

Likelihood Analysis of Revenue Formation from Government-Owned Assets: A Case from Eastern-Indonesian Provinces

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Abstract: - Non-tax state revenue (NTSR) plays a major role in Indonesia revenue generation, yet many government assets remain underutilized despite substantial capital expenditure. This study examines the contribution of workplace asset value (WAV) to NTSR derived from public asset utilization in the Eastern Region of Indonesia (ERI). As relatively marketable assets, workplace assets are expected to enhance revenue generation. Using panel data from 18 regions over 2018–2022, this study applies panel regression and maximum likelihood estimation (MLE), incorporating controls for unemployment, poverty, and GDP. The results show that WAV significantly increases NTSR, with stronger effects when socioeconomic factors are included. Furthermore, regions with greater public asset holdings tend to generate higher NTSR. These findings highlight the importance of optimizing asset management policies to improve fiscal outcomes, particularly in less-developed regions such as ERI.

Key-Words: - Asset Management, Non-Tax State Revenue, State Owned Asset, Asset Utilization, Workplace Building Assets, Asset Optimizing.

Received: October 19, 2025. Revised: January 23, 2026. Accepted: June 19, 2026. Published: August 4, 2026.

1 Introduction

In recent decades, the Indonesian government has consistently pursued national objectives, including the protection citizens, the promotion of social welfare and justice, and providing equal and fair access to education and health services, all to be achieved by 2045. Attainment of these objective necessitates prudent, responsive, transparent, and accountable fiscal policy management, even within constrained fiscal space. Priorities for fiscal policy include enhancing human resource quality, strengthening economic resilience to global pressures, expanding connectivity across road, sea, and air networks, increasing productivity and competitiveness, and implementing concrete measure to address climate change. These priorities are pursued with a commitment to good governance in state fiscal management. According to the Indonesian Government Financial Statements (IGFS) for 2014-2023, deficits over the last decade has recorded an average annual central government budget deficit of approximately Rp 438.38 trillion (2.81% of GDP).

Although the deficit remains within the statutory limit established by Law No. 17 of 2003,

the government's financing requirements consistently exceed the combined revenues from taxes, non-tax sources, and grants.

According to the report, the government's average annual revenue was IDR 1,981.39 trillion, consisting of IDR 1,554.64 trillion in tax revenue, IDR 415.47 trillion in non-tax revenues, and IDR 11.27 trillion in grants. While tax revenue is the dominant source, NTSR constitutes a meaningful complementary component of state income. Nevertheless, NTSR remains below its potential because a portion of state-owned assets is still idle or underproductive, as noted by the President of the Republic of Indonesia, [1]. The Indonesian Minister of Finance has also emphasized the need to strengthen the utilization of public assets to support fiscal capacity, [2].

Current asset-derived NTSR is relatively limited. Of the Rp 415.47 trillion in NTSR, revenue generated from government asset utilization accounts for only Rp 978.75 billion (0.24%). This share is small compared to capital expenditure of Rp 240.57 trillion and the total government assets reported in the IGFS (Rp 6,660 trillion). In the IGFS classification, government assets include land,

residential assets, and workplace assets; residential and workplace assets are reported as government building assets.

In aggregate, the value of government building assets increased by 101.75% from 2018 to 2022, reaching Rp 58,509.11 trillion. In the Western Indonesia Region (WRI), the value increased by 104.44%, while in the Eastern Indonesia Region (ERI), it reached 95.73%. By 2022, the total value of building assets in WRI was approximately 78% higher than that in ERI, which is commonly associated with differences in land area and population concentration.

The expansion of government assets is intended not only to improve public service delivery but also to strengthen the capacity of assets to generate NTSR and partially support government financing. Therefore, this paper examines the extent to which workplace assets contribute to NTSR from asset utilization in the ERI. In addition, it investigates the relationship between asset-derived NTSR and macroeconomic conditions, namely the unemployment rate (UR), gross domestic product (GDP), and poverty rate, including the possibility of reverse effects. To the best of our knowledge, this is the first study to empirically examine the contribution of workplace asset value (WAV) to NTSR in the ERI.

2 Literature Review

A nation's greatness is, among other things, measured by the magnitude of its assets or wealth. In Mercantilist thought, national wealth is derived from trade and the accumulation of assets [3], whereas classical economic theory posits that the enhancement of national wealth is closely linked to national welfare through trade and commodity production, [4]. Norway is one example of a prosperous country with the world's largest sovereign wealth fund, [5].

The Commission on the Measurement of Economic Performance and Social Progress report states that accurately measuring societal well-being requires consideration of the distribution of income, consumption, and wealth, [6]. As a determinant of welfare, wealth must be equitably distributed across the income spectrum—from high- to low-income groups—to establish a strong correlation between income and asset ownership, [7]. This relationship is projected to generate substantial income for countries or regions with significant asset holdings, whether the income is derived from asset management or the utilization of these assets by local communities.

