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Relationship between the Changes in Policy Tools of the Central Government and the Local Fiscal Structure: Focused on the Changes in the Transaction Taxes

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This study aimed to determine the changes in the local fiscal structure brought about by the change in the transaction tax, including the acquisition tax, by the central government. The review of the analysis results proved the following. First, the government's transaction tax exemption policy effectively influenced the expansion of the local fiscal budget. Transaction tax exemptions such as acquisition tax exemptions would not contribute to the expansion of the local fiscal budget in the short run, but may do so in the long run. Second, the review of the effect of the transaction tax exemption policy by the central government on the local fiscal structure confirmed that its impact on the local fiscal structure may vary depending on the timing of such tax exemption. Third, the overall local fiscal structure as a result of the transaction tax exemption by the central government was confirmed to have been influenced more by the fiscal capability of the local government than by the income level of the local residents. In conclusion, the stimulation of real estate transactions using tax tools may positively influence the overall fiscal structure of local governments, but it would also put pressure on the fiscal management of local governments because it is largely influenced by the fiscal capability of the local governments.

Keywords: fiscal policy; policy tools; local fiscal structure; transaction tax change

Raising Questions

Does a tax policy bring about its originally intended change? Specifically, is it really possible to control the real estate boom-bust cycle with policy tools? This controversy has a long history: many empirical studies have been performed from diverse angles to verify the feasibility of such tax policy. To sum up, it is difficult to verify whether a specific tax policy is good for controlling the real estate cycle. Such conclusion is based on two viewpoints: (1) Any tax imposed by the

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government would lead to a discrepancy in the person taxed and in another who actually picks up the burden and pays for it(a phenomenon wherein the tax burden is being transferred to other persons), and the tax exemption would reduce tax receipts, which would increase the operational burden in the fiscal management; and (2) Still, the taxes are being used as a favored policy tool in controlling the real estate boom-bust cycle, since many policy makers are still confident of the effectiveness of the tax policy.

The tax used most frequently in line with such thinking is the transaction tax. Among transaction taxes, the acquisition tax was used in the early days of its inception as a means of slapping heavy taxes on luxury property, but it was later used as a deterrent against speculative real estate investments. The heavy tax rate has been gradually lowered since 1998 to stimulate the economy. The country's acquisition tax was lowered periodically depending on economic fluctuations, but such policy would be met with a 'trade cliff,' as the trade volume would plummet near the conclusion of each grace period. The reshuffling of such transaction taxes, including of the acquisition tax, was pushed to stimulate the home market and thereby mitigate the crunch on local tax receipts, but opinions are divided over the effectiveness of such stimulus package.

Why are opinions divided over the effectiveness of such policy tools? The acquisition tax is reduced based on the assumption that the home transaction volume would increase should the burden of the acquisition tax be alleviated. According to a theory, reduced taxes would lower the overall cost of home purchase, and thereby encourage potential home buyers to jump on the buying spree (Ra, Hui Mun, 2013, p101). However, most preceding researches are critical about such assumption. Majority of such studies posited that the reduced acquisition tax would not influence home transactions in the short term but only squeeze the fiscal budget of local governments (Kim, Jong Hwa and Yoo, Tae Hyun, 2012; Kim, Hyun-A, 2010; Park, Sang Soo and Lim, Min Yeong, 2012; Song, Sang Hoon and Ryu, Min Jung, 2012; Lim, Sang Soo, 2013; Cho, Im Gon and Chung, Jaejin, 2011; Choe, Byeong Ho, 2007; and Han, Jae Myung and Yoo, Tae Hyun, 2011). However, a few studies in the academe supported tax reduction as an effective policy tool. They argued that reduction of the acquisition tax rate would be effective in increasing the home transaction volume (Bahl and Linn, 1991; Banjamin et. al, 1993; Ji, Dae Sig and Choe, Su, 2003; Korea Housing Institute, 2013; and Korea Institute of Public Finance, 2013).

Specifically, those who support the tax policy believe that the taxes slapped at the stage of property acquisition would have a chilling effect on real estate transactions and hinder the advancement of the real estate market, which would undesirably affect the overall market efficiency. Furthermore, it was argued, as the taxes are slapped according to the transaction value of real estate regardless of the individual capability to pay such taxes, they would pose some issues in terms of their fairness. Therefore, the tax policy supporters believe that the reduction of the transaction tax rate is desirable in view of the general tax theory (Choe, Byeong Ho, 2007, p119). In addition, they believe that a possible increase in acquisition taxes due to the overall stimulation of home transactions, as intended by the policy, would only contribute to the expansion of local tax receipts. However, those with a critical perspective on the tax policy believe the local government should be given autonomy in its tax management, as the share of the acquisition tax (a transaction tax) is substantial

(25.6%[1]) in the local fiscal structure, but in reality, the central government plays a dominant role in tax management.

It can thus be concluded that the fiscal policy of the central government has sparked heated debates on the effectiveness of policy tools, which suggests that changes in the policy tools of the central government must be seriously considered, as they have a disproportionate impact on local fiscal structure.

Based on such understanding, this study aims to analyze how the change in transaction taxes such as the acquisition tax by the central government change the local fiscal structure. Specifically, this study intends to identify the impact of the change in the transaction tax exemption on the local fiscal structure. In accordance with such objective of this study, the effect of the government's transaction tax exemptions for 17 years, from 1997 to 2013, on the increase in local tax receipts was reviewed, after which its relationship with the local fiscal structure was analyzed. Specifically, (1) the accumulation of the transaction tax exemptions as an effect of the transaction tax exemptions on the increase in local tax receipts was reviewed, whereas the increase in the local tax receipts depending on the timing of the transaction tax exemption was reviewed using the panel regression model; and (2) the accumulation of the transaction tax exemptions as an effective policy tool on the local fiscal structure was reviewed, whereas its impact on the local fiscal structure depending on the timing of the transaction tax exemption was reviewed using the panel regression model.

