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Bangkok Metropolitan Region and Post-Reform Implications

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# **An Assessment of Pre-Reform Property Tax Revenue in Bangkok Metropolitan Region and Post-Reform Implications<sup>1</sup>**

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## **ABSTRACT**

Property tax, formerly based on Building and Land Tax Act, BE 2475 (AD 1932) and Land Development Tax Act, BE 2508 (AD 1965), is an important source of local government revenue collected by the Bangkok Metropolitan Administration (BMA). This research article employs Ordinary Least Square (OLS) to identify the significant factors determining the property tax revenue in 50 districts under the BMA during 2005-2014. The finding implies that by assigning the assessed land value as tax base under the former tax administration, the revenue does not sufficiently reflect the land market value and utilizations. In 2018, the post-reform property tax act is expected to replace the former acts with an expectation that the existing setbacks alleviated. The issue of wealth redistribution certainly requires further exploration after several years of implementation. In addition to conventional tax ideologies, the issue of tax administration in the local government and country-specific contexts also needs careful practical consideration.

**Keywords:** Taxes, Property Tax, Local Tax Revenue, Bangkok Metropolitan

**JEL Classification:** H21, H71, H72

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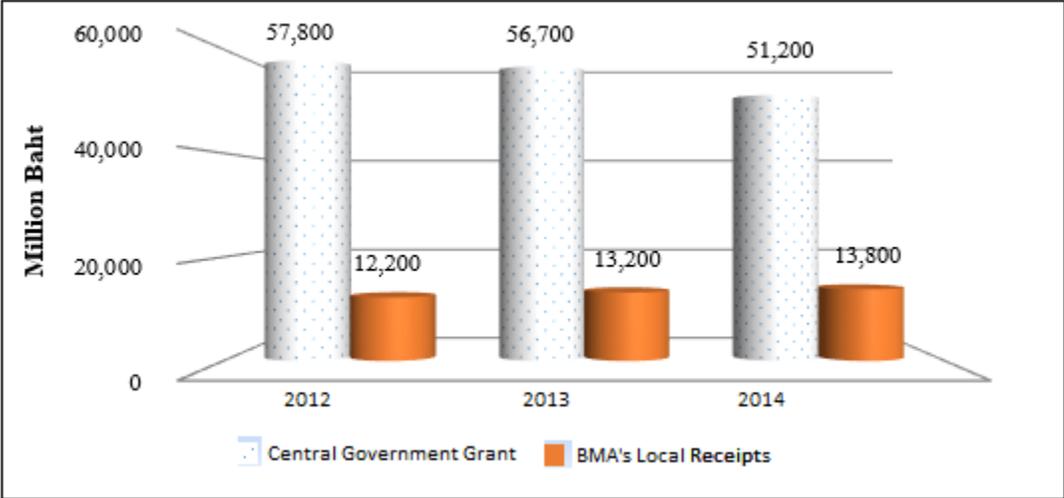
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**1. Introduction and Background**