Assets, as economic resources, generate income streams through the capitalization of their future earnings, often abstracted through the rents they yield, [8]. Furthermore, assets can produce predictable income flows and serve as collateral to mobilize capital for investment purposes, [9]. In several countries, public assets have been leveraged as a solution to fiscal challenges. Nations such as Greece and Italy have managed to alleviate financial crises by utilizing public assets without necessarily divesting them, [10]. Denmark has employed public assets to finance urban infrastructure, such as the city-wide metro system, [11]. Australia and the United States have implemented Asset Recycling (AR) programs—entailing the sale or lease of public assets—to raise immediate capital for infrastructure investment, [12], [13], [14]. Meanwhile, Indonesia uses divestment mechanisms to reduce fiscal pressure, such as the settlement of the Semen Gresik case (1991), Indosat and Telkom in 1995, and Timah and BNI in 1996, [15]. This approach is one of many adopted worldwide.

Unproductive use of valuable public assets—such as prime urban land, artworks stored in museum basements, or long-vacant buildings—represents a missed opportunity in the public sector. These inefficiencies make it difficult for governments to assess the opportunity cost of foregone rental income or to optimize social returns, [16]. Moreover, public asset management often lacks transparency and is largely neglected, despite its potential to serve as a significant source of national wealth and revenue. For instance, public assets account for nearly 69% of GDP in Australia, 48% in Costa Rica, and 26% in Japan, [10]. Over a decade ago, cities and states in the United States began optimizing public assets through public-private partnerships (PPPs), leasing or selling infrastructure and facilities to raise substantial upfront capital—an innovative and effective strategy to address urgent fiscal needs, [17].

In Indonesia, the utilization of public assets—particularly land and buildings—has been implemented for decades and constitutes an integral part of public asset management, [18]. Revenue generated from asset utilization is recorded in the government's financial statements as non-tax state revenue (NTSR), [19]. Regardless of the management model employed, macroeconomic challenges inevitably influence the success of public asset utilization.

In the past decade, the ratio of public assets to GDP reached 25.11%, and 205.47% relative to the national budget (APBN), with the total value of public assets amounting to IDR 4,102.11 trillion.

These high ratios underscore the potential of Indonesia's public assets to generate productive output. According to Solow's growth model, GDP is influenced by capital accumulation and labor force participation, and in this context, the scale of public assets contributes to GDP growth, [20], [21]. Keynesian theory further emphasizes that government spending through public investment stimulates economic activity and moderates the relationship between macroeconomic conditions and private investment, [22].

Capital accumulation in Indonesia's government financial reports reflects public expenditure on public goods, including equipment, land, buildings, and infrastructure. This indicates that public investment plays a critical role in driving economic growth, [23], [24]. Empirical evidence shows that a 1% increase in government investment raises output (GDP) by 0.4% and reduces the unemployment rate by approximately 0.11% in the short term and 0.35% in the medium term, [25]. These findings are supported by earlier studies indicating that growth in government consumption expenditure positively affects GDP growth, [26]. According to Okun's Law, a 1-percentage-point change in the unemployment rate corresponds to a 2-percentage-point change in GDP. A negative output gap, which raises unemployment, leads to a lower household income and a worse poverty rate. Conversely, a positive output gap boosts GDP, increases labor demand, improves household income, and reduces poverty, [27], [28].

3 Methodology

This study seeks to explore the potential for increasing non-tax state revenue (NTSR) through the utilization of workplace assets as a part of government building assets, while considering the society's economic conditions that may affect the ability to spend money (e.g., in the form of rents) to use the government assets. Money spent by the people then becomes the government's revenue from assets utilization. The society's economic conditions in this study include job conditions proxied by unemployment rate, wealth status proxied by poverty rate, and gross domestic product (GDP). The utilization of workplace assets is measured by workplace asset value (WAV).

The data used is gathered from the Ministry of Finance of the Republic of Indonesia and Statistics Indonesia. The sampling technique employed in this study is a census approach, in which the entire population is included. Specifically, the analysis covers all 18 State Assets and Auction Service

Offices (KPKNL) located in the Eastern Region of Indonesia. The period spans from 2018 to 2022. Table 1 presents a summary of the descriptive statistics of the variables.

