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THE UNINTENDED CONSEQUENCES OF TAX EXEMPTION POLICY ON LAND AND BUILDING TAX

Elfrida Hutapea[1], Yohanna M. Lidya Gultom[2]
Universitas Indonesia, Indonesia[1,2]
Email: elfridahut@gmail.com[1], yohanna.magdalena@ui.ac.id[2]

ABSTRACT

This study aims to examine the unintended consequences of tax exemption policy on Land and Building Tax (PBB) for Sales Value of Tax Objects (NJOP) on properties under Rp 1 billion. Using Ordinary Least Square (OLS), this study analyzes data from PBB and BPHTB (Land and Building Rights Acquisition Fees) on the land and building's certifications as well as the sales and property transactions, during the period of 2012 to 2019 in 267 sub-district areas within DKI Jakarta. This study learnt that the greater the number of the tax entities that received tax exemption in one sub-district, the greater the number of certifications as well as transactions (sales and purchases of property) under Rp 1 billion. This was consistently found within the sub-districts that were included in the non-flood-prone category, but not within the flood-prone sub-districts where the correlation was only significant for the certifications.

KEYWORDS *Tax Exemption, Certification, Property Transaction, Tax, Property Ownwership*

INTRODUCTION

Some literature maintained that property taxes have a regressive tendency, given the negative correlation between taxes charged and the payability from the property owners (Benson & Schwartz, 1997); (Bowman et al., 2009); (Payton, 2006); (Siniavskaia, 2007); (Ariana, 2010). Property tax deduction is reasonable due to its unrelatedness to cash availability (Youngman, 2007). Several studies on property tax relief or exemption have previously been carried out to evaluate the characteristics, procedures, and effects of exemptions on income (Zee & Parthasarathi, 1995); (Fisher, 2009); (Hidayah, 2019); (Thuronyi, 2000); (Youngman, 2007). Mainly, the exemption of land and property tax (PBB) is a form of taxation service that is generally carried out by the government (tax authorities) for the even distribution of collections, as well as to create convenience for tax

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collection administrations (Ekonomi & Masyarakat, 2010). Therefore, property tax reductions or exemptions were often given to provide relief for taxpayers, especially for low-income people.

This study attempts to discuss the hypothesis that PBB exemption does not reduce tariffs but only increases the value of assets, thus making it profitable to sell. The fundamental question to be answered by this research is how relevant the PBB exemption policy is for the community, which can be seen by examining whether there are unintended consequences for the policy on certification and property transactions within the DKI Jakarta province. PBB can be an instrument in the distribution of ownership of land rights, especially for low-income communities (Bahl, 1992). Asset legalization or certification provides legal protection and adds property value, it also provides public access to financial institutions, as well as improves the welfare of the land-owners and the community (Mardiana et al., 2016); (Galiani & Schargrodsky, 2010).

Table 1. Comparison of Regional Tax Revenue and Targets (APBD-P)

Year	Target	Revenue	Revenue to Target Ratio	Revenue Increase Ratio
1	2	3	4 = 3 : 2	5
2013	3,600,000,000,000	3,375,953,095,983	93.776%	-
2014	6,500,000,000,000	5,657,137,706,215	87.033%	167.572%
2015	7,100,000,000,000	6,807,840,609,166	95.885%	120.341%
2016	7,100,000,000,000	7,010,144,176,545	98.734%	102.972%
2017	7,700,000,000,000	7,606.651.990.073	98.788%	108509%
2018	8,500,000,000,000	8,894,348,593,874	104.639%	116.929%

Source: BPKD DKI Jakarta Province (2019)

In property sales and purchases transactions, a higher value would be given to the certified property. Yet, the amount of property tax limits set by the government has often been debated, which is because property taxes are inconvenient, especially for homeowners with average incomes. Nonetheless, high property taxes for private housing in the metropolitan areas are reciprocal with the high demands for local public services as well as the high selling value (Siniavskaia, 2007), hence, why a property tax increase is inevitable in DKI Jakarta. The data confirm that the increase in land and property tax (PBB) has made a significant contribution to DKI Jakarta's tax revenues compared to other local tax targets. This is presented in Table 1.

