governments. From the perspective of comparing local governments in terms fiscal conditions, fiscal self-reliance can represent differences among local governments. The main reason for the differences of fiscal conditions is attributable to local governments' ability to raise their own revenue. This ability depends on each local government's social, economical, and natural environments. Therefore, fiscal independence index is a measure considering local government's administrative demand and supply of each locality as well as its social, economical conditions, and natural environments (Lee, 2008).

This paper intends to investigate with empirical data whether local self-governing system has influenced the Gini coefficient explained above. For this purpose, a dummy variable is set for representing the self-governing system. We witnessed an all-out system change for self-governing in

1995. This means that the dummy has a value of 0 from 1982 through 1994 and 1 from 1995 through 2007. An estimated coefficient of this variable will give an answer to the question that the self-governing system has any influences on the fiscal inequalities among local governments.

In the meantime, other variables need to be controlled for that might have influences on the fiscal inequalities. First of all, the previous-year Gini coefficient should be included as a control variable. Since Gini coefficient may not fluctuate sharply over time, it is advisable to control the previous-year Gini coefficient in the regression equation. In addition, the previous-year Gini coefficient might lessen the omitted variable bias caused by not enough control variables.

Economic growth rate also influences the fiscal inequalities among local governments. Fiscal independence index, a basis for the calculation of Gini coefficients, is largely dependent on local governments' own revenue and transfers from the central government. Since local governments' own revenue and transfers from the central government fluctuate according to economic conditions, Gini coefficients are also dependent on economic conditions. In order to control for these effects, real GDP growth rate is used.

Population size is often included as an independent variable in the regression equation of differences among localities (Jung, 2001). It is easily observed that economic conditions of a specific locality draw or push out population. This implies that changes in populations size represent changes in economic conditions. Therefore, we need to control for population size.

Local government's revenue, especially tax revenue, is dependent on income of residents. Since tax revenue changes local government's fiscal conditions, residents' income needs to be controlled for. Unfortunately, however, income data are not available for the lowest level of local governments in Korea. We hope to escape this problem with a proxy variable of tax revenue. This is based on the assumption that residents' income is highly and positively correlated with tax revenue.

It has already been shown in the previous section that the central government's fiscal support might influence the fiscal inequalities among local governments. Central government's fiscal transfers to local governments such as ear-marked support or revenue-sharing alleviate fiscal inequalities among local governments by guaranteeing necessary funds for meeting administrative demands in each locality. For the yearly comparison, the ratio of transfers to tax revenue is included as a control variable instead of absolute amount of transfers.

Finally, as seen in <Figure 1> Gini coefficients tend to decrease over time. To eliminate the yearly trend, a trend variable is created and included as a control variable in the equation. This variable has a value of 1 for the year of 1982 and 2 for 1983, etc.

The variables explained above can be summarized as in the following table.

<Table 2> Definition of Variables

Category	Variable Name	Definition
Dependent Variable	GINI	Gini coefficients based on the formula: $\Delta = \{\sum\sum Vari - Varj \}/n(n-1)$
Independent Variable	y_dummy	Dummy Variable for the introduction of the self-governing system: 1982-1994 : 0 1995-2007 : 1
	portion	proportion of fiscal transfers to local tax
Control Variables	f_gini	previous year Gini coefficients
	pop	population size
	growth	real economic growth rate $V\alpha = (Ga - G_b) / G_b \times 100$
	trend	variable to control for the yearly trend 1982 ~ 2007 : 1 ~ 26

Based on the discussion above, an empirical model can be expressed as the following equation:

$$GINI = \alpha + \beta_1 f_gini + \beta_2 y_dummy + \beta_3 growth + \beta_4 pop + \beta_5 portion + \beta_6 trend + \varepsilon \quad (1)$$

In equation (1), GINI represents Gini coefficients calculated with local governments' fiscal independence index, *y_dummy* whether the self-governing system has been introduced or not, *growth* the real GDP growth rate, *pop* population size, and *portion* the proportion of the central government's fiscal transfers to local tax revenue. The last variable, *trend*, is a control variable for detrending yearly trends. The last term, ε is an error term.