Table 1. Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
KPKNL	18			54	71
Year	5 Years			2018	2022
NTSR	90	7.23e+09	9.99e+09	2.59e+08	7.29e+10
WAV	90	2.67e+11	2.66e+11	6.70e+08	1.22e+12
UR	87	9.827.356	8.762.504	1.87	41.93
Poverty rate	87	6.994.609	2.729.376	5.7	11980
GDP	85	1.489.176	6.652.375	1	272

Source: Authors' Data

Table 1 shows that the average NTSR managed by the State Assets and Auction Service Office (KPKNL) for the 2018-2022 period reaches approximately Rp. 7.23 billion. This value indicates a significant contribution to non-tax state revenue. The highest NTSR achieved during this period was Rp. 72.9 billion, while the lowest was Rp. 259 million. The significant difference between the highest and lowest values indicates wide variations in the NTSR performance across KPKNLs and years. Meanwhile, the WAV variable averages Rp. 267 billion, with the highest reaching Rp. 1.22 trillion and the lowest reaching Rp. 670 million. This indicates that although the average value of working assets is relatively large, there is a significant disparity between units with the largest and smallest asset values.

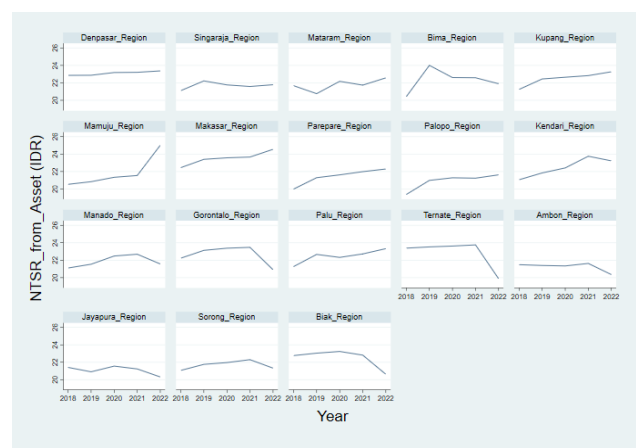


Fig. 1: Trends in Non-Tax State Revenue Generated from Asset in Eastern Region of Indonesia, 2018-2022

Source: Authors' Data

These descriptive data reveal significant variation in NTSR and WAV. This variation has the potential to significantly impact the results of the upcoming econometric analysis, making this study necessary.

Figure 1 illustrates the performance of non-tax revenue (NTSR) assets in Eastern Indonesia over time. The data shows that the regions of Denpasar, Singaraja, Mataram, Kupang, Mamuju, Makassar, Pare-Pare, Palopo, Kendari, Manado, Palu, Ternate, Sorong, and Biak exhibit varying trends in non-tax revenue assets over time. Although most regions show a consistent uptrend, there are periods in some regions, such as Singaraja, Mataram, Kendari, Manado, Palu, Gorontalo, Ternate, Sorong, and Biak, where non-tax revenue assets decline. A consistent downward trend in non-tax revenue assets was observed in Ambon and Jayapura. In 2022, Ternate, Biak, Gorontalo, and Ambon experienced the most significant declines in non-tax revenue assets.

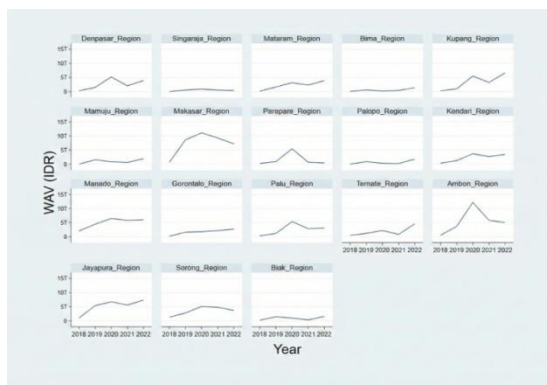


Fig. 2: Workplace Asset Value Trends in Eastern Region of Indonesia, 2018-2022

Source: Authors' Data

Figure 2 shows the time series trends of the workplace asset values (WAV) in Eastern Indonesia. Regions such as Denpasar, Mataram, Bima, Kupang, Mamuju, Palopo, Kendari, Ternate, Manado, Gorontalo, Jayapura, Sorong, and Biak showed an upward trend. Conversely, Singaraja, Makassar, Parepare, and Ambon experienced declines in asset values, despite previously rising asset values.

This pattern indicates that, on average, asset performance varies significantly across regions. The sustained increase in WAV reflects efforts to improve public services, while simultaneously highlighting potential underutilization or overuse of public assets based on the measurement of standard goods and standard needs (SBSK). This can contribute to optimizing the NTSR derived from assets.

The initial investigation conducted in this study seeks to determine whether a significant relationship exists between WAV and asset-derived NTSR. Drawing upon the Solow growth model and the Cobb-Douglas production function, the following formulation is considered:

$$Y = AK^{\alpha}L^{1-\alpha} \quad (1)$$

In this context, Y represents asset-derived NTSR, A denotes technological progress, K is capital, and L is labor. It is assumed that the growth of Y is influenced by technological advancement, capital accumulation, and labor input. For analytical purposes, both production components and economic indicators are modeled using the Cobb-Douglas production function, which posits that NTSR is also shaped by capital and labor.