The effectiveness of a policy can be seen through the comparison of different areas; in this study, it is between the control group and the treatment group. Furthermore, since the economic value of land is determined by physical factors, such as environmental conditions, layout, and location (Wolcott, 1987), this study also tries to determine the different effects on the treatment area as compared to the control area. The treatment group in this study is the flood-prone areas, and the control group is the non-flood-prone areas. By the data from the Regional Disaster Management Agency (BPBD) of the DKI Jakarta Province, the flood-prone areas category is selected due to the regularities of flood disasters during the rainy season in DKI Jakarta, where forty percent of the DKI Jakarta area is located in the lowlands with an average altitude below sea level (Harsoyo, 2013); (Yuhanafia & Andreas, 2017); (Dahlia et al., 2018).

Hitherto, there has been no study that examines the relevance of the PBB exemption policy on certification and property transactions worth under 1 billion

rupiah in DKI Jakarta. This study will conduct the analysis using the Ordinary Least Square (OLS) approach to see the unintended consequences of the PBB exemption policy on certification and property transactions worth under 1 billion rupiah in DKI Jakarta. This study uses PBB and BPHTB data for tax objects with NJOP below 1 billion rupiah in 267 urban sub-district areas in DKI Jakarta Province from 2012 to 2019. The BPHTB tax object data source is based on the certification registration and property transactions.

The results of this study provide several important implications, both in terms of policy and socio-economic impact. In terms of policy, the finding that the Land and Building Tax (PBB) exemption policy for tax objects with a Tax Object Selling Value (NJOP) below Rp 1 billion has unexpected consequences in increasing the number of land certifications and property transactions shows that the policy has succeeded in encouraging the legality of community assets, especially for low-income groups. This increase in the number of land certifications also has implications for increasing asset values and people's access to financial institutions, which can ultimately improve overall social welfare.

Literature Review

Rights and Taxes on Land and Property

In general, there are two views regarding land and property rights. First, land as an economic commodity and land ownership rights are indicators of economic potential. Hence, landowners can gain access to credit by making land certificates as collateral or guarantee. Secondly, land is a human rights instrument or tool. Since land and property are basic housing needs, this reduces poverty. Therefore, there are also two assessment bases for tax purposes: a market value approach for land as an economic commodity and a property attributes assessment for land as a human rights instrument (e.g., regarding the area and location).

The land value tax in Indonesia was initially introduced by Thomas S. Raffles in 1811 and was maintained until the end of the Dutch East Indies government in 1942. In general, the regulation of land tax was adjusted to the local economic and political conditions to be effective and efficient. The main study on land taxes during the colonial period in Indonesia was Hugenholtz's dissertation at the University of Leiden, Netherlands, in 2008. Other works on land taxes were carried out by (Fokkens 1914); (Bastin, 1954); (Fasseur, 2018), and (Elson, 1994). It is argued that land tax is the most significant tax among other taxes, considering land is one of the factors of production and must be paid by farmers in all areas of the kingdom. Nevertheless, Adam Smith maintained in *The Wealth of Nations* that the land value tax does not cause harm to economic activities.

Taxes are not only imposed on land ownership but also property ownership. This policy instrument is one of the oldest ways of obtaining main income for both central and local governments (Hy & Waugh, 1995); (Permana, 2011). Property with ownership rights will give a certain interest or several interests to the owner (Permana, 2011). Property tax is based on the value of the property in question, which is commonly known as the *advalorem* principle.

In general, the imposition of tax on property is based on the benefit principle and the payability principle. In the benefit principle, the basic assumption is that the state protects every property belonging to the public. Facilities and infrastructure built by the government, such as roads, bridges, water, and electricity facilities, will significantly increase the value of private or community-owned property. With the

existence of these public services, it is natural that the taxation is higher than in other regions that do not receive the same public facilities. At the same time, the payability principle considers social control factors as the basis for imposing property taxes. Thus, inequality of wealth distribution and consumption in society can be somewhat reduced by the application of progressive rates on property taxes.

Moreover, (Youngman, 2007) as quoted by (Thuronyi, 2000), explained the reasons for the imposition of property taxes as incentives for efficient land use, as a tax base that cannot be withdrawn from production, and as a source of revenue for local governments. Although the benefits from property tax cannot be enjoyed directly, the property tax can be used by the governments to make improvements on public services, which in turn will also increase the value of property owned by taxpayers (Bird & Slack, 2004). A study in Colombia showed that there is a reciprocal effect of property tax revenues on the ratio and the poverty gap, the findings thus suggested the need to strengthen the local revenue system through policy design to increase the local income (Ramirez et al., 2017).

