

Assessing the Contribution and Effectiveness of Motor Vehicle Taxes in Enhancing Regional Revenue: Evidence from Central Java Province

Vivi Kumalasari Subroto*¹, Sukemi Kamto Sudibyo²

^{1,2}Program Studi S1 Akuntansi, Fakultas Studi Akademik, Universitas Sains dan Teknologi Komputer, Kota Semarang, Indonesia

Email: viviks@stekom.ac.id*¹; sukemi@stekom.ac.id²

*Corresponding Author

Article Info

Article history:

Received: Oct 09, 2025

Revised: Nov 17, 2025

Accepted: Dec 25, 2025

Keywords:

Motor Vehicle Tax

Transfer Fee

Local Revenue

Fiscal Effectiveness

Central Java

ABSTRACT

Local governments in Indonesia rely significantly on local tax revenues to strengthen fiscal independence and sustain regional development. Among these revenue sources, the Motor Vehicle Tax (PKB) and the Motor Vehicle Transfer Fee (BBNKB) play a vital role in shaping regional fiscal capacity. This study explores how both taxes contribute to the Regional Own-Source Revenue (PAD) of Central Java Province during the 2020–2024 period. Drawing on quantitative analysis and secondary data from the Central Java Regional Revenue Agency (Bapenda), the research assesses the effectiveness and contribution of PKB and BBNKB in supporting local fiscal performance. The results show that PKB consistently exerts a positive, meaningful influence on PAD, underscoring its central role in sustaining the province's fiscal strength. In contrast, BBNKB demonstrates a weaker, less stable impact, primarily driven by changes in vehicle ownership trends and administrative challenges. When considered together, both tax instruments contribute to enhancing local fiscal capacity, although the reliance on PKB remains predominant. These findings underscore the importance of modernizing regional tax administration, particularly through digital innovation, transparent reporting systems, and community-based compliance strategies. Strengthening these mechanisms is essential to building a more resilient and autonomous fiscal framework, especially in the context of post-pandemic economic recovery and long-term regional development planning.



1. INTRODUCTION

Local governments in Indonesia rely heavily on local tax revenue as a primary source of Pendapatan Asli Daerah (PAD). Among the various tax instruments, Motor Vehicle Tax (Pajak Kendaraan Bermotor – PKB) and Motor Vehicle Transfer Fee (Bea Balik Nama Kendaraan Bermotor – BBNKB) play a pivotal

role in supporting regional fiscal capacity [1]. These tax components are not only significant in terms of revenue contribution but also serve as instruments of fiscal policy that reflect the balance between regional development needs and taxpayer capacity.

In Central Java Province, PKB and BBNKB consistently contribute a substantial portion of PAD. The Provincial Government has also introduced innovative policies to enhance revenue performance, such as tax discounts and penalty waivers under the pemutihan scheme. For instance, the 2025 tax amnesty program mobilized 1,196,113 tax objects and contributed IDR 333.9 billion to PAD within just three months [2]. In addition, the realization of PKB revenues through the first quarter of 2025 amounted to IDR 1.248 trillion, while BBNKB reached IDR 456.65 billion [3]. Figure 1 shows the fiscal importance of PKB and BBNKB as well as the effectiveness of short-term incentives in accelerating tax payments.

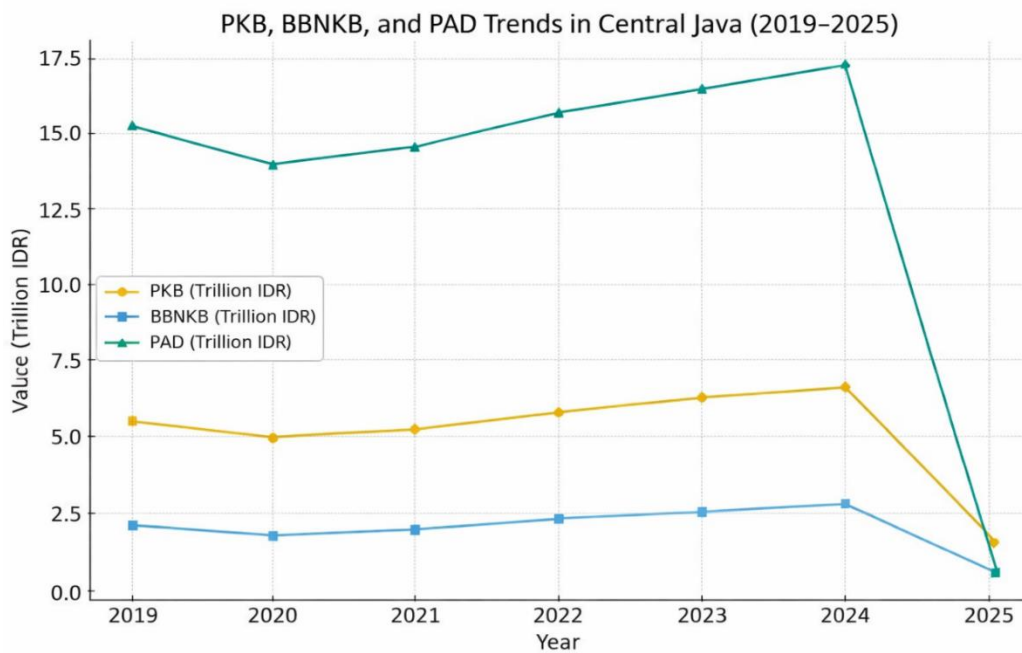


Figure 1. PKB, BBNKB, and PAD Trends in Central Java From 2019 to 2025
Source: Bapenda Jateng (2025)