Theoretical Review

Relationship between the Policy Tools for Local Fiscal Management and the Central Government: Policy Tools of the Central and Local Governments

Local taxes are imposed on and collected from local residents to finance the fiscal budget of the local governing body. Among local taxes, the acquisition tax is one of the many taxes imposed on houses, but it is mainly used as a policy tool of the central government to accomplish its policy goal rather than simply to collect tax revenues, which is the basic function of government taxes.

Established in 1952, the acquisition tax was initially imposed heavily on the acquisition of luxury property in 1973 and 1974, but it soon began to be used as a key lever to suppress speculative real estate investments. In the wake of the Asian Financial Crisis in 1998, the tax system was revamped to lower the heavy tax rate so as to stimulate the economy. After the series of tax rate cuts implemented ever since, a bill to amend the local tax law that stipulated that home acquisition taxes would be lowered permanently was passed on December 10, 2013 in the National Assembly (Pai, In Myung, 2014, p241). The government reduced the acquisition tax as its favored arbitrary policy tool whenever the home transaction volume started to show any sign of contraction.

Moreover, at the end of the grace period for such tax exemption measure, the country's housing market would end up in the state of a trade cliff.

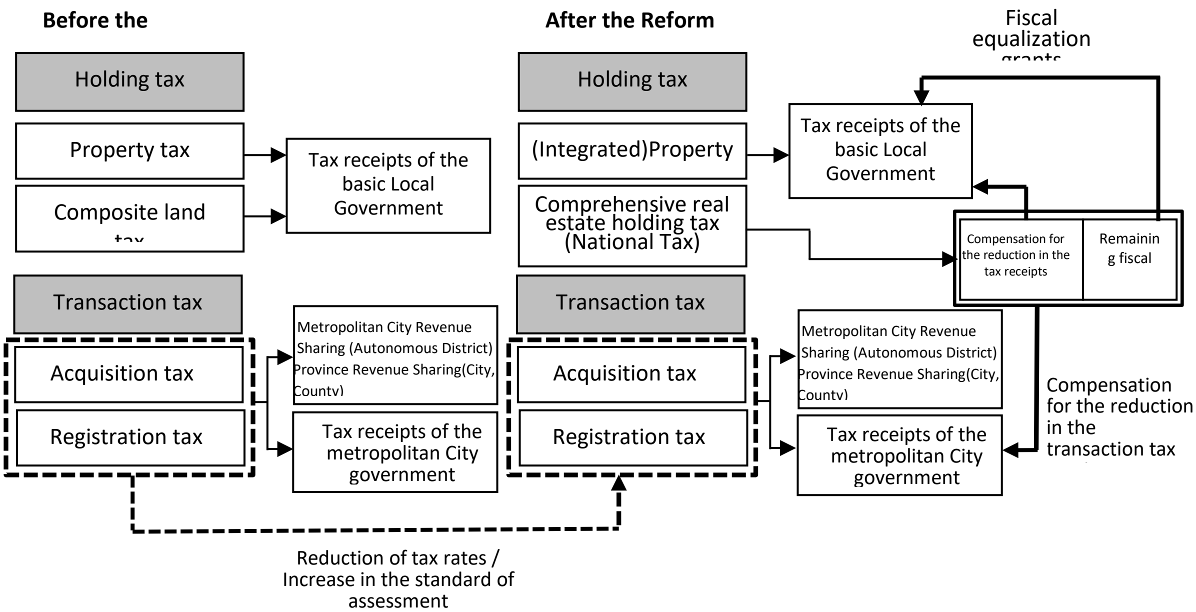
As obvious from the revision process of acquisition and registration tax laws, any government attempt to stimulate the real estate market using policy tools would end up reducing the fiscal budget of the local governments. The acquisition tax, the transaction tax with the lowest tax resistance because home buyers anticipate it when purchasing a home, is one of the oldest local taxes. Despite its historical background, the central government is still pushing forward with unilateral tax exemption without preliminary consultation with local governments, as if the acquisition tax is a national tax. In addition, the acquisition tax is one of the tax items governed by metropolitan governments besides being the target of fiscal compensation, which is being transferred to basic local governing bodies. The argument that acquisition tax exemptions would lead to a substantial loss in local tax revenues, unlike exemptions from other tax items, was proposed in line with such thinking (Sohn, 2013, p1-2). To sum up, it can be concluded that tax reductions had ended up becoming 'one of the local taxes governed by the central government' ever since the central government decided to cut, instead of lower, the tax rate, considering the fiscal difficulty of the local government (Kim, Hyun-A, 2013, p35).

Such historical development of the acquisition tax is nothing short of the evolutionary process of the country's local tax and fiscal policy, as much as it represents the changing fiscal relationship between the central and local governments. The revamp of the acquisition tax system triggered substantial changes in the size of the local fiscal budget as well as far-reaching changes in the overall tax system (details of the development follow).

First, the extent of the tax reduction in the acquisition and registration taxes, the two primary tax items of the metropolitan governments, would not only cause problems in the metropolitan fiscal management but also significantly affect the fiscal management by the basic local governing body. The pathway through which such detrimental influence shall be exerted is the fiscal adjustment system between the metropolitan and basic governing bodies. Whereas provincial governments exert their influence on the municipal- and county-level fiscal management system via the fiscal compensation system, special and metropolitan governments influence the fiscal management by the local governing bodies via fiscal adjustment grants.[2]

The loss in the local tax receipts due to such acquisition tax exemption was compensated for by the central government starting in 2006, using the local fiscal adjustment system. In the wake of the introduction of the comprehensive real estate holding tax in 2005, which is a national tax introduced to compensate for the loss in the local property taxes as part of the measures to mitigate the burden of real estate transaction taxes, as specified in the local subsidy and sub-regulations, the reduced tax receipts were divided into the reduction of the property tax receipts and the reduction of the transaction tax receipts before they were compensated for by the real estate tax subsidies.