In this study, the variables assumed to have constant elasticity of substitution are capital (K), represented by WAV, and labor (L), represented by the unemployment rate (UR). Therefore, they can be used simultaneously to increase production efficiency, influencing gross domestic product (GDP), wage rates, and investment. Using both with high efficiency will result in higher output or NTSR.

Furthermore, the unemployment rate is influenced by the dynamics between capital and labor. The unemployment rate will be reduced by effective human resource management. In contrast, low-quality human capital, with inadequate skills or limited access to capital, faces challenges in the labor market, leading to higher unemployment. Nevertheless, asset-derived NTSR from leased public assets can provide employment opportunities, albeit on a limited scale.

Regarding GDP, both capital and labor are fundamental components. Increased production capacity and efficiency are influenced by capital, while the production of goods and services is influenced by labor input. The combination of capital and labor can drive stable, sustainable economic growth. Accordingly, Equation (1) is reformulated as:

$$\log(\text{Asset_NTSR}) = \log(A) + \alpha \log(\text{WAV}) + \gamma_1 \text{UR} + \gamma_2 \log(\text{GDP}) \quad (2)$$

As shown by equation (2), this study also examines the impact of WAV, unemployment rate, and GDP on asset-derived NTSR. It is assumed that the poverty rate negatively affects asset-derived NTSR, as poverty typically leads to reduced labor productivity due to limited access to education, healthcare, and training. Poverty also hampers savings and investment, thereby obstructing capital

accumulation. Accordingly, equation (2) is extended to incorporate the poverty variable:

$$\log(\text{Asset_NTSR}) = \log(A) + \alpha \log(\text{WAV}) + \gamma_1 \text{UR} + \gamma_2 \log(\text{GDP}) + \gamma_3 P \quad (3)$$

Incorporating the poverty rate in equation (3) enables this study to capture the contribution of the poverty rate on the NTS together with other variables of interest.

4 Results and Discussion

This study adopts two analytical scenarios. The first involves the application of panel data regression using the Random Effects Model (REM) to examine the impact of the WAV, unemployment rate (UR), gross domestic product (GDP), and poverty rate on non-tax state revenue (NTSR) derived from public assets. The analysis is structured into three models: Model 1 includes WAV as the sole explanatory variable; Model 2 incorporates WAV along with control variables for the unemployment rate and per capita GDP; Model 3 adds the poverty rate as an additional control variable. This modeling framework enables a comparative assessment of the marginal effects of each variable on asset-derived NTSR.

The second analytical scenario employs the Maximum Likelihood Estimation (MLE) method to derive regression parameters that maximize the likelihood function, under the assumption of an appropriately specified error distribution.

The following analysis is to examine the effect of WAV, UR GDP, and poverty rate on asset-derived NTSR using the Random Effect Model (REM).

Table 2. WAV, UR, GDP, and P on Y with REM

	(1) Log_assets_ NTSR	(2) Log_assets_ NTSR	(3) Log_assets_ NTSR
Log_WAV	0.2433*** (0.0907)	0.3074*** (0.0939)	0.3131*** (0.0928)
UR		-0.0454 (0.0278)	-0.0534** (0.0231)
GDP		0.0002 (0.0025)	0.0003 (0.0026)
Poverty rate			0.0001*** (0.0000)
Constant	15.8649*** (2.3043)	14.6617*** (2.1925)	14.5189*** (2.1797)
Observations	90	82	82
R-squared	0.0768	0.1547	0.1782
R2_within	0.1125	0.1567	0.1582
R2_between	0.0373	0.1254	0.1801

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' Data

The results presented in Table 1 summarize the outcomes of the three analytical models employed in this study. The findings indicate that the WAV is a strong determinant of asset-derived NTSR. Specifically, the estimated coefficient of 0.2433 suggests that a 1% increase in WAV leads to a 0.2433% increase in Asset_NTSR, holding all other variables constant, where $\log(A)=15.8649$.

When the WAV is analyzed alongside the UR and GDP in model specification 2, the coefficient for WAV increases to 0.3074, indicating a stronger effect of WAV on asset-derived NTSR when controlling for labor market and economic output conditions. Specifically, a 1% increase in WAV is associated with a 0.3074% increase in asset-derived NTSR, ceteris paribus. However, both UR and GDP are statistically insignificant in this model with $\log(A)$ equal to a constant of 14.6617 (as shown in specification (2) of Table 2).

The influence of these variables is more pronounced in Model 3, which includes the poverty rate as an additional control variable. The coefficient for WAV remains strong and consistent at 0.3131, reaffirming its substantial impact on NTSR. Notably, UR is statistically significant at the 5 percent level, with a negative effect: each 1 percent increase in UR is associated with a 0.0534 percent decrease in asset-derived NTSR. In contrast, the poverty rate, with a coefficient of 0.0001, is statistically significant at the 1 percent level but demonstrates minimal economic significance, as a 1 percent increase in the poverty rate results in only a 0.0001 percent increase in NTSR. GDP continues to show no statistically significant effect across models.