Despite these encouraging outcomes, significant challenges remain. Temporary incentives such as discounts and amnesty can stimulate compliance in the short run, but may affect long-term taxpayer behavior and expectations if not followed by consistent enforcement [4]. Furthermore, the effectiveness of PKB and BBNKB in enhancing PAD depends not only on the tax base, vehicle ownership, and transactions, but also on administrative efficiency, integration of digital payment systems, and public trust in local tax administration.

Research on local taxation in Indonesia [5], [6], [7] has primarily focused on either revenue contribution (e.g., the proportions of PKB and BBNKB in PAD) or on the short-term effects of tax incentive programs, such as amnesties and discounts. However, few studies provide a comprehensive evaluation that integrates both contribution analysis across multiple years and the effectiveness of policy interventions in a single provincial case. Moreover, existing studies often generalize results across provinces without considering contextual factors, such as differences in vehicle ownership trends, fiscal autonomy, or administrative innovations. This creates a knowledge gap in how sustainable and

equitable tax management can be designed at the provincial level, particularly in regions with large populations such as Central Java.

At the same time, recent developments in local tax administration—such as the expansion of digital payment systems, real-time data integration across Samsat offices, and community-centered outreach—signal a transformation in how regional tax capacity is being built [8], [9]. These state-of-the-art highlights that the current debate is shifting from merely assessing revenue magnitude to evaluating policy effectiveness, taxpayer behavior, and the role of digital innovation in ensuring sustainable compliance.

Against this background, this study seeks to examine the contribution and effectiveness of PKB and BBNKB in strengthening PAD in Central Java. Specifically, it aims to analyze their relative contribution to PAD during 2019–2025, evaluate the effectiveness of policy interventions such as tax amnesties and discounts, and propose recommendations for sustainable local tax management. The findings are expected to contribute to both the academic literature on local taxation in Indonesia and to practical policymaking in provincial tax administration.

2. METHOD

2.1. Research Design

This study employs a quantitative research design to empirically examine the contribution and effectiveness of the Motor Vehicle Tax (Pajak Kendaraan Bermotor – PKB) and the Motor Vehicle Transfer Fee (Bea Balik Nama Kendaraan Bermotor – BBNKB) in enhancing Pendapatan Asli Daerah (PAD) or local own-source revenue in Central Java Province. The quantitative approach is chosen because it enables objective measurement, statistical testing, and the identification of causal relationships among fiscal variables based on numerical evidence [10].

2.2. Data Sources and Period

This study relies on secondary data from the Regional Revenue Agency of Central Java (Bapenda Jateng) for the period 2020–2024. The data includes annual reports on the realization and targets of PKB, BBNKB, and PAD, published by the provincial government. Supplementary data were collected from the Badan Pusat Statistik (BPS) and the Central Java fiscal dashboard to ensure accuracy and consistency across reporting years. Using official administrative data enhances the validity and reliability of fiscal analysis, as such data reflects audited government records [4], [11].

The key variables examined in this study are as follows:

1. Motor Vehicle Tax (PKB) – annual realized revenue from PKB (in IDR).
2. Motor Vehicle Transfer Fee (BBNKB) – annual realized revenue from BBNKB (in IDR).
3. Local Own-Source Revenue (PAD) – total locally generated income (in IDR).
4. Tax Effectiveness Ratio – a measure of the efficiency of revenue collection, calculated as the ratio between actual realization and the government's revenue target [12].

2.3. Data Analysis Techniques

Data was processed and analyzed using IBM SPSS Statistics version 26. The analysis consisted of several stages to ensure both descriptive and inferential validity:

1. Descriptive Analysis – to present an overview of revenue trends, growth trends, and the relative contribution of PKB and BBNKB to PAD.
2. Effectiveness Analysis – using ratio analysis to determine the degree to which PKB and BBNKB realization achieved or exceeded their annual targets. An effectiveness value above 100% indicates optimal performance [4].
3. Correlation Analysis – to measure the strength and direction of the relationship between PKB, BBNKB, and PAD.

4. Multiple Linear Regression Analysis – to assess the simultaneous effect of PKB and BBNKB on PAD and identify which variable has the more decisive influence. The coefficient of determination (R^2) was used to determine the explanatory power of the model [13].
5. Classical Assumption Testing – including tests for normality, multicollinearity, and heteroskedasticity, to ensure the reliability and validity of regression results.

All statistical tests were conducted at a 5% significance level ($\alpha = 0.05$), consistent with social science research conventions. Data visualization, such as line graphs and contribution ratios, was employed to strengthen the interpretation of findings and provide a clearer picture of fiscal performance dynamics in Central Java.