Starting in 2008, the real estate tax subsidy was used as a means of compensating for losses in transaction taxes, but a controversy ensued between the central and local governments over the size of the lost tax receipts and the compensation method to be used whenever the central government grants exemptions from home acquisition taxes.



Source: Choe, Byeong Ho (2007)

Figure 1. Revamp of the transaction tax system and change in the local fiscal structure

Next, the change in the transaction tax rates according to the changes in the acquisition tax exemption policy shall be explained. The acquisition and registration taxes are local taxes (metropolitan and provincial taxes) imposed on the transaction of movable assets and real estate, pursuant to the Local Tax Law and the Basic Law on Local Taxes. Beginning in 1977 and until 2004, when the Participatory Government pushed for strengthening of holding taxes and mitigation of transaction taxes, the acquisition tax rate has been kept at 5% of the total acquisition value. However, the tax rate dropped significantly in the wake of the registration tax exemption in 2005 and the subsequent acquisition tax exemption in 2006, whereas the tax rate has since fluctuated frequently between 1% and 4%.[3] In the early days since the introduction of the new tax system, it was used to slap heavy taxes on the acquisition of luxury property. Later, though, it was used as a policy tool to suppress speculative real estate investments. However, in the wake of the Asian Financial Crisis in 1998, the tax system was used to lower heavy tax rates in an attempt to stimulate the economy.

Table 1. Tracking changes in the acquisition and registration tax exemptions

Criterion	Announcement date	Enforcement date of the tax exemptions	Target of the tax exemption		Global tax rate	Acquisition tax rate	Registration tax rate	Remark
- 2005			Homes transacted on a paid basis		5.0	2.0	3.0	
1st round	2004. 11.01	2005. 01.05	Homes transacted on a paid basis		3.5	2.0	1.5	Home Price Declaration System
2nd round	2005. 08.31	2006. 01.01	Homes transacted on a paid basis		2.5	1.5	1.0	Home Transaction Report System
3rd round	2006. 08.03	2006. 09.01	Homes transacted on a paid basis		2.0	1.0	1.0	Strengthening of the holding tax; Mitigation of the transaction tax
Scaling back of the tax exemptions	2010. 08.29	2011. 01.01	Homes transacted on a paid basis	Over KRW900 M	4.0			
				Less than KRW900 M	2.0			
4th round	2011. 03.22	2011. 03.22	Homes transacted on a paid basis	Over KRW900 M	2.0			Activation of home transactions
				Less than KRW900 M	1.0			
Scaling back of the tax exemptions	2011. 11.01	2012. 01.01	Homes transacted on a paid basis	Over KRW900 M	4.0			
				Less than KRW900 M	2.0			
5th round	2012. 09.10	2012. 09.29	Homes transacted on a	Over KRW1.2B	3.0			
				KRW900 M-1.2B	2.0			

			paid basis	Less than KRW900M	1.0			
6th round	2013. 04.01	2013. 04.01 (Retroactive application)	Homes with the combined assets of spouses of less than KRW60M, Houses cheaper than and smaller than KRW600M·85 m^2		Exemption from total taxes			Exemption from taxes of those buying their first home
7th round	2013. 08.28	2014. 01.01	Homes transacted on a paid basis	Over KRW900M	3.0			
				KRW600-900M	2.0			
				Less than KRW600M	1.0			

Note: 1. The tax rates specified by the laws since January 5, 2005 are 2% for the acquisition taxes and 2% for the registration taxes.
2. The reductions of the acquisition and registration taxes in the 1st and 2nd rounds of tax exemptions were allowed for home transactions closed between individual traders.
3. The registration taxes associated with the acquisition of real estate were integrated with the acquisition taxes beginning in 2011.
Sources: Park, Sang Soo and Lim, Min Yeong (2012, p25); Kim, Hyun-A (2013, p45)

Effectiveness of Local Fiscal Management as a Policy Tool: Conflicting Policy Goals

The acquisition tax is reduced based on the assumption that the reduced tax burden would increase the volume of home transactions. As the reduced tax burden lowers the cost of total home purchases, it will encourage potential home buyers to jump on the game to follow the line of such thinking (Ra, Hui Mun, 2013, p101). A review of preceding studies showed that acquisition tax exemptions do not influence the volume of home transactions in the short term. On the contrary, most of the studies showed that acquisition tax exemptions would only significantly contract the local fiscal budget (Kim, Jong Hwa and Yoo, Tae Hyun, 2012; Kim, Hyun-A, 2010; Park, Sang Soo and Lim, Min Yeong, 2012; Song, Sang Hoon and Ryu, Min Jung, 2012; Lim, Sang Soo, 2013; Cho, Im Gon and Chung Jaejin, 2011; Choe Byeong Ho, 2007; and Han, Jae Myung and Yoo, Tae Hyun, 2011). However, some studies have suggested that the reduction of the acquisition tax rate is effective in increasing the volume of home transactions (Bahl and Linn, 1991; Benjamin et. al, 1993; and Ji, Dae Sig and Choe, Su, 2003).[4]

Why were such conflicting results observed in the preceding studies? Such might have stemmed from the different perspectives on the effectiveness of such policy tools. Those studies that highlighted the positive aspects of acquisition tax exemption by assuming that the reduced rates would influence the home transaction volume and thereby increase the tax receipts of local governing bodies tended to focus on the short-term performance or on the increase in the tax receipts. On the other hand, those studies that took a negative position tended to focus on the government's policy goals that stemmed from the relationship between the policy tool, i.e., the acquisition tax exemption, and the local fiscal structure.