The results presented in Table 2 reflect the estimation of the relationship between asset-derived NTSR and the independent variables—WAV, unemployment rate, GDP per capita, and poverty rate—using the Maximum Likelihood Estimation (MLE) method. The model is estimated using two parameters: μ (mean) and σ (standard deviation), under the assumption of a normally distributed error term.

In terms of parameter robustness and stability, the results show a clear, stable relationship between workplace asset value (WAV) and non-tax state revenue (NTSR) across all three model specifications. In the simplest model without any controls, the WAV coefficient is 0.2433 and statistically significant at the 1 percent level. When the unemployment rate is added to the model, the coefficient increases to 0.3074 and rises slightly further to 0.3131 after controlling for the poverty rate. Despite the increasing model complexity,

which influences coefficient size, the statistical significance level and the high positive sign remain unchanged. This consistency indicates that any particular specification does not affect the underlying, stable relationship in the estimated WAV effect.

The increase in the magnitude of the WAV coefficient after adding control variables indicates that the baseline model likely understated the true impact of workplace assets on NTSR. By accounting for labor market status and poverty, the model better isolates the independent contribution of workplace assets. Once these key socio-economic factors are included, the coefficient settles at around 0.31, suggesting that the effect of WAV becomes both stronger and more precisely estimated rather than unstable or sensitive to additional controls.

The stability of the results is further supported by the behavior of the constant term, which remains positive, statistically significant at the 1 percent level, and relatively unchanged across all specifications. This pattern indicates that the model's overall structure is consistent and that adding controls does not substantially change the baseline level of non-tax revenue captured by the regression. Taken together, the stable sign, strong significance, and limited variation in coefficient magnitudes provide convincing evidence that the estimated parameters—particularly the effect of workplace asset value—are robust and reliable.

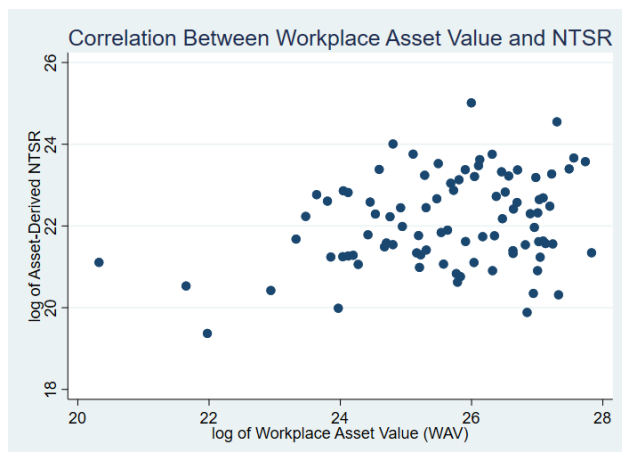


Fig. 3: Correlation between Workplace Asset Value and NTSR

Source: Authors' Data

Figure 3 illustrates a positive association between the logarithm of asset-derived non-tax state revenue (Log_assets_NTSR) and the logarithm of workplace asset value (Log_WAV) based on real-world data. This empirical pattern is consistent with, and provides descriptive support for, the regression results reported in this study.

Table 3. Correlation between Log Assets NTSR and Log WAV

	log_assets_NTSR	log_WAV
log_assets_NTSR	1.0000	
log_WAV	0.2770	1.0000

Source: Authors' Data

Table 3 suggests that although the correlation coefficient is relatively modest at 0.2770, it nonetheless indicates a positive relationship between the two variables. The low magnitude of the correlation should not be overstated, as this study represents an initial empirical effort to examine the linkage between workplace asset value and asset-derived NTSR. Moreover, other structural and socioeconomic factors that influence revenue generation from public assets are not accounted for in the bivariate correlation. Therefore, future research is recommended to incorporate additional relevant variables and alternative model specifications to yield a more comprehensive understanding of this relationship and potentially strengthen the observed association.

Table 4. WAV, UR, GDP, and P on Y with MLE

	(1) log_assets_NTSR
<i>mu</i>	
WAV	0.35700*** (0.09480)
UR	-0.06020** (0.02910)
GDP	-0.00284 (0.00188)
Poverty rate	0.00006 (0.0000418)
_cons	13.87000*** (2.33200)
<i>sigma</i>	
_cons	1.017*** (0.0847)
Log likelihood	-103.3
Wald chi2(3)	16.47
Prob > chi2	0.00245
Number of obs	72

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' Data

This study proceeds by estimating the model using a log-likelihood function, under the assumption that the error terms follow a normal

distribution. The model can be expressed in the following form:

$$X = \begin{pmatrix} \text{Log}(WAV) \\ UR \\ GDP \\ P \end{pmatrix}, \beta = \begin{pmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \end{pmatrix} \quad (4)$$

The resulting mathematical model can be expressed as:

$$\log(\text{Asset_NTSR}) = \beta_0 + \beta^T X + \varepsilon \quad (5)$$

This formulation implies that any relative change in the dependent variable can be calculated using the following transformation:

$$\% \Delta Y \approx (e^\beta - 1) \times 100\% \quad (6)$$

The results in Table 4 indicate that a 1 percent increase in WAV has a strong and statistically significant effect, increasing asset-derived NTSR by approximately 0.35700 percent. Applying the log-transformation, the percentage effect is $e^{0.35700} \approx 1.43$ therefore $\% \Delta Y \approx (1.43 - 1) \times 100\% \approx 43\%$.