Regarding tax facilities, they are instruments to provide convenience for certain taxpayers, in which the implementation is regulated by certain applicable tax regulations. Tax facilities are prepared to prevent taxes from becoming an obstacle to economic growth. (Ekonomi & Masyarakat, 2010) states that the provision of tax facilities is generally carried out by the government (tax authorities) to achieve specific goals, such as attracting investors, promoting exports so that the trade balance deficit can be overcome, and providing protections for certain high-priority industries with strategic values. Likewise, tax facilities can also provide impetus for economic growth in remote areas, such as those in eastern Indonesia, for equitable distribution of collections, as well as improving the tax collection administration.

Nonetheless, (Heller & Kauffman, 1963) argued that there are also tax facilities consequences. In addition to the benefits obtained, there are also costs of tax incentives due to its implementation. For example, the party who does not get the facility will pay a higher tax than the one who gets the facility, assuming for the same economic capacity and income, this will become a burden. Thus, in principle, although the application of incentives in taxation can result in income generation, this will not be without some sacrifices to justice within the existing tax system.

Yucelik, in (Thuronyi, 2000), states that most property tax systems exempt taxes from property owned by the government, local governments, charities, religious institutions, and embassies. Whilst special treatment is usually aimed at reducing the cost of property used for public investment, such as irrigation systems, new roads, or urban improvement projects (Zee & Parthasarathi, 1995). In regards to the property tax limitation, (Youngman, 2007) remarked that the limitation or exemption of property tax liability is reasonable due to first, the rental rates' volatile increase; second, it is "very real" or not hidden like other kind of taxes; and thirdly, it does not relate to cash availability.

Tax Exemption on Land and Property Tax in DKI Jakarta

In line with the government's efforts to carry out reforms in the taxation sector that emphasize the principles of justice, equity, and economic growth, the DKI Jakarta government provides a policy of tax exemptions for tax objects with NJOP (sales value of taxable object) of up to 1 billion rupiah. This includes houses that are privately owned and used for residential houses, as well as the low-cost

apartment flats (*Rusunami* and *Rusunawa*), either privately owned or rented from the government with NJOP of up to 1 billion rupiah. The legal basis for this exemption policy is the Governor Regulation (*Pergub*) of DKI Jakarta Province Number 259 of 2015, which was then enhanced by Governor Regulation (*Pergub*) of DKI Jakarta Province Number 38 of 2019 concerning the exemption of land and building taxes in rural and urban areas, on houses, simple rental flats and simple privately-owned flats with NJOP (sales value of taxable object) of up to 1 billion rupiah.

The land and property tax exemption has been given at 100% of the tax that should be owed. This exemption policy is excluded for tax objects that experience changes in taxpayer data due to the transfer of ownership rights, control, or utilization to taxpayers. This tax exemption is granted automatically according to the above criteria. Notice of taxes payable (SPPT) is still issued and given to the public, even though the bill becomes free or Rp. 0 (zero rupiah). For the community, this policy is projected to be beneficial, especially for low-income people. At the same time, for the government, it provides impetus to improve data accuracy and to prevent state losses.

The running hypothesis in this study is for the unintended consequences of this policy regarding certification and property transactions. Indications are seen from the number of BPHTB tax objects that have an NJOP (sales value) of up to 1 billion rupiah. The NJOP adjustment will affect the amount of tax on BPHTB (*Bea Perolehan Hak atas Tanah dan Bangunan* / Customs for Acquisition of Land and Building Rights). The legal basis for collecting BPHTB is regulated in the Regional Regulation of the Special Capital Region of Jakarta Number 18 of 2010, concerning Customs for Acquisition of Land and Building Rights (BPHTB). According to Law Number 20 of 2000, BPHTB is a legal event or action that results in the acquisition of rights to land and or buildings by an individual or entity.

The BPHTB is using a self-assessment collection method system, which means that BPHTB would only be processed based on the taxpayer's reports. Thus, it relies on the taxpayer's proactive approach, whilst the tax officers, on the other hand, are more passive. The transfer of rights in this matter includes the transfer of rights due to sales and purchases, exchange, testamentary will, grants, inheritance, income in a company or other legal entity, separation of rights resulting in a transfer, appointment of buyers in auction, implementation of judge's decision which has permanent legal force, merger in business, business consolidation, expansion of business or gifts and granting of new rights due to continuation of the waiver of rights or beyond waiver of rights.