The preceding studies argued that a change in the transaction tax rate would influence the home transaction volume, which would again increase the overall amount of local tax receipts.

First, the studies suggested that a higher transaction tax rate would eat into the sources of the property tax, which is a period tax imposed on real estate, by hindering the normal functioning of the real estate market. Therefore, they implied that a desirable policy direction would be to lower the transaction tax rate or replace the holding tax with an alternative. Bird and Slack (2002) consider the taxes imposed on property such as real estate 'market-discouraging taxes,' as they would distort the normal distribution of resources. Furthermore, Bahl and Linn (1991) argued that since the imposition of the transaction tax would lower the expected profits from owning real estate, and thereby reduce the value of the asset, such tax would eat into the sources of the other taxes linked to the real estate (Choe, Byeong Ho, 2007, p120-121, Ibid).

Second, transaction taxes, such as the acquisition tax, are unstable by nature because they fluctuate according to the boom-bust cycle of the real estate market. Therefore, the preceding studies implied that excessive reliance on acquisition taxes would undermine the overall health of the local fiscal system. For this reason, the preceding studies argued that the transaction tax rate should be lowered while strengthening the holding tax, which is more stable by nature (Pai, In Myung, 2014, p241).

Third, the transaction amount, the standard of assessment for the transaction tax, which assumes the very act of real estate transaction as the trader's capability to pay taxes, has limitations in realistically representing the tax payment capability. Furthermore, since the imposition of taxes on property transactions varies depending on the frequency of the property transactions, such imposition is highly likely to be horizontally unequal. Opponents argue that the acquisition tax should be lowered while strengthening the property tax, as a property owner's tax payment capability is more proportional to the total value of his assets than to the frequency of his property transactions, thereby making taxation of property holdings, rather than of property transactions, a more effective tool in enhancing fairness in taxation.

Next, the arguments focused on policy tools and on the local fiscal structure as having the same relationship as that of acquisition tax exemptions and local tax receipts shall be reviewed.

First, acquisition tax exemptions should increase the demand for homes. In reality, however, it is argued that no tangible increase in the home transaction volume as a result of the actual acquisition tax exemption has ever been observed. It is assumed that a reduced tax would lower the overall cost of home purchase, which encourages potential home buyers to go on a buying spree. However, the results of the preceding studies showed that home transactions responded more sensitively to price rises or anticipated price rises and to the ease of lining up the necessary capital than they did to the reduction of the transaction costs (Kim, Jin and Bae, Jun Sik, 2012, p9).[5]

Second, it is believed that acquisition tax exemptions may decrease local tax receipts. Considering that the acquisition tax is the key tax item of metropolitan governments, such governments' tax receipts would shrink subject to the amount of the primary tax reduction/exemption. At the same time, acquisition tax exemption would contract the fiscal budget transferred from the metropolitan to the local governing bodies because it provides a foundation for fiscal compensation and adjustment grants, and will thereby dry up the tax receipts of the basic local governing bodies in the end. The Korea Institute of Local Finance estimated that local tax receipts would drop by about KRW2.4 trillion based on the typical transaction volume due to the 'permanent acquisition tax exemption' in 2013. As KRW2.4 trillion accounts for about 4.5% of the total local tax receipts in the FY 2013 budget, the acquisition tax reduction/exemption can inevitably deal a substantial blow to the local fiscal system (Pai, In Myung, 2014, p241).

Research Design and Methods

This study was conducted to determine the influence of the change in the transaction taxes, such as the acquisition tax, imposed by the central government on the fiscal structure of local governments. Specifically, this study intends to analyze the effect of the change in the policy tool due to the transaction tax exemption on the local fiscal structure.

Therefore, this study reviewed the effect of the transaction tax reduction on the increase/decrease in the local fiscal budget for 17 years, from 1997 to 2013, which was followed by an analysis of its relationship with the local fiscal structure. Specifically, the increasing/decreasing effect of the local fiscal budget at different timings of the transaction tax exemptions was analyzed using the panel regression model. Second, the effect of the transaction tax exemptions on the policy tool that influences the local fiscal structure in accordance with the change in the transaction tax exemptions was reviewed, which was followed by an analysis of its effect on the local fiscal structure at different timings of the tax exemptions using the panel regression model.

Analysis Model

The panel regression model shall be used to analyze the relationship between the changes in the policy tool in accordance with the transaction tax exemptions by the central government and the local fiscal structure.

A brief review of the preceding studies that had estimated the effect of the transaction tax exemptions showed that the study results can be divided mainly into three groups. The first group posits that the acquisition tax rate and the home transaction volume are not interactively related; the second group posits that the acquisition tax rate cut would increase the transaction volume in the short run but would have no significant influence on the home transaction volume in the long run; and the third group, which includes some recent studies that covered a relatively longer period than the past studies, estimates that the acquisition tax rate cuts would influence the home transaction volume.

As such, most of the preceding studies concentrated only on analyzing the relationship between the acquisition tax rate cuts and the home transaction volume, while estimating the impact of such cuts on local tax receipts by changing the analysis method depending on the analysis period, analysis method, or selection of explanatory variables.

However, this study aimed to identify the relationship of the transaction tax with the local fiscal structure by analyzing the impact of the acquisition tax rate cuts on the increase in local tax receipts. The acquisition tax is a tax imposed on the acquisition of rights over real estate and automobiles. Homes account for majority of such transactions[6] that are subject to tax imposition. An acquisition tax rate cut would increase/decrease the home transaction volume, which would in turn increase/decrease the acquisition taxes. It can thus be concluded that acquisition tax rate cuts and the aount of acquisition tax receipts are interrelated.

To sum up, it can be concluded that transaction tax rate cuts influence the increase/decrease in local tax receipts and is related to the local fiscal structure.