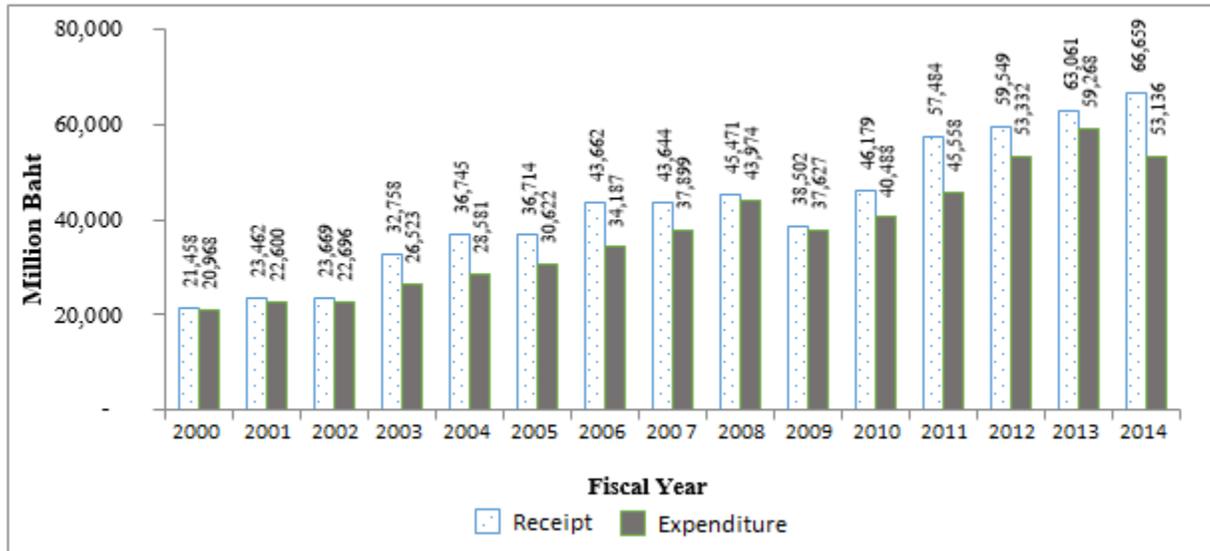
Bangkok, as a capital city of Thailand, has a population of over 6 million people according to the Bureau of Registration Administration, Ministry of Interior. Bangkok Metropolitan Administration (BMA) is a local government organized in accordance with the Bangkok Metropolitan Administration Act, BE 2528 (AD 1985), being responsible for the management of the Bangkok Metropolitan Region. It is the sole organization at the local authority level responsible for the well-being of Bangkok residents, receiving some financial support from the central government. The sources of revenue for BMA comprises of the central government grants and its own tax revenues such as building and land taxes (formerly, based on the Building and Land Tax Act, BE 2475 (AD 1932)), local development taxes (formerly, Land Development Tax Act, BE 2508 (AD1965)), signboard taxes, fees and charges. Among these sources of receipts, the central government grant has the highest proportion (see Figure 1). However, due to the reduction of the central government grant every year along with the increase in the budget spending (see Figure 2), it is necessary for the BMA to increase tax collection efficiency to attain local budget sustainability. Figures 3 and 4 show that property tax revenue comprises the largest part of BMA’s self-collected revenue.

Figure 1. Receipts of BMA, Fiscal Years 2012-2014



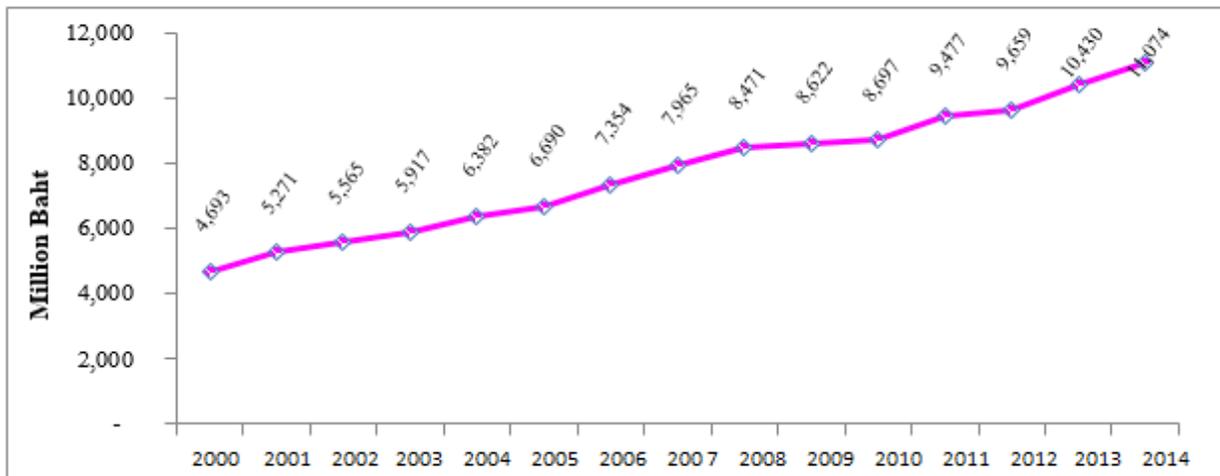
Source: Finance Department, Bangkok Metropolitan Administration.