2.4. Research Framework

The conceptual framework underlying this study posits a direct positive relationship between PKB, BBNKB, and PAD. Furthermore, the effectiveness of each tax serves as an indicator of fiscal management efficiency, reflecting local governments' ability to mobilize revenue effectively. This framework aligns with the theory of fiscal decentralization, which posits that local governments with higher fiscal autonomy and tax collection capacity are more capable of financing regional development [14]. The formula expresses the empirical model of the study (1):

$$PAD = \alpha + \beta_1 PKB + \beta_2 BBNKB + \epsilon \quad (1)$$

Where α represents the intercept, β_1 and β_2 denote the regression coefficients for PKB and BBNKB, respectively, and ϵ is the error term.

3. RESULT AND ANALYSIS

3.1. Target and Realization of Motor Vehicle Tax (PKB) in Central Java Province (2020–2024)

The realization of Motor Vehicle Tax (PKB), Motor Vehicle Transfer Fee (BBNKB), and Local Own-Source Revenue (PAD) in Central Java Province over the 2020–2024 period exhibited a fluctuating trend. This trend illustrates the adaptive fiscal response to regional macroeconomic volatility and the varying capacity of local governments to optimize tax collection amid changing economic and regulatory contexts. Table 1 illustrates the annual target and realization of PKB revenue in Central Java over the past five years, showing that the realization has gradually declined since peaking in 2022.

Table 1. Target and Realization of Motor Vehicle Tax (PKB) in Central Java Province (2020–2024)

Year	PKB Target (IDR)	PKB Realization (IDR)	Percentage (%)
2020	4,714,000,000,000	4,579,535,646,300	97.15
2021	5,154,952,796,000	4,758,837,101,600	92.32
2022	5,521,380,840,000	5,432,525,592,000	98.39
2023	6,022,354,487,000	5,509,907,492,075	91.49
2024	6,505,647,791,000	5,474,932,909,600	84.16

Source: *Bapenda Jateng (2025)*

The data presented in Table 1 illustrate that although the PKB revenue targets increased consistently each year, the realization rates did not always follow the same upward trajectory. This situation reflects two interrelated conditions: on one hand, the provincial government continues to

demonstrate its commitment to strengthening fiscal capacity by raising annual targets; on the other hand, persistent challenges in maintaining taxpayer compliance remain a barrier to achieving optimal revenue performance. To provide a clearer picture of how PKB performance has evolved, Tables 2 and 3 summarize the annual growth of both targets and realizations for the same period.

Table 2. Growth in Motor Vehicle Tax (PKB) Targets in Central Java Province (2020–2024)

Year	PKB Target (IDR)	Previous Year's Realization (IDR)	Growth (IDR)	Percentage (%)
2020	4,714,000,000,000	4,714,000,000,000	0	0
2021	5,154,952,796,000	4,714,000,000,000	440,952,796,000	9.35
2022	5,521,380,840,000	5,154,952,796,000	366,428,044,000	7.11
2023	6,022,354,487,000	5,521,380,840,000	500,973,647,000	9.07
2024	6,505,647,791,000	6,022,354,487,000	483,293,304,000	8.02
Average				6.71

Source: Bapenda Jateng (2025)

As shown in Table 2, PKB target growth in Central Java during 2020–2024 was generally positive, with an average growth rate of 6.71%. The highest increase occurred in 2021, reaching 9.35%, indicating optimism about post-pandemic economic recovery and rising vehicle ownership. Meanwhile, the lowest growth rate was recorded in 2022 at 7.11%, a figure that may be associated with fiscal adjustments following the stabilization of regional revenues after the lifting of COVID-19 restrictions [14].

This steady increase in PKB targets demonstrates the local government’s proactive strategy in expanding the tax base and enhancing fiscal autonomy, aligning with national decentralization objectives [15]. However, continuous target increments without proportional improvements in realization performance may indicate limited elasticity in taxpayer capacity or inefficiencies in collection systems [16].

Table 3. Growth in Motor Vehicle Tax (PKB) Realization in Central Java Province, 2020–2024

Year	PKB Realization (IDR)	Previous Year's Realization (IDR)	Growth (IDR)	Percentage (%)
2020	4,579,535,646,300	4,579,535,646,300	0	0
2021	4,758,837,101,600	4,579,535,646,300	179,301,455,300	3.92
2022	5,432,525,592,000	4,758,837,286,600	673,688,305,400	14.16
2023	5,509,907,492,075	5,432,537,592,000	77,369,900,075	1.42
2024	5,474,932,909,600	5,509,907,492,075	(34,974,582,475)	(0.63)
Average				3.77

Source: Bapenda Jateng (2025)

Table 3 reveals that PKB realization grew, on average, by 3.77% over the five years. The most significant increase occurred in 2022, when PKB realization rose by 14.16%, driven mainly by policy initiatives such as tax discounts and digital payment innovations introduced by the Samsat system to enhance taxpayer convenience [17]. However, the growth rate of realization declined sharply in 2023, falling to -0.63% in 2024.