Various policy changes were taken by the DKI Jakarta Government to optimize tax revenues, one of which was the adjustment of the NJOP. The amount of the increase in NJOP varies according to the location of the region. The community and businesses in the property sector will certainly be affected by the increase. A very high and sudden increase might become a burden on the community and not support the government's program of one million houses, especially for low-income people. Nevertheless, the adjustments on the NJOP with the market prices must still be made. Therefore, the government provides facilities for the convenience of taxpayers to pay the land and property taxes (PBB). Asserts that the provision of tax facilities is generally carried out by the government (tax

authorities) to achieve the goal of encouraging the development of remote areas in the context of equitable collection (Ekonomi & Masyarakat, 2010).

RESEARCH METHOD

Data Source

This study uses a quantitative approach with the Ordinary Least Square (OLS) panel data regression method. The OLS is used to test whether there are unintended consequences for the exemption policy in DKI Jakarta on certification and property transactions for the community. The data were taken from the DKI Jakarta Regional Revenue Agency in 267 sub-districts throughout the DKI Jakarta area from 2012 to 2019, which in this study were taken as the indicator for the effect of the exemption policy.

Selection of Indicators

The dependent variable in this study is the number of BPHTB tax objects with NJOP up to 1 billion rupiah for New Rights as well as for Sales and Purchases. The independent variable was chosen to explain the dependent variable. The first independent variable is the Policy Year dummy, namely the year the exemption policy was implemented, with the number 1 representing the year after the implementation of the exemption policy, which began in 2016, and the number 0 representing the year before the implementation of the policy. This data is used to compare the effect before and after the implementation of the policy.

The second independent variable is the Exemption Ratio PBB n, which is the number of exemption tax objects with NJOP of up to 1 billion rupiah without taking into account other information, compared to the total number of PBB tax objects. The data sources are from Bapenda DKI Jakarta for 2012-2019. The third independent variable is the interaction variable between the dummy Year of Policy and the exemption of PBB n, which is the interaction variable between the dummy variable for the Year of Policy and the exemption of PBB n, together with the control variable for the PBB Exemption Ratio in Rupiah, which is the PBB Exemption with NJOP of up to 1 billion rupiahs, compared to the total PBB with NJOP of up to 1 billion rupiahs. The type of data used in this study is secondary data sourced from the Regional Revenue Agency of DKI Jakarta Province. The data collected is panel data covering 267 sub-district areas in Jakarta with a research period from 2012-2019.

Table 2. Variable Description

Variable	Symbol	Variable	Notes / Descriptions	Unit
Dependent Variable	BPHTB New Rights _n	Number of Tax Objects BPHTB New Rights (Bapenda, 2020)	The number of BPHTB Tax Objects for New Rights with NJOP of up to Rp. 1 billion	Tax Objec t
	BPHTB Sales and Purchases_n	Number of Tax Objects BPHTB Sales and Purchases (Bapenda, 2020)	The number of BPHTB Tax Objects for Sales and Purchases with NJOP of up to Rp. 1 billion	Tax Objec t
Independe nt Variable	Policy Year dummy	Policy Year (Bapenda, 2020)	is a policy year dummy, with the number 0 for	dum my

			2012 - 2015, and 1 for 2016 - 2019	
	Exemption Ratio PBB_n	Exemption Tax Object Ratio (Bapenda, 2020)	The ratio between the number of tax exemption objects compared to the total number of PBB tax objects	Tax Objec t
	Policy Year dummy x Exemption PBB _n	Policy Year dummy and Tax Exemption Object (Bapenda, 2020)	The interaction between the policy year dummy and the Tax Exemption Object	-
Control Variable	Tax Exemption Ratio PBB Rupiah	Tax Exemption Ratio PBB in Rupiah (Bapenda, 2020)	The Ratio of Tax Exemptions to total PBB in Rupiah	Rupia h