Figure 2. Receipt and Expenditure of BMA, Fiscal Years 2000-2014



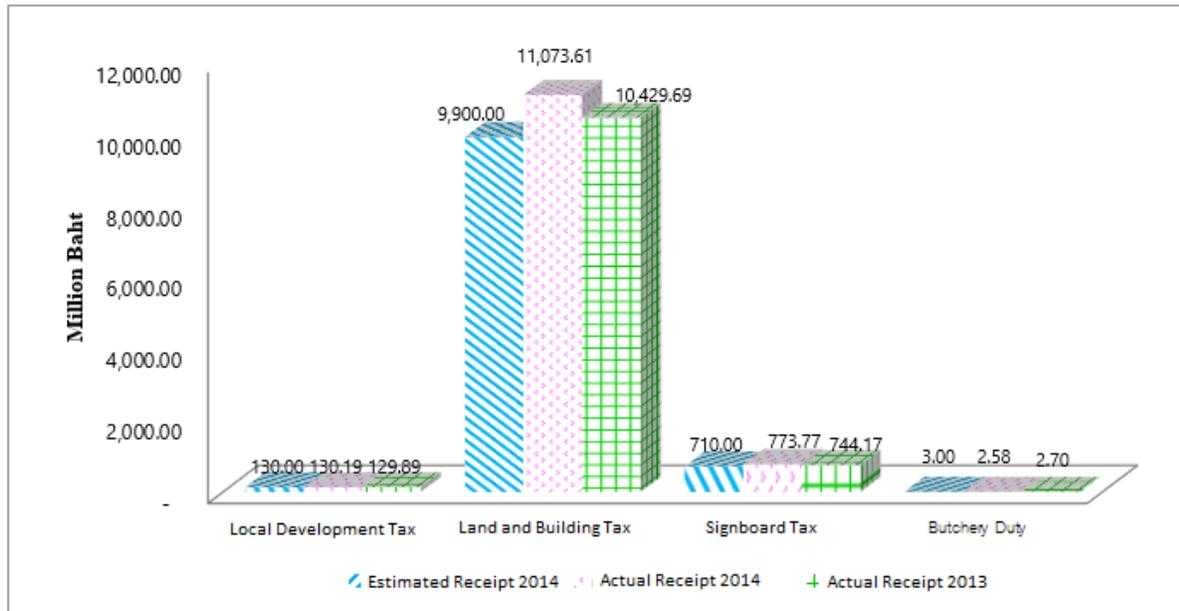
Source: Finance Department, Bangkok Metropolitan Administration.

Figure 3. Property Tax Revenue collected by BMA, Fiscal Years 2000-2014



Source: Finance Department, Bangkok Metropolitan Administration.

Figure 4. Composition of BMA’s Local Tax Revenue, Fiscal Year 2014



Source: Finance Department, Bangkok Metropolitan Administration.

Traditionally, there have been no general property taxes (that is, capital tax on property imposed by the government) in Thailand. Instead, real properties, that are used commercially (residential houses not owner-occupied and commercial buildings) are subject to tax levy under the Building and Land Tax Act. Real property owners must pay a “rental” tax at a rate of 12.5% of the annual rental value or the annual assessed rental value, whichever is higher. The annual assessed rental value is based on a calculation method over the appraised value of the property. Moreover, there can be a small additional tax payment on non-rental property for undeveloped land (local development tax) imposed upon the person who either owns or is in possession of the land without a building. In practice, the rates depend on the assessed value at the discretion of the officers.

According to the general tax principles, the ideal characteristics of tax revenue collection by the local government should consider the following issues: revenue adequacy and flexibility, equity, administrative capability and feasibility, and economic efficiency. Economic factors, particularly income (and wealth), as well as political and social factors must also be taken into consideration in the tax designs (Musgrave, 1969). Through the Capacity Approach, Krueathep (2014) determines the tax-collection capability of the Thai local administration, considering

various weighted social and economic indicators in the community to determine the capacity to collect tax revenue. The results vary across different municipalities (Thesaban). In various provinces, the local population still lack proper understanding of the country's decentralization act (Simuang, 2008). Furthermore, the personnel in the local government remain unequipped with necessary tools for tax collection and administration. On the other hand, Kaewlaw (2007) suggests the solutions for tax enforcement to increase the revenue in the perspective of the legislative act. Most studies reveal that factors such as provincial domestic production and local income tend to be positively correlated with tax-paying capacity of the population and, thus, the tax revenue collection (Niamklang, 1998; Pipitkun, 2007).