This decline may be attributed to several interrelated factors. First, the expiration of temporary tax relief programs reduced taxpayer incentives [18]. Second, slower economic growth and a decline in new vehicle purchases led to fewer taxable transactions [19]. Third, administrative inefficiencies and system integration issues in regional Samsat offices hindered consistent revenue collection.

Overall, while PKB realization remained relatively strong throughout the observed period, the downward trend in the later years indicates the need for more robust policy interventions. Strengthening future strategies will require not only advancements in digital-based tax administration but also more meaningful taxpayer engagement and stronger coordination among relevant agencies. Sustained revenue performance depends on the effectiveness of administrative systems as well as the development of trust-based relationships between the government and taxpayers [20] [21]

Table 4. Effectiveness of Motor Vehicle Tax (PKB) Collection in Central Java Province (2020–2024)

Year	PKB Target (IDR)	PKB Realization (IDR)	Percentage (%)	Category
2020	4,714,000,000,000	4,579,535,646,300	97.15	Fairly effective
2021	5,154,952,796,000	4,758,837,101,600	92.32	Fairly effective
2022	5,521,380,840,000	5,432,525,592,000	98.39	Fairly effective
2023	6,022,354,487,000	5,509,907,492,075	91.49	Less effective
2024	6,505,647,791,000	5,474,932,909,600	84.16	Less effective
Average			92.70	Fairly effective

Source: Bapenda Jateng (2025)

Table 4 further illustrates the effectiveness of Motor Vehicle Tax (PKB) collection in Central Java Province from 2020 to 2024. The data reveal fluctuations in annual realization levels compared with their respective targets, reflecting variations in fiscal performance across the five years. The average effectiveness ratio reached 92.70%, a figure that, according to the classification applied by the Regional Revenue Agency (Bapenda Jateng), is categorized as “fairly effective” [4]

This suggests that although PKB management has performed reasonably well, there remains considerable room for policy refinement and system strengthening to achieve consistently high levels of tax collection effectiveness. The results indicate that the Central Java Provincial Government has been relatively effective in realizing PKB revenue targets over the 2020–2024 period. In 2020, PKB realization achieved 97.15% of the target, reflecting strong compliance and effective collection management despite the economic slowdown caused by the COVID-19 pandemic. The following year (2021) saw a slight decline to 92.32%, which can be attributed to post-pandemic recovery and reduced vehicle registration activity. The highest level of effectiveness was observed in 2022 at 98.39%, coinciding with the implementation of tax incentives and modernization initiatives under the Samsat Digital program, which simplified payment procedures and enhanced taxpayer accessibility. However, effectiveness declined in 2023 (91.49%) and further in 2024 (84.15%), indicating emerging challenges in maintaining tax compliance and achieving fiscal targets.

Several factors may explain this downward trend. First, the gradual expiration of tax amnesty and discount programs reduced short-term payment motivation. Second, the economic slowdown in early 2024 affected vehicle ownership growth and registration activity, which directly impacted PKB revenue realization. Lastly, administrative inefficiencies, such as delays in digital data synchronization across regional Samsat offices, may have also influenced collection performance [22], [15], [21]

Despite these fluctuations, the overall average of 92.70% indicates that the Regional Revenue Agency of Central Java (Bapenda Jateng) has managed PKB collection with commendable efficiency. This suggests that fiscal management systems, enforcement measures, and public outreach programs have been sufficiently effective in mobilizing motor vehicle tax revenue. However, the results have not yet

reached their full potential. From a policy perspective, these findings highlight the importance of sustaining digital innovations and taxpayer engagement strategies to maintain high levels of compliance. The results also affirm the role of PKB as a stable and vital component of regional fiscal capacity, consistent with previous studies emphasizing the contribution of vehicle-based taxation to PAD [23]

3.2. Target and Realization of Motor Vehicle Transfer Fee (BBNKB) in Central Java Province (2020-2024)

BBNKB or Motor Vehicle Transfer Fee constitutes an essential component of Central Java Province's local revenue structure. Its performance not only reflects the strength of regional fiscal capacity but also captures public activities related to vehicle ownership transfers. During the 2020-2024 period, BBNKB revenue realization exhibited a fluctuating trend, shaped by changes in economic conditions, policy adjustments, and evolving taxpayer behavior across the province.

Table 5. Target and Realization of Motor Vehicle Transfer Fee (BBNKB) in Central Java Province (2020-2024)

Year	BBNKB Target (IDR)	BBNKB Realization (IDR)	Percentage (%)
2020	3.150.000.000.000	2.228.465.305.800	70,74
2021	3.150.000.000.000	2.775.978.070.000	88,13
2022	3.466.000.000.000	2.886.101.450.650	83,27
2023	3.720.814.201.000	2.963.924.066.000	79,66
2024	3.289.576.527.000	3.068.323.586.500	93,27

Source: Bapenda Jateng (2025)

As shown in Table 5, both the annual targets and realizations of BBNKB revenue varied considerably throughout the five years. Although the provincial government consistently set ambitious revenue targets, actual collections were influenced by broader macroeconomic developments, shifts in the regional vehicle market, and the temporary effects of fiscal incentive programs such as tax amnesty (pemutihan pajak) initiatives [15]. To provide a clearer understanding of these dynamics, Table 6 outlines the year-to-year growth in BBNKB revenue targets. In contrast, Table 7 summarizes the annual increase in actual revenue realization over the same period.