Thus, holding all other variables constant, asset-derived NTSR is expected to increase by approximately 43 percent.

Conversely, a 1 percent increase in the unemployment rate (UR) results in a 0.06020 decrease in asset-derived NTSR, statistically significant at the 5 percent level. This implies that higher unemployment is associated with a 5.9 percent reduction in asset-derived NTSR, assuming other variables remain constant:

$e^{-0.06020} \approx 0.941$ Subsequently, this is equivalent to $\% \Delta Y \approx (0.941 - 1) \times 100\% = -5.9\%$.

On the other hand, the variables GDP per capita and poverty rate exhibit statistically insignificant effects.

The results of this study indicate that Workplace Asset Value (WAV) plays a significant role in strengthening Non-Tax State Revenue (NTSR). A 1 percent increase in WAV is projected to lead to a 0.31 percent rise in NTSR. The results show that public asset management is not solely focused on administrative or technical issues, but rather serves as a strategic tool in fiscal policy that can increase government revenue beyond the tax sector. Asset optimization through market-based approaches, such as leasing or public-private partnerships, should be prioritized to reduce idle assets and convert them into productive revenue streams. Furthermore, integrating NTSR assets into the medium- and long-term fiscal policy framework can enhance fiscal resilience and support development financing in key sectors such as infrastructure,

education, and health. WAV can be positioned as a foundation for fiscal innovation that increases revenue capacity and lays the groundwork for growth by strengthening the institutional mandate of asset management entities to emphasize sustainability and productivity.

This study also demonstrates how labor market dynamics affect NTSR assets. With a negative coefficient, the unemployment variable is statistically significant, indicating that a 1 percentage point increase in the unemployment rate is associated with a 0.0534 percentage point decrease in NTSR. This suggests that high unemployment rates can hamper economic activity and reduce consumers' purchasing power. Consequently, demand for assets offered through leasing or utilization will decrease. Since adequate employment indirectly increases the economic value and fiscal contribution of state-owned assets, this implication suggests that asset optimization strategies must be adjusted to labor market conditions.

In contrast, other macroeconomic variables show a different trend. In each model specification, gross domestic product (GDP) per capita is not significant, indicating that increases in aggregate output do not automatically translate into higher asset-based fiscal revenues. This is likely because GDP per capita growth is driven by private-sector activity that does not involve public assets. Conversely, the poverty rate is statistically significant at 1 percent, but largely irrelevant economically due to its very small coefficient, which limits its practical impact on the NTSR. This suggests that, while poverty may serve as a contextual factor shaping the economic environment for asset utilization, it is not the primary driver of fiscal returns. Therefore, rather than relying solely on macroeconomic growth or poverty dynamics as the primary levers for increasing state revenues from assets, a more strategic policy approach is to combine public asset management with employment policies.

While the results clearly indicate that workplace asset value (WAV) plays a strong and consistent role in explaining non-tax state revenues (NTSR), several sources of error may warrant attention. First and foremost, the relatively low R-squared in the panel regression indicates that the model does not capture a significant portion of the variation in NTSR attributable to assets. This suggests that important components, such as institutional capacity, regulatory constraints, local market demand, unique asset characteristics, and differences in asset management practices across

KPKNL offices, may be overlooked and could impact the estimated coefficients. Second, the analysis implicitly assumes that WAV is exogenous, yet this assumption may be imperfect. Regions that generate higher NTSR from assets may also have greater fiscal or administrative capacity to maintain, revalue, or better report their assets, creating the possibility of reverse causality that is not explicitly addressed in the current specifications. Furthermore, persistent GDP inconsistencies across models may result from variations in regional economic structures in Eastern Indonesia or from a mismatch between aggregate economic output and how public assets are used locally. Finally, although the poverty rate appears statistically significant in some specifications, its very small coefficient raises questions about its economic relevance. It suggests that the relationship may be nonlinear or poorly captured by the chosen functional form. Overall, these limitations do not detract from the main findings. Rather, they suggest that the results should be interpreted with caution, as they demonstrate a strong association rather than a strict causal effect.