Based on the conceptual description and literature review in the previous section, the hypothesis in this study is that there are unintended consequences from the exemption policy in DKI Jakarta on certification and property transactions for the community. This is indicated by a positive relationship between the Y_{it} variable, namely the Number of Tax Objects BPHTB with NJOP of up to Rp 1 billion for the New Rights, with the dummy interaction variable of Policy Year, and the Number of Tax Exemption Objects. In addition to the basic model, there is a variable that will be used as a control, namely the Exemption Ratio Rupiah. The use of control variables is to further clarify the specific relationship between the PBB exemption policy in rupiah and certification and property transactions. The following is the equation of the regression function that is used in this study:

$$BPHTB\ New\ Rights\_n_{it} = \beta_0 + \beta_1 dummy\ Policy\ Year_{it} + \beta_2 Ratio\ Exemption\ PBB\_n_{it} + \beta_3\ dummy\ Policy\ Year\ x\ Exemption\ PBB\_n_{it} + \sum_{k=2}^{n} \beta_k control_{it} + \varepsilon_{it} \quad \textbf{Equation (1)}$$

$$BPHTB\ Sales\ and\ Purchases\_n_{it} = \beta_0 + \beta_1 dummy\ Policy\ Year_{it} + \beta_2 Ratio\ Exemption\ PBB\_n_{it} + \beta_3\ dummy\ Policy\ Year\ x\ Exemption\ PBB\_n_{it} + \sum_{k=2}^{n} \beta_k control_{it} + \varepsilon_{it} \quad \textbf{Equation (2)}$$

The $BPHTB\ New\ Rights\_n_{it}$ is the number of BPHTB tax objects for new types of rights transactions or certification for NJOP up to 1 billion rupiahs in sub-district i in year period t. Then, the $BPHTB\ Sales\ and\ Purchases\_n_{it}$ is the number of BPHTB tax objects for sales and purchases transactions with the same NJOP range, in sub-district i and year period$t$. The $Dummy\ Policy\ Year_{it}$ is the dummy year of the implementation of the PBB exemption policy in sub-district i in year period t, where 1 is the year the exemption policy was implemented and the years after it, and 0 is the years before the policy was implemented. $Ratio\ Exemption\ PBB\_n_{it}$ is the tax exemption objects ratio compared to the amount of the PBB. The $dummy\ Policy\ Year\ x\ Exemption\ PBB\_n$ is the independent variable interactions with the dummy Policy Year along with the Exemption PBB. The $\sum_{k=2}^{n} \beta_k control_{it}$ is the ratio variable of the PBB Tax Exemption compared to the total PBB. The γ_i is the fixed effects; δ_t is the year effects, dan u_{it} is the error term for each amount of the tax object in BPHTB at sub-

district i in year period t. The ε_{it} is the error term for each amount of the tax object in BPHTB at sub-district i in year period t.

The use of year effects is to find the average outcome from each sub-district every year, which is to ensure that the main explanatory can measure the variations within the policy effects towards the number of tax objects in BPHTB each year. For robustness check, this study employs a flood-prone approach, that the sub-districts in flood-prone areas will receive greater tax exemption objects compared to the sub-districts that are not flood-prone. Thus affecting the dependent variable in the number of BPHTB tax objects with NJOP of up to 1 billion rupiah.

RESULT AND DISCUSSION

Before conducting a regression analysis, a descriptive analysis was first carried out on the sample of this study, which consisted of 2,136 samples in 267 sub-districts in DKI Jakarta for a period of 8 years (2012-2019). The result is a strong balance of the panel data. The average dependent variable, namely the number of BPHTB tax objects for new rights, is 20.88811 tax objects, and the number of BPHTB tax objects for sales and purchases is 103,677 tax objects. Meanwhile, the average independent variables of Policy Year Dummy, PBB Exemption Ratio, Policy Year Dummy x PBB Exemption, and Rupiah PBB Exemption Ratio, are respectively: 0.5; 0.2618732; 1872.53; and 0.0493502.

The Policy Dummy is 1 for the year when the PBB exemption policy was implemented and for the following years, from 2016 to 2019. Then, it is 0 for the years before the policy was implemented, namely 2012 to 2015. The Policy Dummy variable x PBB Exemption is the interaction between the Dummy variables Policy Year and the number of PBB tax objects with NJOP of up to 1 billion rupiahs; for the years 2012 to 2015, it is null or worth 0. The Ratio Exemption PBB Rupiah variable is the ratio of PBB exemption compared to the total PBB in rupiah.