Table 6. Growth of Motor Vehicle Transfer Fee (BBNKB) Targets in Central Java Province (2020-2024)

Year	BBNKB Target (IDR)	Previous Year's Realization (IDR)	Growth (IDR)	Percentage (%)
2020	3.150.000.000.000	3.150.000.000.000	0	0
2021	3.150.000.000.000	3.150.000.000.000	0	0
2022	3.466.000.000.000	3.150.000.000.000	316.000.000.000	10,03
2023	3.720.814.201.000	3.466.000.000.000	254.814.201.000	7,35
2024	3.289.576.527.000	3.720.814.201.000	(431.237.674.000)	(11,59)
Average				1.16

Source: Bapenda Jateng (2025)

The growth of BBNKB targets in Central Java from 2020 to 2024 exhibited a fluctuating trend, with an average increase of only 1.16%. The most notable growth occurred in 2022, reaching 10.03%, which aligned with the rise in post-pandemic vehicle ownership transfers and the gradual recovery of household purchasing power. In contrast, the sharpest decline appeared in 2024, when the target was

reduced by –11.59% from the previous year. The absence of target growth in 2020 and 2021 reflects the provincial government’s cautious fiscal stance during the height of the COVID-19 pandemic, a period when the automotive sector contracted significantly due to mobility restrictions and declining household income. [24] The negative target adjustment in 2024 further suggests a strategic response to signs of market saturation and diminishing vehicle transaction volumes.

Table 7. Growth of Motor Vehicle Transfer Fee (BBNKB) Realization in Central Java Province (2020–2024)

Year	BBNKB Realization (IDR)	Previous Year's Realization (IDR)	Growth (IDR)	Percentage (%)
2020	2.228.465.305.800	2.228.465.305.800	0	0
2021	2.775.978.070.000	2.228.465.305.800	547.512.764.200	24,57
2022	2.886.101.450.650	2.775.978.070.000	110.123.380.650	3,97
2023	2.963.924.066.000	2.886.101.450.650	77.822.615.350	2,70
2024	3.068.323.586.500	2.963.924.066.000	104.399.520.500	3.52
Average				6.95

Source: Bapenda Jateng (2025)

Table 7 shows that BBNKB realization grew at an average rate of 6.95% during the same period. The strongest performance was recorded in 2021, with a realization growth of 24.57%, coinciding with the introduction of tax discount programs and the expansion of digital payment options designed to enhance compliance [25]. However, growth slowed significantly from 2022 onward, reaching only 2.70% in 2023, before slightly improving to 3.52% in 2024. These fluctuations indicate that while policy interventions temporarily enhanced taxpayer responsiveness, structural challenges—such as economic uncertainty, reduced vehicle transactions, and administrative constraints—continued to limit long-term revenue stability. The modest recovery in 2024 may be linked to improvements in data integration among Samsat offices and the increasing digitalization of tax payment systems, which helped reduce procedural barriers for taxpayers [26].

An assessment of BBNKB collection effectiveness (Table 8) shows that Central Java achieved an average effectiveness rate of 83.01%, placing it in the “less effective” category. This result suggests that despite the efforts of the Regional Revenue Agency (Bapenda) to meet its revenue targets, overall performance still falls short of the expected benchmark. The highest effectiveness level, 93.27%, was attained in 2024, signaling a partial rebound following three consecutive years of underperformance. This improvement may be associated with administrative reforms and enhanced taxpayer outreach initiatives, including the expansion of online registration services and strengthened inter-agency collaboration. Conversely, the lowest effectiveness level was observed in 2020 (70.74%), reflecting the severe disruptions to vehicle transactions and taxpayers’ financial capacity during the early phase of the pandemic.

From a policy perspective, these findings underscore the importance of strengthening the consistency of fiscal strategies beyond short-term incentives. Local governments must balance revenue targets with realistic economic conditions and improve institutional coordination to enhance the efficiency of tax administration. Strengthening transparency, data integration, and public trust will be essential to sustaining the long-term effectiveness of BBNKB as a source of local revenue. [15], [21].

Table 8. Effectiveness of Motor Vehicle Transfer Fee (BBNKB) Collection in Central Java Province (2020–2024)

Year	BBNKB Target (IDR)	BBNKB Realization (IDR)	Percentage (%)	Category
2020	3,150,000,000,000	2,228,465,305,800	70.74	Ineffective
2021	3,150,000,000,000	2,775,978,070,000	88.13	Less effective
2022	3,466,000,000,000	2,886,101,450,650	83.27	Less effective
2023	3,720,814,201,000	2,963,924,066,000	79.66	Less effective
2024	3,289,576,527,000	3,068,323,586,500	93.27	Fairly effective
Average			83.01	Less effective

Source: Bapenda Jateng (2025)

3.3. Normality Test

Based on Figure 2 below, the data points are closely distributed along the diagonal line, indicating that the dataset follows a normal distribution. This implies that the dependent and independent variables—Motor Vehicle Tax (PKB), Motor Vehicle Title Transfer Fee (BBNKB), and Regional Original Revenue (PAD)—meet the normality assumption required for parametric statistical testing. In other words, the residuals are normally distributed, suggesting that the model is suitable for further regression analysis [13].