For this study, the basic local governing bodies at the municipal, county, and ward levels were selected, and time-series data collected from 1997 to 2013 were considered. To sum up, this study aimed to estimate the effect of the transaction tax exemptions enforced by the central government from 1997 to 2013 on the increase in the local fiscal budget and on the local fiscal structure. In general, such data would take the form of panel data or cross-sectional data. The panel data are composed by consolidating time-series data on a certain phenomenon or the heterogeneity of specific targets (e.g., individuals, households, companies, or nations) along the time axis, and cross-sectional data at a specific time (Min, In Sik and Choi Pil Sun, 2012). Given the many social science researches that track the changes in a certain area or target, social science research is frequently used as a favored research method. Shown below is a linear regression model that considers the heterogeneity of each panel individual.

$y = \alpha + \beta x + u_i + e$.......................... Equation (1)

The two most typical models to which the panel regression model can be applied are the pinning effect model and the stochastic effect model. Whereas the error term u_i in Equation (1) is considered a parameter to be estimated in the pinning effect model, it is considered a random variable in the stochastic effect model.

$y = (\alpha + u_i) + \beta x + e$.......................... Equation (2)

Moreover, whereas u_i $(\alpha + u_i)$ in Equation (2) is the constant term for each panel individual that is considered a fixed parameter in the pinning effect model, it is considered a stochastic effect in the stochastic effect model. Meanwhile, Hausman verification is used to select the more appropriate of the two models. If the result of the Hausman verification performed on the pinning effect and stochastic effect models is statistically significant, the former is selected; but if the result indicates otherwise, the latter is selected. In this study, one of the two models was selected based on the result of the Hausman verification, and the analysis results were statistically interpreted.

Selection of Parameters

This study analyzed the effect of the change in the policy tool in the form of transaction tax exemption on the increase in local tax receipts. Thus, it determined the relationship of the transaction tax with the local fiscal structure. Therefore, the extent of the increase in the local tax receipts (acquisition taxes) and the share of the acquisition taxes were considered dependent variables.

First, the amount of local tax receipts, acquisition tax receipts, and registration tax receipts were each considered variables, and the local tax receipts, acquisition tax receipts, and registration tax receipts were intended to be used as dependent variables via (1) raw data and (2) the data on the changes. Most of the preceding studies performed their respective analyses using the raw data. This is because they mostly measured changes within three to four years at the time of the inflection point when an individual policy was changed, rather than using time-series data. Furthermore, it is believed that even those studies that used multi-year data applied the raw data by concentrating on the visible accuracy of the numerical data rather than on the ambiguous conversion of such data. However, since a price rise or a land price rise would bring about changes in the amount of tax receipts, one-on-one comparison of the land price rise with the time-series data would reveal some unexpected problems. Therefore, in this study, the land price index, along with an application of the numbers in the raw data, was used to convert the amount of local tax receipts, registration tax receipts, and acquisition tax receipts, respectively. This study aimed to measure the effect of the policy tools of the central government by attempting to more accurately analyze the data through analysis of the aforementioned converted data. In addition, the relationship between the transaction tax exemptions and the share of the acquisition tax and registration tax receipts was reviewed to track the changes in the local fiscal structure as a result of the transaction tax exemptions.

Moreover, the change in the transaction tax exemption system enforced by the central government was set as a variable. The timing of the change in the acquisition tax and registration tax rates among the transaction taxes was represented as a dummy variable, thereby indirectly confirming its influence.

Finally, with regard to the amount of the local tax receipts and the acquisition and registration tax receipts, as well as to the share of the acquisition and registration taxes, all of which are dependent variables, those variables that may have an impact on the transaction tax exemption and on the local fiscal structure were set as control variables. As a result, the financial independence ratio, number of public officials, income level, population, and number of elderly people were each considered control variables.

Table 2. Operation definition of the variables

Criterion		Variable name	Variable
Independent variable	Timing of the tax exemption	Base year	1997-1998
		Tax exemption_1	1999
		Tax exemption_2	2000-2004
		Tax exemption_3	2005
		Tax exemption_4	2006-2010
		Tax exemption_5	2011
		Tax exemption_6	2012-2013
Dependent variable	Increase in local tax receipts	LN_Local tax	- Local tax receipts
		LN_Acquisition tax	- Acquisition tax receipts
		LN_Registration tax	- Registration tax receipts
	Local fiscal structure	Share of acquisition taxes	- Share of acquisition taxes
		Share of registration taxes	- Share of registration taxes
Control variable		financial independence	- financial independence rate
		Number of public officials	- Per capita number of public officials
		LN_Income level	- Residence tax
		LN_Population	- Population
		LN_Elderly population	- Elderly population aged over 65

Analysis Results

Policy Effect of Transaction Tax Exemptions on the Increase in Local Tax Receipts

Table 3 shows the result of a panel regression model analysis of the effect of transaction tax exemptions by processing tax exemption timings as nominal variables. FY 1997 and 1999 were converted to the base variable (0), whereas the tax exemption timings of other transaction taxes were processed as dummy variables before the analysis. As in the earlier analysis, the stochastic effect model and the pinning effect model were each applied based on the Hausman verification value, whereas the variables were interpreted on the basis of the explanatory power of each model.