IV. Data and Estimation Results

1. Data

As explained above, the purpose of this paper is investigate whether the introduction of the self-governing system in Korea has had any influences on the fiscal inequality among local governments. Necessary fiscal data for this purpose are available from Local Fiscal Yearbook's and the web site of the Ministry of Public Administration and Security (<http://lofin.mogaha.go.kr/>). Most demographic data was obtained from statistical year books from Korea National Statistical Office and Korea City Year Book's. GDP growth rates can be downloadale from Economic Statistical System administered by the Bank of Korea (<http://ecos.bok.or.kr/>). The number of local governments is 246 per year and the time span runs from 1982 to 2007. Descriptive statistics are summarized in <Table 3>.

<Table 3> Descriptive Statistics					
Variable	Obs	mean	std deviation	minimum	maximum
GINI	26	0.227	0.043	0.157	0.304
f_gini	26	0.231	0.043	0.157	0.304
growth	26	6.765	3.636	-6.900	11.100
proportion	26	1.105	0.230	0.641	1.514
trend	26	13.500	7.648	1	26
pop	26	44,567,912	2,931,230	39,326,352	48,456,369

2. Estimation Results

The following table presents OLS estimation results of equation (1). Model 1 in the table includes all the control variables and the independent variable where as model 2, 3 and 4 drop some of them for a sensitivity test. The sensitivity analysis is necessary to test whether the estimated coefficient of the key independent variable, *y_dummy*, is consistent in terms of statistical significance, sign and magnitude.

<Table 4> OLS Estimation Results

Independent Variables	Dependent Variable: GINI			
	Model 1	Model 2	Model 3	Model 4
Intercept	8.62E-1 (5.51E-1)	3.15E-1 *** (8.46E-2)	3.29E-1 *** (7.89E-2)	2.60E-1 *** (7.77E-3)
y_dummy	1.89E-2 (1.60E-2)	1.32E-2 (1.46E-2)	1.26E-2 (1.43E-2)	-6.62E-2 *** (1.09E-2)
f_gini	-2.67E-2 (2.73E-1)	-6.11E-2 (2.63E-1)	-8.74E-2 (2.53E-1)	
growth	6.99E-4 (1.16E-3)	5.55E-4 (1.10E-3)		
trend	-1.13E-3 (5.44E-3)	-6.26E-3 *** (2.01E-3)	-6.50E-3 *** (1.91E-3)	
pop	-1.36E-8 (1.36E-8)			
portion	-1.58E-2 (1.95E-2)			
R-square	0.8803	0.8181	0.8048	0.6024
Adjusted R-square	0.8425	0.8173	0.7878	0.5859
N	26	26	26	26

Note : standard errors are in parentheses.

*, **, ***- statistically significant at the level of 0.10, 0.05, and 0.01, respectively.

As can be seen easily, the key variable, *y_dummy* has a positive coefficient in Model 1 but it is not statistically significant. This implies that the introduction of the self-governing system in 1995 has not caused any systematic change in Gini coefficients. The previous Gini coefficient, *f_gini*, has a negative sign but the estimated coefficient is not statistically significant, either. The same pattern exists for the trend variable, *trend*, the population variable, *pop*, and the proportion of fiscal transfers to local tax revenue, *portion*.

The estimated coefficient for the GDP growth rate, *growth*, has a positive sign but is not statistically significant even at the .10 level. The reason for the all insignificant coefficients of the variables seems to be that the number of included variables in the regression equation is too many considering the numbers of observations, 26.

In Model 2, the population, *pop* and the proportion of fiscal transfers to local tax revenue, *portion* have been dropped. Estimated coefficients of the previous Gini, *f_gini* and the trend variable, *trend* are negative. However, only the trend variable has been estimated to have a significant coefficient at the level of .01. This implies that Gini coefficients tend to decrease over time during the period of 1982 to 2007. Therefore, it can be conclude that the fiscal inequality has been alleviated during the period. Since the variable, *y_dummy* is not statistically significant, however, the alleviation of fiscal inequality among local governments is not correlated systematically with the introduction of the self-governing system. The other variables have the similar estimation results to those of Model 1.

Model 3 shows that the introduction of the self-governing system does not have statistically significant influences on the fiscal inequality even in the case of controlling for only two variables, *f_gini* and *trend*. The trend variable, however, has a negative effect and the estimated coefficient is statistically significant at the .01 as in Model 2. This implies that the introduction of the self-governing system has not influenced the fiscal inequality of local governments whereas the inequality problem has been alleviated over time for unknown reasons such as the central government's effort to deal with it.