A normal distribution of data is a critical assumption in regression models, as it ensures the reliability and validity of hypothesis testing. The visual inspection of the P-P plot in Figure 2 confirms that there are no significant deviations from normality, as the observed cumulative probabilities align closely with the expected values. This finding also supports the statistical integrity of the dataset obtained from the Central Java Regional Revenue Agency (Bapenda) for the 2020–2024 fiscal years. According to recent research, the normality assumption is essential for ensuring that linear regression results accurately reflect the relationships between budgetary policy instruments and regional financial performance. In this study, since all variables passed the normality test, subsequent analyses—including correlation and regression—were conducted under the assumption that the data were normally distributed and free from systematic bias.

Multicollinearity Test

Based on Figure 3, the Variance Inflation Factor (VIF) value for the Motor Vehicle Tax (PKB) variable (X_1) is 1.382, and for the Motor Vehicle Title Transfer Fee (BBNKB) variable (X_2), it is also 1.382. Both independent variables have VIF values well below the critical threshold of 10, indicating no multicollinearity. Similarly, the *Tolerance* values for PKB (X_1) and BBNKB (X_2) are both 0.724, which exceed the minimum accepted level of 0.01.

These results demonstrate that each independent variable contributes unique explanatory power to the regression model, meaning that the relationship between the independent variables is not excessively correlated [13]. In quantitative research, multicollinearity occurs when independent variables are highly correlated, which can distort regression coefficient estimates and weaken the reliability of inferential analysis. The absence of such a problem in this study supports the robustness of the regression model used to examine the contribution and effectiveness of PKB and BBNKB in strengthening regional original revenue (PAD) in Central Java.

Consistent with prior empirical evidence, maintaining a low level of multicollinearity ensures that the statistical model provides unbiased and consistent estimates, thus improving the interpretability of fiscal variables in regional financial studies. Therefore, it can be concluded that the regression model in

this research fulfills the classical assumption of no multicollinearity, allowing for a valid interpretation of subsequent regression coefficients.

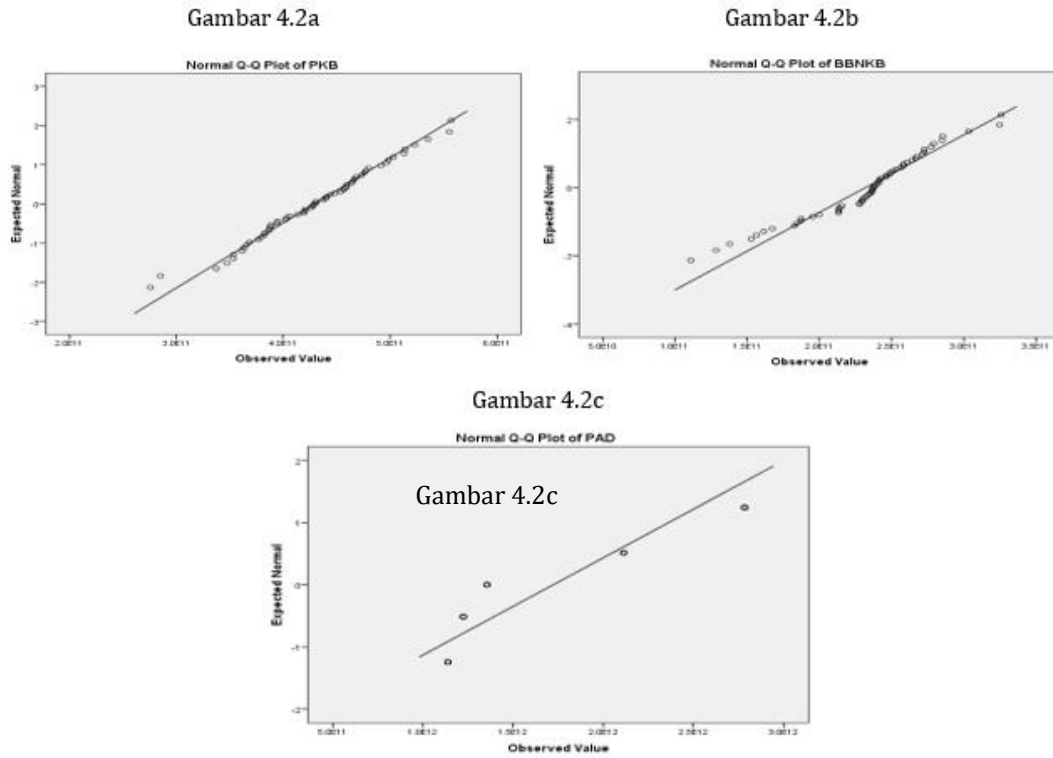


Figure 2. Normality Test Results for PKB (2a), BBNKB (2b), and PAD (2c) - Source: SPSS Output (2025)