5 Conclusion

These findings suggest that while asset-derived NTSR is influenced by WAV and certain macroeconomic variables, not all variables exert a significant impact. The study finds that under the Random Effects Model (REM) approach, WAV consistently and significantly increases asset-derived NTSR at the 1 percent significance level across all models, with its effect becoming stronger after incorporating UR and poverty rate. These results are further reinforced under the Maximum Likelihood Estimation (MLE) approach.

Given these findings, regions or asset management offices (KPKNL) that oversee public assets with higher asset values (Figure 2) should, in principle, be capable of generating greater asset-derived NTSR from those assets. However, some regions (Figure 1) exhibit declining trends in asset-derived NTSR, suggesting potential inefficiencies in asset utilization.

Among the macroeconomic variables analyzed, GDP is statistically insignificant in its effect on asset-derived NTSR, and it is consistent across specifications. Although UR is statistically significant, its impact is consistently negative across both REM and MLE approaches. Meanwhile, the poverty rate demonstrates inconsistent effects, warranting further investigation to better understand its influence on asset-derived NTSR.

The findings of this study underscore that strengthening non-tax state revenues (NTSR) from public assets cannot rely solely on increasing asset values (WAV). Instead, it requires a comprehensive strategy that integrates asset management with employment policies and inter-regional fiscal equity. The government must strengthen the institutional capacity of state asset management offices nationwide, expand market-based utilization mechanisms, and ensure a more equitable distribution of revenue benefits. Thus, optimizing WAV not only expands fiscal space but also serves as a strategic instrument for building long-term fiscal resilience and promoting inclusive and sustainable economic development.

References:

- [1] KBRN, "President Acknowledges That Many State Assets Are Idle and Underutilized" (Presiden Akui Banyak Aset Negara Tidur dan Nganggur), rri.co.id, [Online]. <https://www.rri.co.id/nasional/117695/presiden-banyak-aset-negara-tidur-dan-nganggur> (Accessed Date: March 10, 2026).
- [2] UGM, Finance Minister: State Assets Ought to Give Added Value, [Online]. <https://ugm.ac.id/en/news/17109-finance-minister-state-assets-ought-to-give-added-value/> (Accessed Date: March 10, 2026).
- [3] T. Mun, *England's Treasure By Forraign Trade*, Reprint of the 1664 edition. New York, Macmillan, 1895, [Online]. <https://archive.org/details/englandstre00muntuoft/page/viii/mode/2up> (Accessed Date: March 10, 2026).
- [4] A. Smith, *An Inquiry Into The Nature And Causes of The Wealth of Nations*. Edited by Edwin Cannan. Chicago: University of Chicago Press, 1976. ISBN: 978-0-226-76374-3.
- [5] NBIM, "Government Pension Fund Global Annual Report 2024." Norge Bank Investment Management, Feb. 25, 2025, [Online]. https://www.nbim.no/contentassets/490f9f062cfc4694b12c45f4d04ab0a5/annual_report_2024.pdf (Accessed Date: March 10, 2026).
- [6] E. J. Stiglitz, A. Sen, and J.-P. Fitoussi, "Report By The Commission On The Measurement Of Economic Performance And Social Progress." 2009, [Online]. <https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf> (Accessed Date: March 11, 2026).