Table 3. Descriptive Analysis

Variable	Observation	Mean	Standard Deviation	Min	Max
Sub-district code	2136	134	77.09377	1	267
Year	2136	2015.5	2.291824	2012	2019
BPHTB New Rights	2136	20.88811	53.93904	0	702
BPHTB Sales and Purchases	2136	103.677	188.2141	0	4072
Dummy Policy Year	2136	0.5	0.5001171	0	1
Ratio Exemption PBB n	2136	.2618732	.3187954	0	2.3589
Dummy Policy x Exemption PBB	2136	1872.53	2602.312	0	14991
Ratio Exemption PBB Rupiah	2136	.0493502	.094556	0	.7644088

In the regression analysis using the OLS method through the fixed effect mechanism, the researchers conducted tests by providing control variables, as well as the interaction variables between the policy year dummy and the ratio of PBB in rupiah. Thus, there are two test models, the basic model and the control variable model, both for the new rights as well as the sales and purchases. In general, the

results of this regression indicated that the PBB exemption policy has a positive effect on increasing the number of BPHTB tax objects with NJOP of up to 1 billion rupiah, both for the new rights (certification) and the sale and purchases (property transactions).

In column (1), using the basic model, it appears that the effect of the PBB exemption policy on the number of BPHTB tax objects for certification is 0.04% at the 1% confidence level. In column (2), using the basic model, the effect of the PBB exemption policy on the number of BPHTB tax objects for property transactions is 0.44% at the 10% confidence level. Meanwhile, by providing a control variable in column (3), it proves that the effect of the PBB exemption policy on the number of BPHTB tax objects for certification is 0.49% at a 1% confidence level. In column (4), using a model with a control variable, the effect of the PBB exemption policy on the number of BPHTB tax objects for property transactions is 0.42%, which is insignificant. Thus, the results of this test demonstrated how the PBB exemption policy affected the number of BPHTB tax objects for certification and property transactions. Therefore, the unintended consequences of the exemption policy remained a positive effect on the number of BPHTB tax objects with NJOP of up to 1 billion rupiahs, both for certification and property transactions.

Table 4. Test Results

Dependent Variable: *BPHTB*	**Basic Model**		**Control Variable Model**	
	New Rights	**Sales and Purchases**	**New Rights**	**Sales and Purchases**
	(1)	(2)	(3)	(4)
Independent Variable:				
Year Policy	32.25488***	-20.88143	31.23283***	-19.742
	(5.44119)	(16.15799)	(5.487764)	(16.30378)
Ratio Exemption PBB	14.21813	-90.25222	20.04486	-96.74821***
	(8.874055)	(26.35211)	(9.785842)	(29.07309)
Year Policy x Exemption I	.0047384***	.0044356*	.0049293***	.0042228
	(.000891)	(.002646)	(.000901)	(.0026768)
Control Variable:				
Ratio Exemption PBB Rupi			-28.74028	32.04143
			(20.37051)	(60.51945)
Constant	16.64419***	178.8277***	16.64419***	178.8277***
	(2.759576)	(8.194749)	(2.758841)	(8.196335)
Observations	2,136	2,136	2,136	2,136
Number of Sub-Districts	267	267	267	267
R-squared	0.2155	0.0871	0.2164	0.0866

Notes: Confidence levels 99% (***), 95% (**), 90% (*).
Sources: Processed Data (2021)

The PBB exemption has provided an attraction for people to apply for land rights certification because it is free of charge, and people also realize that a certified house or property will have more value than those without a certificate; hence, the value will be higher for future selling (property transactions). The increase in BPHTB revenue for tax objects with NJOP of up to 1 billion rupiahs also occurred in the type of sales and purchases transactions, which indicates the increase in the number of buying and selling transactions that occur for properties with NJOP below 1 billion rupiahs.

In testing the robustness of the main regression model, a robustness check is carried out by adding or removing regressors (Lu and White, 2014). In the robustness check, sample variations were constructed to test the consistency of the interaction of the main va, $dummy\ Year\ Policy \times Exemption\ PBB$. Thus, based on the condition of the area in DKI Jakarta, namely the flood-prone and non-flood-prone sub-districts in 2016, it is considered that the flood-prone sub-districts data would not experience significant changes during the study period. The selection of the flood-prone and non-flooded sub-district areas is based on the natural disasters that are regularly experienced in DKI Jakarta, namely flood disasters. Based on the data from flood-prone sub-district areas in DKI Jakarta, there are 112 sub-district areas, with 155 sub-districts considered as non-flood-prone areas. The variant samples are based on the type of BPHTB transaction for certification (New Rights) and property transactions (sales and purchases). The selection of the variant samples is between the number of BPHTB tax objects with NJOP of up to 1 billion rupiah for the new rights transactions and the number of BPHTB tax objects with NJOP of up to 1 billion rupiah for the sales and purchase transactions. Thus, the variations are based on the type of transactions, which is the focus of this study. Then, the samples were differentiated to determine the variations within the policy's effect on a specific type of transaction.