Table 3. Effect of the transaction tax exemptions on the expansion of the local fiscal budget

Criterion	Dependent variable								
	Cities			Counties			Districts		
Independent variable	Ln Local tax	Ln Acquisition tax	Ln Registration tax	Ln Local tax	Ln Acquisition tax	Ln Registration tax	Ln Local tax	Ln Acquisition tax	Ln Registration tax
Tax reduction 1	0.042*	0.051	0.084**	-0.013	0.037	0.063**	0.129***	0.129***	0.213***
Tax reduction 2	0.234***	0.166***	0.262***	0.105***	0.104**	0.174***	0.325***	0.487***	0.492***
Tax reduction 3	0.280***	0.425***	0.230***	0.178***	0.381***	0.222***	0.289***	0.648***	0.387***
Tax reduction 4	0.346***	0.392***	0.195***	0.323***	0.496***	0.391***	0.307***	0.631***	0.326***
Tax reduction 5	0.381***	0.982***	-1.608***	0.357***	1.273***	-1.335***	0.354***	1.286***	-1.351***
Tax reduction 6	0.427***	0.973***	-1.602***	0.356***	1.300***	-1.302***	0.341***	1.228***	-1.335***
Financial independence ratio	-0.003***	-0.003**	-0.001	0.000	-0.004	-0.003	0.000	0.001	0.001
Number of public officials (per capita)	0.000**	0.000	0.000	0.000	0.037***	0.025***	0.038**	0.123***	0.056*
Population over 65 (ln)	0.442***	0.284***	0.411***	0.370***	0.098	0.163**	-0.057	-0.381***	-0.290***
Population (ln)	-0.516***	-0.443***	-0.323***	0.161*	0.453***	0.760***	0.627***	1.240***	0.625***
Income level (ln)	0.133***	0.114***	0.037	0.303***	0.199***	0.152***	0.227***	0.063**	0.119***
Constant	12.462***	11.453***	9.556***	2.375**	0.121	-3.199***	2.121*	-2.927	3.809**
N	1,189	1,189	1,189	1,377	1,377	1,377	1,173	1,173	1,173
N.G.	70	70	70	81	81	81	69	69	69
Within the R^2 group	0.7565	0.7218	0.8399	0.7869	0.7503	0.8829	0.5423	0.5357	0.8516
Between the R^2 groups	0.0098	0.0123	0.0080	0.8158	0.6171	0.6807	0.8133	0.7797	0.8558

Entire R^2 group	0.0977	0.1573	0.2821	0.7858	0.5365	0.7280	0.7524	0.6914	0.6646
F(11) or Ward χ^2	3448.41***	2876.03***	5814.51***	431.48***	351.08***	880.82***	117.71****	114.63***	570.30***
sigma_u	0.919	0.988	0.993	0.358	0.640	0.488	0.415	0.394	0.585
sigma_e	0.173	0.274	0.287	0.179	0.324	0.224	0.191	0.310	0.291
rho	0.966	0.928	0.923	0.801	0.796	0.826	0.825	0.617	0.801
corr (u_i, Xb)	0	0	0	0.4364	0.2445	0.2600	0.5793	0.4137	0.2832
Hausman	1.14 (probability)	2.31 (probability)	2.33 (probability)	70.99*** (fixed)	52.43*** (fixed)	65.24*** (fixed)	183.67*** (fixed)	51.31*** (fixed)	90.13*** (fixed)

*$p < 0.1$; **$p < 0.05$; ***$p < 0.001$

The effect of the transaction tax exemption is as follows. First, the models with an explanatory power above 0.5 include the local taxes and the acquisition taxes of the counties, and the local taxes, acquisition taxes, and registration taxes of the districts.

First, with the exception of the counties, the transaction tax exemption in 1999 (Tax reduction 1) demonstrated a (+) effect in the cities and districts, compared to that in FY 1997/1998. Second, statistical significance and a (+) direction were both confirmed in the cities, counties, and districts in the case of the transaction tax exemption in FY2000-2004 (Tax reduction 2), compared to that in FY1997/1998. Such results suggest that the tax reduction enforced in accordance with the intention of the transaction tax exemption in FY 2000-2004 (Tax reduction 2) reduced the tax rates and activated home transactions, which again increased the amount of the acquisition tax receipts and contributed to the expansion of the local tax revenues. Third, statistical significance and a (+) direction were both confirmed in the cities, counties, and districts, as well in the case of the transaction tax exemption in FY 2005 (Tax reduction 3) and the transaction tax exemption in FY 2006-2010 (Tax reduction 4), compared to that in FY 1997/1998, which suggests that contributed relatively to the growth of the transaction tax receipts and the expansion of the local fiscal budget compared to that in the period before 1999. Fourth, statistical significance and a (+) direction were both confirmed in the cities, counties, and districts for the local taxes and the acquisition taxes, but showed a (-) direction for the registration taxes even after 2011, when the registration tax was abolished. The significance of the tax exemption policy enforced after FY2011 is that the structure of the acquisition tax, which assumed a single tax rate, changed to a multiple-rate structure on the basis of the home price after FY 2011. Moreover, the registration tax was not imposed on those real estate registrations that arose from home acquisition, but only the acquisition tax was imposed due to the integration of acquisition and registration taxes, whereas the registration tax was imposed only on acts of registration that did not arise from home acquisition. Therefore, a (-) effect was observed in the case of the acquisition tax imposed as a result of home acquisition after 2011 (after the integration of the registration tax arising from acquisition), whereas a (-) effect was observed in the case of the registration tax that did not arise from the act of acquisition, which suggest that the transaction tax exemption achieved the intended outcome.

To sum up, the effect of the aforementioned transaction tax exemption can be judged as a variable that contributes to local fiscal expansion when considering the local tax, acquisition tax, and registration tax at the same time. However, it would be necessary to look into how much the transaction tax exemption raised the share of the acquisition tax and the registration tax in the total local fiscal budget considering that the policy tool is aimed at directly increasing the acquisition tax and registration tax receipts. Therefore, the share of the acquisition tax and the registration tax in the local fiscal budget, or how effectively the transaction tax exemption improved the local fiscal structure, is analyzed in the succeeding parts considering such aspect.