Up to date, there had yet been a comprehensive study focusing on Bangkok Metropolitan Region. This research studies the structure of the property tax and the factors influencing the property tax revenue in 50 districts of Bangkok Metropolitan during 2005 – 2014. An assessment of the encountered setbacks can provide important policy implications for an improvement of the tax administration after the recent property tax reform in Thailand. Moreover, by identifying the significant factors that affect the tax revenue can increase tax efficiency and systematically improve the forecast of the property tax revenue in the future.

## **2. Data and Model Formulation**

This study employs secondary data including land and building tax revenue collected, the number of taxpayers and the number business entities (services, movie theatres, outdoor markets and department stores) in 50 districts of Bangkok Metropolitan Region during the fiscal years 2005 – 2014 from Revenue Division, Finance Department, BMA. High buildings and dormitories are not included because there were only two years record, 2005 and 2011, available in the official statistics. The assessed value of land is obtained from the Treasury Department for the three periods: 2004-2007, 2008-2011 and 2012-2015. The regression analysis employs Ordinary Least Square (OLS) method using STATA. The study hypothesizes that the factors that affect the land and building tax revenue of BMA includes the number of business entities ( $X_{it}$ ), the number of taxpayers ( $P_{it}$ ) and the assessed land price ( $Y_{it}$ ).

Since, the assessed value of land in Bangkok Metropolitan is based on the road and in each district, the land value varies significantly. Therefore, the research employs the average

assessed price in each district to reflect the actual trend by using the assessed value in 2004-2007 as base year. From then, the rate of change of the market value obtained from the Research and Real Estate Assessment Centre, Agency for Real Estate Affairs Co. Ltd. is used to estimate the value of land each year. The rate of change in the price of land is shown in Table 1. To cross-check whether this is consistent with the assessed value from the Treasury Department, the study compares the assessed value during the two periods, ie., 2008 and 2012 as shown in Table 2. The results do not vary significantly. Hence, it is acceptable to employ such data and method.

Table 1. The rate of change in the land price, 2005-2014

Year	The rate of change of market land value
2005	5.7
2006	5.3
2007	4.7
2008	3.4
2009	2.9
2010	4.4
2011	4.0
2012	3.7
2013	4.6
2014	3.5

Source: Research and Real Estate Assessment Centre, Agency for Real Estate Affairs Co. Ltd. (2014)

Table 2. Comparison of the average assessed land value and the estimated assessed land value in 2008 and 2012 (Baht per square wah, equivalent to 4 square meters)

District	Comparison in 2008		Comparison in 2012	
	Average assessed land value*	Estimated assessed land value**	Average assessed land value	Estimated assessed land value
Don Muang	64,409	56,633	63,625	63,273
Thonburi	91,636	91,577	119,548	102,314
Nong Chok	11,100	12,532	13,529	14,001
Phra Kanong	200,000	201,830	260,000	225,494
Bangkapi	67,125	74,105	83,344	82,793

Remark: \*Average assessed land value obtained from the Treasury Department

\*\*Estimated assessed land price by authors' estimation

The model considers the elasticity of the revenue in response to these variables in each year. Natural logarithm is asserted into the linear relationship shown in equation (1).

$$\ln(\text{Tax}_{it}) = b_0 + b_1 \ln(X_{it}) + b_2 \ln(Y_{it}) + b_3 \ln(T_{it}) + b_4 D_{it} + b_5 \ln(P_{it}) \quad (1)$$

where

$\text{Tax}_{it}$	=	Tax revenue collected in year $t$ (Baht per year)
$X_{it}$	=	Number of business entities operated in district $i$ in year $t$ (movie theatres, recreation center, markets owned by public and private, department stores)
$Y_{it}$	=	Land price in district $i$ in year $t$ (Baht per year)
$T_{it}$	=	Tax effort in district $i$ in year $t$
$P_{it}$	=	Number of tax payers in district $i$ in year $t$
$D_{it}$	=	Dummy variable 1 for district located in commercial zone and 0 for district located in non-commercial zones in year $t$

Tax effort is expressed in equation (2).

$$T_{it} = \frac{A_{it} - E_{it}}{E_{it}} \quad (2)$$

Where:

$A_{it}$	=	Actual land and building tax revenue collected in district $i$ in year $t$
$E_{it}$	=	Estimated land and building tax revenue in district $i$ in year $t$
$T > 0$		implies that BMA's tax effort is higher than the estimation
$T < 0$		implies that BMA's tax effort is lower than the estimation

### 3. Research Findings

Table 3 displays the correlation among the variables. The number of business entities ( $X_{it}$ ), and the assessed value of land ( $Y_{it}$ ) are positively correlated. Both are positively correlated to the tax revenue ( $\text{Tax}_{it}$ ) at a 95% confidence interval.