- [7] A. S. Jensen and A. Wiedemann, "Cross-National Support for the Welfare State Under Wealth Inequality," *Comp. Polit. Stud.*, vol. 56, no. 13, pp. 1959–1995, Nov. 2023, doi: 10.1177/00104140231168364.
- [8] K. Birch and C. Ward, "Assetization And The 'New Asset Geographies,'" *Dialogues Hum. Geogr.*, vol. 14, no. 1, pp. 9–29, Mar. 2024, doi: 10.1177/20438206221130807.
- [9] A. Leyshon and N. Thrift, "The Capitalization of Almost Everything: The Future of Finance and Capitalism," *Theory Cult. Soc.*, vol. 24, no. 7–8, pp. 97–115, Dec. 2007, doi: 10.1177/0263276407084699.
- [10] D. Detter and S. Folster, "The Potential of State Commercial Property: Mapping And Managing Non-Financial Public Assets," *Int. J. Public Policy*, vol. 15, no. 1/2, p. 111, 2019, doi: 10.1504/IJPP.2019.099048.
- [11] L. Noring, "Public Aset Corporation: A New Vehicle For Urban Regeneration And Infrastructure Finance," *Cities*, vol. 88, pp. 125–135, May 2019, doi: 10.1016/j.cities.2019.01.002.
- [12] C. B. Casady and R. R. Geddes, "Asset Recycling for Social Infrastructure in the United States," *Public Works Manag. Policy*, vol. 25, no. 3, pp. 281–297, July 2020, doi: 10.1177/1087724X20911652.
- [13] B. Fernandez, "Asset Recycling and its Potential for Infrastructure Savings," American Action Forum, United State, Research, July 2017, [Online]. <https://www.americanactionforum.org/research/asset-recycling-potential-infrastructure-savings> (Accessed Date: March 11, 2026).
- [14] The Australian Government the Treasury, "Review of the National Partnership Agreement on Asset Recycling." Commonwealth of Australia, Jan. 2019, [Online]. https://federalfinancialrelations.gov.au/sites/federalfinancialrelations.gov.au/files/2021-07/Review_NPA_asset_recycling-2019.pdf (Accessed Date: March 11, 2026).
- [15] M. C. Basri, P. van der Eng, and Institute of Southeast Asian Studies, Eds., *Business in Indonesia: New Challenges, Old Problems*. in Indonesia update series. Singapore: Institute of Southeast Asian Studies, 2004. ISBN: 978-981-230-247-2.
- [16] V. Tanzi and L. Schuknecht, *Public Spending In The 20th Century: A Global Perspective*, Transferred to digital print. Cambridge: Cambridge University Press, 2004. ISBN: 978-0-521-66410-3.
- [17] T. P. Snyder, "The Sale and Lease of Public Assets: Fiscal Savior or Sacrilege?," *Public Works Management and Policy*, vol. 18, no. 3, pp. 204–228, 2013. doi: 10.1177/1087724X12461260.
- [18] Indonesia, *Government Regulation of the Republic of Indonesia Number 27 of 2014 concerning Management of State/Regional Property*. 2014, [Online]. <https://jdih.kemenkeu.go.id/api/download/f5f67399-dc7d-4e23-a1a1-4308a6dbb5ca/27TAHUN2014PP.HTM> (Accessed Date: March 20, 2026).
- [19] Ministry of Finance, "Central Government Financial Report (Audited)." Ministry of Finance of the Republik of Indonesia, Mei 2023, [Online]. https://djpb.kemenkeu.go.id/portal/images/LKPP/LKPP_Tahun_2023_audited_plus_opini.pdf (Accessed Date: March 20, 2026).
- [20] C. W. Cobb and P. H. Douglas, "A Theory of Production," *Am. Econ. Rev.*, vol. 18, no. 1, pp. 139–165, 1928.
- [21] R. M. Solow, "A Contribution to the Theory of Economic Growth," *Q. J. Econ.*, vol. 70, no. 1, p. 65, Feb. 1956, doi: 10.2307/1884513.
- [22] J. M. Keynes, *The General Theory of Employment, Interest, and Money*, HBJ edition 1964. in A Harvest Book Business & Economics. San Diego: Harcourt Brace Jovanovich, Inc., 1964. ISBN: 978-0-15-634711-2.
- [23] D. A. Aschauer, "Is Public Expenditure Productive?," *J. Monet. Econ.*, vol. 23, no. 2, pp. 177–200, Mar. 1989, doi: 10.1016/0304-3932(89)90047-0.
- [24] H. Miyamoto, A. Baum, N. Gueorguiev, J. Honda, and S. Walker, *Growth Impact of Public Investment and the Role of Infrastructure Governance*. in Well Spent How Strong Infrastructure Governance Can End Waste in Public Investment. International Monetary Fund, 2020, [Online]. <https://www.elibrary.imf.org/display/book/9781513511818/ch002.xml?tabs=fulltext> (Accessed Date: March 26, 2026).
- [25] A. Abiad, D. Furceri, and P. Topalova, "The Macroeconomic Effects of Public Investment: Evidence from Advanced Economies," *IMF Work. Pap.*, vol. WP/15/95, May 2015, [Online]. <https://www.imf.org/-/media/websites/imf/imported-full-text-pdf/external/pubs/ft/wp/2015/wp1595.pdf> (Accessed Date: March 26, 2026).

- [26] R. Ram, "Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time-Series Data," *Am. Econ. Rev.*, vol. 76, no. 1, pp. 191–203, 1986.
- [27] A. M. Okun, "Potential GNP: Its Measurement and Significance," *Proceedings of the Business and Economics Statistics Section, American Statistical Association*, pp. 98–103, 1962. Cowles Foundation, Yale University.
- [28] N. G. Mankiw, *Macroeconomics*, 5th ed. New York, NY: Worth Publishers, 2003. ISBN: 978-0-7167-5237-0.

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

- Hizkia HD. Tasik, Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data. Development or design of methodology; creation of models
- Novie Rarung, Ideas; formulation or evolution of overarching research goals and aims. Conducting research and an investigation process, specifically performing the experiments, or data/evidence collection. Management activities to annotate (produce metadata), scrub data, and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.
- Anderson G. K., Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.
- Ivonne Stanley Saerang, Management and coordination responsibility for the research activity planning and execution.

The authors equally contributed to the present research, at all stages from the formulation of the problem to the final findings and solution.

Sources of Funding for Research Presented in a Scientific Article or the Scientific Article Itself

No funding was received for conducting this study.

Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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