Model 4 presents a different result from others. The equations includes only one variable, *y_dummy*

which represents the introduction of the self-governing system. The estimated coefficient is negative and statistically significant at the 0.01 level, meaning that the fiscal inequality decreased over time. However, this kind of interpretation has a pitfall in that other variables has not been controlled for influencing the dependent variable, *GINI*. Previous studies in which mean comparisons of Gini coefficients before and after the introduction of the self-governing system are used share this problem.

When a regression equation includes the previous dependent variable as an independent variable, the endogeneity problem might arise. This makes an OLS estimation invalid. To treat this problem, equation (1) has been estimated with the Maximum Likelihood and <Table 5> summarizes the estimation results. Comparing <Table 4> and <Table 5>, we can easily notice that the magnitudes of the estimated coefficients has changed to a trivial extent and there is little changes in signs and statistical significance. This means that all the interpretations done for the OLS estimation for <Table 4> apply here without any change.

<Table 5> MLE Estimation Results

Independent Variables	Dependent Variable: GINI			
	Model 1	Model 2	Model 3	Model 4
Intercept	8.46E0 (9.10E0)	3.28E-1 *** (9.15E-2)	3.41E-1 *** (8.64E-2)	1.94E-1 *** (7.76E-3)
y_dummy	1.67E-2 (1.55E-2)	1.32E-2 (1.46E-2)	1.26E-2 (1.43E-2)	-6.62E-2 *** (1.09E-2)
f_gini	-1.60E-2 (2.76E-1)	-6.11E-2 (2.63E-1)	-8.74E-2 (2.53E-1)	
growth	7.30E-4 (1.16E-3)	5.55E-4 (1.10E-3)		
t_dummy	-1.13E-3 (1.16E-3)	-6.26E-3 *** (2.00E-3)	-6.50E-3 *** (1.91E-3)	
pop	-4.646E-2 (1.36E-8)			
portion	-1.57E-2 (2.04E-2)			
-2Log Likelihood	-95.7	-100.8	-112.3	-98.4
N	26	26	26	26

To summarize all the estimation results, we could know that the fiscal inequality among local governments decrease after the introduction of the self-governing system in Korea. This phenomenon, however, is not attributable to the introduction of the system but to the time effect. Therefore, it can be concluded that the introduction of the self-governing system has not influenced the fiscal inequality among local governments in Korea. This also means that the introduction of the self-governing system fails to attain one of its important goals, lessening the horizontal fiscal inequality.

The estimation results of this paper is contrasted to the previous studies in that those studies support that the introduction of the self-governing system have influenced the fiscal inequality even if they are divided in the sign of the influence: some argues inequality has decreased after the introduction of the self-governing system (Park, 1994; Hong, 1999; Kwon, 2004) and others stands at the opposite (Park, 1997; Park et al, 2001; Yeom, 2004). This study has shown that the influence is not statistically significant considering the time effect.

V. Conclusion

This study examined the influence that real local government system has on financial balance between regions with data of the whole metropolitan and basic self-autonomous entities from 1982 to 2007. For this, this study empirically analyzed the change in financial balance between regions with Gini index based on financial independence of each local government entity. As this result, Gini index was decreased since real revival of local government system, but it was affected by the flow of times, not by the enforcement of local government system. Therefore, this study could confirm local government system did not have systematic influence on financial balance between regions.

As examined in Chapter II, mechanism which can have an influence on financial balance can be categorized into two types, the change in financial support of central government, and the change in behavior of local government entity. With the change in financial support behavior to improve financial condition of local government, or the change in behavior related to incomings or outgoings of local government, financial balance between local government entities can be improved or worsened. The result of this study, namely the fact that local government system does not have a systematic influence on financial balance means that any one from these mechanisms did not operate. Local government system did not improve financial balance by leading to behavioral change of central and local government, and financial balance has been continuously improved by other factors, following the flow of times.

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1) It supposes the duty that behavior of sub-national government must represent citizens and protect market.

2) Local transfer fund was temporarily operated.

3) It means measure of imbalance is always identical in every distribution without reference to measure unit. That is, it means the value of measure is not changed, depending on whether monetary unit to measure income is won or dollar, or whether the unit to measure height is cm or m(Kim Yun-Sang, 1986).