From the results of the robustness check, as shown in Table 5 below, the signs are consistently positive on the dummy variable for Policy Year and BPHTB tax objects with NJOP of up to 1 billion rupiah on the new rights transactions (certification). Meanwhile, on the sales and purchases transactions (property transactions), there is a positive sign in non-flood-prone areas but a negative sign in flood-prone areas, both in the basic model and the control variable model. This means that the effect of the PBB exemption policy is an increase in the number of certification transactions, both in the flood-prone as well as non-flood-prone sub-district areas. However, for the property transactions, the increase occurred only in the non-flood-prone sub-district areas.

Table 5. Robustness Check

Dependent Variable: BPHTB	**Basic Model**				**Control Variable Model**			
	Flood Prone		**Non-Flood-Prone**		**Flood Prone**		**Non-Flood-Prone**	
	New Rights	**Sales and Purchase**	**New Rights**	**Sales and Purchase**	**New Rights**	**Sales and Purchase**	**New Rights**	**Sales and Purchase**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent Variable:								
Year Policy	22.6694	-	38.242	-	22.263	-	39.742	-

	3** (9.345231)	12.30341 (33.22424)	45 (6.593012)	25.23904* (14.78816)	32** (9.313004)	12.06849 (33.24677)	25*** (6.779199)	25.42427* (14.78816)
Ratio Exemption	11.31319 (14.46599)	-81.5144 (51.42961)	19.76688 (11.26715)	-104.1275*** (25.27228)	24.21912 (15.26464)	-88.98002 (54.49368)	14.14766 (12.72225)	-103.4335*** (28.54803)
Year Policy x Exemption PBB	.0069121** (0.1170013198)	-.0000228 (.004692)	.0022466** (.0013314)	.0096259*** (.0029863)	.0073143*** (.0013243)	-.0002554 (.0047277)	.0019402 (.0013699)	.0096637** (.0030739)
Control Variable:								
Ratio Exemption					-88.98195** (34.64175)	51.47286 (123.6686)	24.27246 (25.51662)	-2.997832 (57.25791)
Constant	11.3125** (4.624108)	212.8393*** (16.43967)	20.49677*** (3.375634)	154.2516*** (7.571565)	11.3125** (4.624108)	212.8393*** (16.44844)	20.49677*** (3.375634)	154.2516*** (7.575076)
Observations	896	896	1,240	1,240	896	896	1,240	1,240
Number of Sub-Districts	112	112	155	155	112	112	155	155
R-squared	0.2276	0.0784	0.2167	0.1227	0.2303	0.0776	0.2167	0.1228

Notes: Confidence levels 1% (***), 5% (**), 10% (*).
Sources: Processed Data (2020)

From Table 5, it is clear that the sample of the flood-prone sub-districts in column (1) shows a greater effect from the exemption policy on the number of the new rights transactions, which is 0.69%, in comparison to the sample of the non-flood-prone sub-districts in column (3), which is 0.22% and significant at the level of 5%. In column (5), the effect of the exemption policy was also positive on the sample for flood-prone sub-districts with the control variable by increasing the number of BPHTB tax objects for new rights by 0.73% and significant at the 5% level. For the non-flood-prone areas in column (7), the new rights certifications, although insignificant, still show a positive relationship of 0.19%. In column (2) on the flood-prone sub-districts sample, the exemption policy shows a negative effect, though insignificant, on the number of sales and purchases transactions (-0.00%). On the contrary, in the non-flood-prone sub-districts sample in column (4), there is a substantial increase of transactions of 0.96%, which is significant at the level of 1%.

A clearer distinction can be viewed in the property transactions. In column (6) on the sample of flood-prone sub-districts with control variables, the effect of

the exemption policy was negative on the number of BPHTB tax objects for sales and purchases, which is -0.02%, though it is still insignificant. However, the opposite side in column (8), the sample of non-flood-prone sub-districts with control variable, shows a positive effect of the exemption policy on the number of BPHTB tax objects for sales and purchases, 0.96%, which is significant at the level of 5%. Columns (2), (6), and (7) are for the dummy interaction variable for policy year and PBB tax exemption, their results are relatively insignificant. Yet, the basic model's results remain significant, and the main purpose of this test is to see the consistency of the main interaction variables in the robustness check regression. Overall, the regression results showed that the PBB exemption policy affects the number of new rights transactions or certifications, both in the flood-prone and the non-flood-prone sub-district areas. Whilst, in the sales and purchases transactions or property transactions, the PBB exemption policy only affects the non-flood-prone sub-district areas. This provides specific findings that the PBB exemption policy affects the number of BPHTB tax objects for property transactions (sales and purchases) in the non-flood-prone sub-districts. Nevertheless, the test results also revealed another important fact: more tax objects receive PBB exemption in flood-prone areas than in non-flood-prone areas, and it is due to natural and environmental factors.