Model	Standardized Coefficients	t	Sig.	Collinearity Statistics	
				Beta	Tolerance
1	(Constant)	-.613	.542		
	PKB	.309	.031	.724	1.382
	BBNKB	.195	.167	.724	1.382

Figure 3. Multicollinearity Test Results for PKB (X₁) and BBNKB (X₂) - Source: SPSS Output (2025)

3.4. Heteroscedasticity Test

Based on Figure 4, the significance value of the Motor Vehicle Tax (PKB) variable (X₁) is 0.064, which is greater than the threshold value of 0.05. Therefore, the null hypothesis (H₀) is accepted, indicating no heteroscedasticity for this variable. Similarly, the significance value for the Motor Vehicle Title Transfer Fee (BBNKB) variable (X₂) is 0.087, which is also greater than 0.05; hence, H₀ is likewise accepted for this variable. The correlation coefficients further reveal positive relationships: 0.570 for PKB (X₁) and 0.770 for BBNKB (X₂), suggesting moderately strong positive associations between these variables and the residuals. However, since both significance values exceed 0.05, it can be concluded that the residuals in the regression model are homoscedastic — that is, they have constant variance across

observations. This implies that the regression model satisfies the classical assumption of homoscedasticity.

The absence of heteroscedasticity indicates that the model’s error terms are evenly distributed and do not systematically vary with the independent variables, ensuring the reliability and efficiency of the estimated regression coefficients [13]. In quantitative fiscal studies, this condition is crucial because heteroscedasticity can bias standard errors, leading to incorrect significance testing and misleading policy implications. These findings strengthen the empirical validity of the model, suggesting that both PKB and BBNKB contribute consistently to the variance in regional revenue performance without producing irregular dispersion in the residuals. Consequently, the regression analysis can be further interpreted with confidence, as the data meet the essential assumptions of the classical linear regression model (CLRM).

			AbsRes	PKB	BBNKB
Spearman's rho	AbsRes	Correlation Coefficient	1.000	.570**	.770*
		Sig. (2-tailed)	.	.064	.087
		N	60	60	60
PKB	PKB	Correlation Coefficient	.570**	1.000	.527**
		Sig. (2-tailed)	.064	.	.071
		N	60	60	60
BBNK B	BBNK B	Correlation Coefficient	.770*	.527**	1.000
		Sig. (2-tailed)	.087	.071	.
		N	60	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Figure 4. Heteroscedasticity Test Results for PKB (X₁) and BBNKB (X₂) - Source: SPSS Output (2025)

3.5. Coefficient of Determination (Adjusted R²)

Based on Figure 5, the adjusted R-squared value is 0.369, indicating that the independent variables in the model explain approximately 36.9% of the variation in the dependent variable. This means that the Motor Vehicle Tax (PKB) and the BBNKB jointly provide substantial explanatory power in predicting changes in the regional own-source revenue (Pendapatan Asli Daerah – PAD). However, the remaining 63.1% of the variance in PAD is influenced by other factors not included in this study, such as regional economic growth, tax enforcement mechanisms, public compliance, digital service efficiency, or policy reforms in local tax administration. In quantitative fiscal research, an adjusted R² value around this range is considered moderate, suggesting that while the model captures essential determinants of PAD, external economic and administrative variables also play a significant role [13].

The adjusted R² value further implies that although PKB and BBNKB are vital components of regional fiscal capacity, optimizing PAD requires an integrated strategy that involves innovation in tax collection, transparency in governance, and strengthened institutional capacity. Therefore, future studies are encouraged to incorporate additional variables such as population growth, digital tax adoption, or economic diversification to enhance the predictive accuracy of regional revenue models.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644 ^a	.397	.369	5.818E+11

a. Predictors: (Constant), BBNKB, PKB

b. Dependent Variable: PAD

Figure 5. Adjusted R-Squared Result of Regression Model - Source: SPSS Output (2025)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-344747082402.486	562568550835.198		-.613	.542
PKB	3.284	1.481	.309	2.218	.031
BBNKB	2.837	2.025	.195	1.401	.167

Figure 6. Multiple Linear Regression Output - Source: SPSS Output (2025)

3.6. Multiple Linear Regression Model

The results of the multiple linear regression analysis (Figure 6) were incorporated into the following equation (2) [27]:

$$Y = -344.747.082.402,486 + 3,284X_1 + 2,837X_2 \quad (2)$$

where:

Y = Regional Own-Source Revenue (Pendapatan Asli Daerah – PAD)

X₁ = Motor Vehicle Tax (Pajak Kendaraan Bermotor – PKB)

X₂ = Motor Vehicle Title Transfer Fee (Bea Balik Nama Kendaraan Bermotor – BBNKB)

The regression equation (2) shows that both independent variables — PKB and BBNKB — have positive coefficients, indicating a direct relationship with PAD. This means that an increase in either PKB or BBNKB revenue will lead to a rise in PAD, assuming other factors remain constant. The coefficient values of 3.284 for PKB and 2.837 for BBNKB suggest that PKB contributes slightly more to PAD than BBNKB, reflecting its greater fiscal leverage at the provincial level. Meanwhile, the negative constant value of -344,747,082,402.486 implies that if PKB and BBNKB revenues were hypothetically zero, PAD would decrease by that amount. Although such a condition is purely theoretical, it illustrates the magnitude of PAD's dependence on these two key local tax sources [27].