Table 3. Correlation among the variables

Variable	Property Tax Revenue (Million Baht)	Number of Business Entities	Assessed Land Value (Thousand Baht)	Tax Effort	Number of Tax Payers
Property Tax Revenue (Million Baht)	1				
Number of Business Entities	0.5530*	1			
Assessed Land Value (Thousand Baht)	0.5298*	0.17437*	1		
Tax Effort	-0.0368	-0.0463	-0.0249	1	
Number of Tax Payers	0.0737	0.0321	0.0109	0.0717	1

\* Significant at 95% Confidence Interval

Source: Authors' estimation

Table 4. Descriptive Statistics

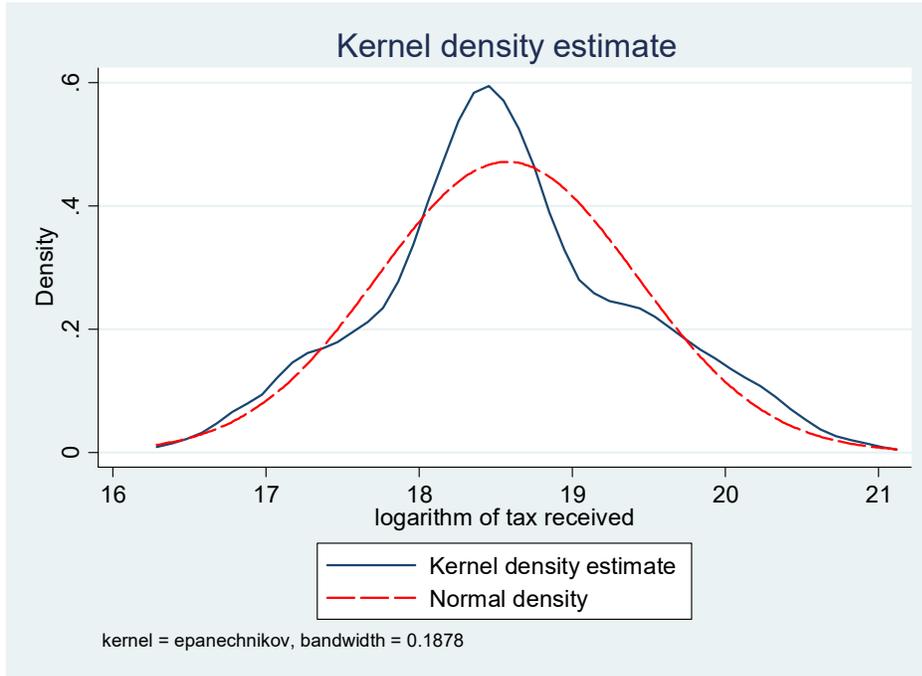
Variable	Mean	Std. Dev.	Min	Max
Property Tax Revenue (Million Baht)	168.64	169.31	14.26	1,225.51
Number of Business Entities	23	33	0	238
Assessed Land Value (Thousand Baht)	116.43	87.58	10.40	477.59
Tax Effort	4.22	11.54	-67.10	116.24
Number of Tax Payers	3,278	2,847	247	21,748

Source: Authors' estimation

Table 4 displays the descriptive statistics. On average, each district collected tax revenue of 168.64 million Baht. In 2014, the district with the lowest revenue was Talingchan whose property tax revenue was 14.26 million Baht. The district that collected the highest tax revenue was Pathumwan, the tax revenue was 1,225.51 million Baht. On average, there were 23 business entities in each district. The average assessed land value was 120 Baht per square wah. Average tax effort rate was 4.22%. The average number of taxpayers in each district was approximately 3,278 people.