Effect of the Transaction Tax Exemption as a Policy Tool on the Local Fiscal Structure

Table 4 shows the results of the panel regression analysis performed to determine the impact of transaction tax exemptions on the local fiscal structure by processing the timings of the transaction tax exemption as nominal variables, respectively. FY 1996/1997 was treated as the base variable (0), and the timings of other transaction tax exemptions were treated as dummy variables of the comparison target for the analysis. As with the results of the aforementioned analysis, a different model was applied to the statistical analysis based on the Hausman verification value, whereas the variable interpretation was attempted based on the explanatory power of the model.

Table 4. Effect of the transaction tax exemption on the local fiscal structure

Criterion	Cities		Counties		Districts	
Independent variable	Share of the acquisition tax	Share of the registration tax	Share of the acquisition tax	Share of the registration tax	Share of the acquisition tax	Share of the registration tax
Tax reduction 1	0.087	0.890	-1.118	-0.410	-2.700	-1.156
Tax reduction 2	-2.359**	0.425	-1.599*	-0.694	2.906*	2.717
Tax reduction 3	2.201	-2.193*	1.914	-1.248	5.867**	0.460
Tax reduction 4	-2.967*	-3.821***	1.312	-0.536	5.717**	0.610
Tax reduction 5	8.572***	-17.423***	17.729***	-11.918***	19.374***	-14.522***
Tax reduction 6	8.069***	-18.388***	15.819***	-11.486***	17.750***	-13.692***
Financial independence	-0.052	-0.014	0.064	0.010	0.045	0.137*

Number of public officials (per capita)	0.000	0.001	0.322**	0.436***	0.264	-0.070
Population over 65 (ln)	-1.660	-1.310	-2.790	-5.527**	-5.203**	-5.034
Population (ln)	-0.850	1.620	5.750**	0.497	8.778***	-10.034
Income level (ln)	1.852***	-0.777	-0.268	-2.376***	-4.101***	-2.531*
Constant	30.134***	21.719**	-24.055	74.793*	-3.311	217.891***
N	1,189	1,189	1,377	1,377	1,173	1,173
N.G.	70	70	81	81	69	69
Within the R^2 group	0.2062	0.5490	0.3449	0.3531	0.0825	0.2698
Between the R^2 groups	0.0128	0.0061	0.0225	0.0288	0.3752	0.3210
Entire R^2 group	0.1692	0.4781	0.2908	0.1420	0.1151	0.0581
F(11) or Ward χ^2	288.57***	1351.78***	676.25***	63.76***	137.69***	36.71***
sigma_u	4.104	3.297	3.857	6.522	2.284	11.597
sigma_e	8.857	6.420	8.445	7.832	14.268	14.105
Rho	0.177	0.209	0.173	0.409	0.025	0.403
corr(u_i, Xb)	0	0	0	-0.6130	0	-0.6500
Hausman	7.24 (probability)	3.99 (probability)	14.4 (probability)	17.33* (fixed)	9.14 (probability)	43720.25*** (fixed)

*: p < 0.1; **: p < 0.05; ***: p < 0.001

First, the effect of the transaction tax exemption on the local fiscal structure is explained as follows. First, the transaction tax exemption in 1999 (Tax reduction 1) was not confirmed as statistically significant compared to that in FY 1997/1998, but the (+) direction was confirmed in the cities, and the (-) direction, in the counties and districts, which suggest that the transaction tax exemption lowered the shares of the acquisition tax and the registration tax in the counties and districts. Second, the transaction tax exemption in 2000-2004 (Tax reduction 2) showed statistical significance and a (-) direction in terms of the share of the acquisition tax in the cities and counties, but the share of the acquisition tax showed statistical significance and a (-) direction in the districts. To sum up, it can be concluded that the transaction tax exemption lowered the share of the acquisition tax in the cities and counties, and raised the share of the acquisition tax in the districts. Third, the statistical significance of the transaction tax exemption in 2005 (Tax reduction 3) was not confirmed in the cities, unlike in FY 1997/1998, but the share of the acquisition tax had a (+)

direction, and the share of the registration tax, a (-) direction, in the cities and counties. Fourth, the transactional tax exemption in 2006-2010 (Tax reduction 4) showed statistical significance and a (-) direction in terms of the shares of the acquisition tax and the registration tax in the cities, and its statistical significance and (+) direction were confirmed in the case of the acquisition tax in the districts. To sum up, it can be concluded that the transaction tax exemption lowered the share of the acquisition/registration tax in the cities, and raised the share of the acquisition tax in the districts. Fifth, since 2011, when the acquisition and registration taxes associated with homes were integrated into the acquisition tax, the transaction tax exemption had a positive effect on the local fiscal structure across the cities, counties, and districts when it was initiated by acquisition. Specifically, statistical significance and a (+) direction were confirmed in the share of all the acquisition taxes. The tax exemption policies enforced after 2011 had an improved effect on the local fiscal structure compared to previous tax exemption policies, because the acquisition tax structure, which had been a single tax rate, was changed to the multiple-rate system based on home prices.

Conclusions and Implications

The primary function of government taxes is to collect fiscal revenues. However, government taxes have frequently been appropriated as a means of accomplishing the policy goals of many nations. In particular, the transaction tax has been used as a favored policy tool of the central government, with diverse amendments of the policy tool pushed in an attempt to stimulate the housing market, thereby lowering the burden of local taxes. However, some contrasting views have been expressed about the eventual effect of the transaction tax burdens on the local fiscal structure, with regard to the relationship between the transaction volume and the increase in the transaction tax receipts in the housing market.