Furthermore, although it seems like the exemption of PBB might initiate a decrease in tax revenue, as it is shown in Table 1, this does not occur due to the increase in the sales value of taxable objects (NJOP). Therefore, the DKI Jakarta government is still implementing the PBB exemption policy until now. Last but not least, correlation testing for the unintended consequences of the PBB exemption policy was also carried out for the treatment group (the flood-prone sub-districts) and control group (the non-flood-prone sub-districts). The test found consistent significant results in the non-flood-prone sub-districts, both for certification and property transactions. On the other hand, in the flood-prone sub-districts, the correlation is only significant for the certification transactions.

This study identifies several significant research gaps compared to previous studies. Based on the literature review and research results, the following are some research gaps that can be identified: Focus on Unexpected Increases from Tax Policy Most previous studies, such as those conducted by (Bahl, 1992) and (Youngman, 2007), focus on the direct impact of tax property policies, especially on the welfare of low-income communities and the distribution of land ownership rights. However, this study highlights the unexpected consequences of the Land and Building Tax (PBB) delivery policy in DKI Jakarta, namely the impact on increasing land certification and property transactions in non-flood-prone areas, which are rarely discussed in previous studies. This gap indicates a lack of research exploring the indirect impact of tax policies on changes in people's economic behavior. Emphasis on Differences in Flood-Prone and Non-Flood-Prone Areas Most previous studies related to tax property do not differentiate impact policies based on geographical conditions. In this study, it was found that the PBB warming effect was more significant in non-flood-prone areas compared to flood-prone areas. This creates a significant gap because previous studies, such as those conducted by (Galiani & Schargrodsky, 2010), generally do not differentiate the impact of policies based on the geographic vulnerability of an area. This study fills

this gap by providing empirical evidence that environmental conditions and disaster risk can affect the success of implementing tax delivery policies.

Lack of Studies on the Impact of PBB Policy on Property Transactions with NJOP Values Below IDR 1 Billion Previous studies, such as (Fisher, 2009), have focused more on the influence of macro-level tax policies on regional income or tax policies on the property sector as a whole. However, this study specifically explores the impact of PBB delivery on property transactions with NJOPs below IDR 1 billion, a sub-segment of the property market that has not been widely explored in previous literature. This creates a gap in understanding how tax policies impact the property market for the lower middle class.

Lack of Studies on PBB and Land Certification as a Tool for Increasing Asset Value Although several studies have explored the relationship between property tax and asset value, such as those conducted by (Mardiana et al., 2016), few specifically highlight how property tax financing can trigger increased land certification and thus increase property values. This study fills this gap by showing that policies that encourage PBB encourage communities to certify their land, which ultimately increases the sale value of their properties.

Thus, this study expands the scope of the literature on property tax policy, provides new perspectives on the impact of tax delivery policies in different urban areas based on geographical conditions, and provides empirical evidence on how tax policies can affect people's economic behavior in the specific context of DKI Jakarta.

CONCLUSION

The implementation of the PBB exemption policy for NJOP under 1 billion rupiahs since 2016 has a positive correlation with the greater number of tax objects conducting certification transactions as well as property transactions. This is found to be consistent at sub-districts that are categorized as non-flood-prone areas, both for the certification as well as the property transactions. But, on the other hand, in the flood-prone sub-district areas, the correlation is only significant for the certification transactions. This finding supports the alleged unintended consequences of the PBB exemption policy on certification and property transactions worth under 1 billion rupiah in DKI Jakarta. With the exemption of the Land and Building Tax (PBB), the researcher believes that the community's motivation to administer their land registration (certification) will increase first because it is free of charge. Secondly, and more importantly, for their land and building’s legality status. Then, thirdly, perhaps even for a better price value, as potential buyers would be more interested in a fully certified and tax-free property.

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