Referring to Figure 5, converting the natural logarithmic value of tax revenue into Kernel density estimation, it can be observed that the distribution is close to that of the normal distribution. Therefore, it is possible to assume that residuals are also normally distributed.

Figure 5. Kernel Density Estimation of natural log of Tax revenue in BMA, 2005-2014



Source: Authors' estimation

The result of regression analysis is expressed in equation (3).

$$\begin{aligned}
 \ln(\text{Tax}_{it}) = & 13.91 + 0.346 \ln(X_{it}) + 0.149 \ln(Y_{it}) + 0.0503 \ln(T_{it}) \\
 & (21.41)^{***} \quad (10.89)^{**} \quad (3.11)^{**} \quad (2.02)^* \\
 & + 0.220 \ln(P_{it}) + 0.858 D_{it} \\
 & (4.40)^{***} \quad (11.08)^{***}
 \end{aligned} \tag{3}$$

$R^2 = 0.7106$       Adjusted  $R^2 = 0.706$       S.E. = 0.4544

F = 148.33      Prob F-Statistic = 0.0000

Note: Values in the brackets are t-statistics

\* Significant at 90% confidence interval.

\*\* Significant at 95% confidence interval

\*\*\* Significant at 99% confidence interval

The independent variables that are significant include the land price, the number of business entities, district's tax effort, the number of taxpayers and the dummy variable representing commercial areas. The model can explain approximately 71% of the variability of the response data around its mean. The finding suggests that districts that are commercial zones

yield higher property tax revenue while tax effort has the least impact. This is in line with the study's expectation as high rental price yields high tax revenue while tax effort is calculated relatively to the estimation based on the past trend. Consequently, the elasticity of tax revenue to the number of business entities has the value of 0.346. In other words, as the number of business entities increase by 1%, the tax revenue collected increases by 0.346%. Correspondingly, the elasticities of tax revenue to the assessed land price, tax effort, the number of taxpayers and dummy variable (commercial zones) have the values of 0.149, 0.0503, 0.22 and 0.86, respectively.

#### **4. Conclusions and Policy Implications**

The study employs Ordinary Least Square (OLS) to determine the major factors influencing the local government's property tax revenue. The dependent variables include assessed land price, the number of business entities, tax efforts and the number of tax payers in the 50 districts of Bangkok Metropolitan during 2005-2014. Statistical tests show that these factors are significant. The model can explain approximately 71 of the variability of the response data around its mean. The finding suggests that districts with higher number of registered business entities yield higher property tax revenue while tax effort has the least impact. The structure of the existing local tax system and administration needs consideration. Given this setting, the district's tax revenue depends quantitatively on the registration of the business entities, while overlooking the utilization of land.

In the past, the major property taxes in Thailand was based on the Building and Land Tax Act, BE 2475 (AD 1932) and Land Development Tax Act, BE 2508 (AD 1965). There were some setbacks associated with the previous land tax acts. Among the important issues to note from the finding is that the former tax revenue does not sufficiently reflect the market value of the land since tax is levied on the assessed value. The assessed value has been based on the land price in 1981. Technically, a tax base as such can be considered regressive. Moreover, there were many exemptions and whether to be exempted or not is subject to the discretion of the officers. Laovakul and Phijaisanit (2008) and Laovakul (2016) explores the ways in which the proposed new Land and Building Tax Act could increase local government revenue and reduce wealth inequality in Thailand while rationalizing the current system of land taxes. Through a

simulated analysis comparing the current system with the new proposed system, Laovakul (2016) finds that the new act would impose a more reasonable tax rate with the tax base based on the more up-to-date land values, replacing the values calculated in 1981 of the former act. The property tax reform seeks to levy taxes on nationwide property and land according to their utilization. Under the new law, which will be enforced by local governments nationwide in 2018, a first home valued below at 50 million Thai Baht will be exempted from tax, while a maximum of 0.5% rate will be applied to a second home or first home appraised above 50 million Thai Baht. A maximum 0.2% rate will be levied on agricultural land and 2% on commercial and industrial land. Vacant land will be taxed at 5% after the first 3 years of vacancy and at 10% after the next 3 years. As the post-reform property tax act will soon replace the former acts, the issue of wealth inequality remains to be explored after several years of implementation. More importantly, tax administration in the local context, in addition to tax ideologies, also needs careful consideration in practice.

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