The review of the analysis results proved the following. First, the government's transaction tax exemption policy effectively influenced the expansion of the local fiscal budget, in contrast to the results of many preceding researches that had concluded that the tax exemption would not contribute to the expansion of the local fiscal budget because the tax exemption would reduce tax receipts. However, the effectiveness of the acquisition tax exemption was confirmed in some recent studies that tracked a relatively long grace period, such as the discussion by Chae, Eun Dong (2015), compared to the previous studies that tracked only a short period (Korea Housing Institute, 2013). To sum up, transaction tax exemptions such as acquisition tax exemptions would not contribute to the expansion of the local fiscal budget in the short run, but may do so in the long run. Such discrepancy may stem from the varying length of the periods covered by the relevant studies. Majority of the studies compared the data within a specific period before and after the timing of the tax reduction or analyzed only the data within a less than 10-year analysis period. The sharp contrast between the result of this study and the existing viewpoints may be because this study tracked data over about 17 years. Of course, the fact that such result is hard to find and is different from the result of other empirical studies warrants further studies on this topic.

Second, the review of the effect of the transaction tax exemption policy by the central government on the local fiscal structure confirmed that its impact on the local fiscal structure may vary depending on the timing of such tax exemption. There were some differences in such impact before 2011 that depended on the extent of the statistical significance, but the transaction tax exemption was confirmed to have negatively influenced the local fiscal structure depending on the timing of the tax exemption. However, it was proven that the tax exemption policy enforced by the central government started to positively influence the local fiscal structure after 2011, when the acquisition/registration taxes were consolidated into the acquisition tax, and when the acquisition tax rate, which had been a single-rate system, was converted to the multiple-stages tax rate system on the basis of the housing price.

Third, the overall local fiscal structure as a result of the transaction tax exemption by the central government was confirmed to have been influenced more by the fiscal capability of the local government than by the income level of the local residents.

In conclusion, the stimulation of real estate transactions using tax tools may positively influence the overall fiscal structure of local governments, but it would also put pressure on the fiscal management of local governments because it is largely influenced by the fiscal capability of the local governments.

After comprehensively considering such issues, the following insights can be deduced. First, most studies on the effectiveness of transaction tax exemptions focused on whether or not the acquisition tax rate cuts would expand local tax receipts, while pushing for the reduction or abolition of the acquisition taxes based on such observation. However, such differences in the results might have stemmed from the different perspective on the aforementioned effectiveness. Those studies that had a positive viewpoint that the acquisition tax exemption would influence the home transaction volume, which in turn would expand local tax receipts, tended to focus on the short-term outcome or on the expansion of tax receipts. On the contrary, it can be concluded that those studies that had a negative viewpoint tended to focus on the policy goals according to the relationship between the policy tools and the local fiscal structure. Therefore, it is necessary to comprehensively review in advance the effectiveness of taxation as a policy tool in terms of its influence on the local fiscal structure, by activating real estate transactions and then by expanding the local fiscal budget.

Second, the preceding studies only reviewed the relationship between the acquisition tax rate cuts and the home transaction volume in measuring the effectiveness of the transaction tax exemption, while estimating the influence on the local tax receipts by simply changing the analysis method depending on the analysis period, analysis method, or explanatory variable. However, the growth of the home transaction volume may increase the amount of acquisition tax receipts, but many incidences of small trade and many instances of big trade may result in contrasting outcomes. Moreover, short-term tax exemptions alone may have limitations in changing the real estate market and the local fiscal structure, because the imposition of transaction taxes on homes is closely linked with macro-economic variables such as the land price, which influences housing prices, and the land price fluctuation rate. Therefore, it is necessary to review some macro-economic variables such as the consumer price index and the trade volume, as well as the influence of diverse other variables, such as the land price, which influences home prices, the land price fluctuation rate, the size of the taxation target, the analysis period, and the analysis method, on the local fiscal structure.

Notes

[1]. Shares of the acquisition taxes in the local tax receipts: Seoul, 25.6%; other metropolitan cities, 34.1%; and provinces, 53.3% (as of 2012)

2. As 30% (collection grants, 3% and fiscal compensation grants, 27%) of the provincial tax receipts (50% in provinces with a population of over 500,000) is being paid back as subsidies to the municipal and county governments, the issues of acquisition taxes and registration taxes are directly linked to the fiscal health of the municipal and county governments.

[3]. The acquisition tax and registration tax were unified into the acquisition tax with the amendment of the Local Tax Law in 2011.

[4]. According to the results of the study of Bahl and Linn (1991), Benjamin et. al (1993), and Ji, Dae Sig and Choe, Su (2003), transaction tax exemption simulates home transactions because such measure would raise the property value of homes (Park, Sang Soo and Lim, Min Yeong, 2012, p73). The study of the Korea Housing Institute (2013) and the Korea Institute of Public Finance (2013) also demonstrated that a tax rate cut would not only increase the transaction volume in the short term but also influence the transaction trend in the long term (Chae, Eun Dong and Tae, Jeong Lim, 2015, p9-10).

[5]. According to Park, Sang Soo and Lim, Min Yeong (2012), the slump in home transactions persisted despite the series of policy measures taken to reduce acquisition taxes since September 2006. Moreover, no meaningful increase in the volume of home transactions was observed even after the limited acquisition tax exemption until the end of 2011 in the wake of the enforcement of the March 22 Measure in 2011. Moreover, the study of Ha, Neung Sik (2013) showed that the average quarterly transaction volume since the enforcement of the acquisition tax reduction policy dropped from the period before the enforcement, contrary to the expectation, which demonstrated that the acquisition tax exemption did not meaningfully influence the real estate boom-bust cycle. Han, Jae Myung and Yoo, Tae Hyun (2011) also concluded that the series of reductions of real estate transaction taxes in 2005 and 2006 failed to stimulate real estate transactions either nationwide or in Seoul, the Seoul-Gangnam area, or anywhere else.

[6]. Shares of the targets of acquisition taxes as of 2010: lands, 23.4%; buildings, 21.0%; homes, 40.1%; vehicles, 11.5%; and others, 4.0%

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