3.7. Partial Test (t-Test) for PKB

Based on Figure 6, the calculated t-value for the Motor Vehicle Tax (PKB) variable is 2.218, while the critical t-table value at a 5% significance level (two-tailed test) and degrees of freedom (df = n – k = 60 – 2 = 58) is 2.002. So, the null hypothesis (H₀) is rejected. This indicates that the independent variable (PKB) exerts a statistically significant influence on the dependent variable (PAD). Furthermore, the significance value (Sig.) for PKB is 0.031, which is lower than the established significance level of α = 0.05. Because 0.031 < 0.05, the first hypothesis (H₁) is accepted. This result confirms that the Motor

Vehicle Tax (X_1) has a positive and significant effect on Regional Own-Source Revenue (PAD) in Central Java Province. The regression coefficient for PKB ($\beta = 3.284$) is positive, implying that an increase in PKB revenue contributes directly to the growth of PAD.

This finding aligns with previous empirical studies emphasizing that vehicle-based taxes serve as a significant and stable revenue source for regional governments in Indonesia, particularly in motorized urban regions such as Central Java [28], [29]. Moreover, effective administration, digital payment systems, and strong compliance enforcement have been shown to enhance the efficiency of PKB collection, thereby strengthening fiscal capacity [30]. Hence, the results substantiate that the Motor Vehicle Tax significantly contributes to regional fiscal independence and sustainability, serving as a vital policy instrument for improving local government revenue management.

3.8. Partial Test (t-Test) for BBNKB

The calculated t-value for the BBNKB variable is 1.401 (Figure 6), while the critical t-table value at a 5% significance level (two-tailed test) and degrees of freedom ($df = n - k = 60 - 2 = 58$) is 2.002. So, the null hypothesis (H_0) cannot be rejected. This indicates that the independent variable (BBNKB) has no statistically significant effect on the dependent variable (PAD). Furthermore, the significance value (Sig.) for BBNKB is 0.167, which is greater than the established significance level $\alpha = 0.05$ ($0.167 > 0.05$). Thus, at a 5% significance level, the second hypothesis (H_2) is rejected. This finding implies that the Vehicle Ownership Transfer Fee (BBNKB) does not significantly influence Regional Own-Source Revenue (PAD) in Central Java Province.

The insignificance of BBNKB's effect on PAD suggests that fluctuations in vehicle ownership transfer activities may not directly contribute to local revenue stability. This can be attributed to factors such as economic slowdown, decreased vehicle sales, or reduced public purchasing power during the study period—particularly in the post-pandemic recovery years. Moreover, administrative inefficiencies and limited digital integration in ownership transfer services may also hinder optimal BBNKB collection. In essence, while BBNKB remains a vital component of local tax structures, its short-term contribution to PAD appears weaker than that of the Motor Vehicle Tax (PKB). Therefore, strengthening digital service quality, compliance incentives, and streamlined procedures are essential to enhance its fiscal impact[31]

3.9. Simultaneous Test (F-Test)

Based on Figure 6, the computed F-value is 7.013, while the critical F-table value at a 5% significance level (two-tailed test) with degrees of freedom $dk = n-k-1$ ($60-2-1=57$) is 3.159. It can be concluded that there is a simultaneous effect of the PKB and the BBNKB on Regional Own-Source Revenue (PAD) in Central Java Province. The regression constant presented in Figure 6 also shows a positive coefficient, indicating a positive relationship between the independent variables (PKB and BBNKB) and the dependent variable (PAD). Furthermore, the significance value (Sig.) is 0.002, which is less than the predetermined significance level, $\alpha = 0.05$ ($0.002 < 0.05$). Consequently, the null hypothesis (H_0) is rejected, confirming that both PKB and BBNKB have a statistically significant positive effect on PAD.

This finding implies that collectively, the two primary sources of regional tax revenue, motor vehicle tax and vehicle ownership transfer, play a crucial role in strengthening fiscal capacity and supporting local economic development. When effectively managed, these taxes contribute to the sustainability of regional financial independence and enhance the quality of public services. In Central Java, the significant joint influence of PKB and BBNKB underscores the importance of digital tax systems, administrative transparency, and public compliance in optimizing regional tax performance. Strengthening data integration between Samsat, Bapenda, and financial reporting systems may further improve efficiency and accountability.

4. DISCUSSION

4.1. Contribution of Motor Vehicle Tax (PKB) to Regional Own-Source Revenue (PAD) of Central Java Province

Based on the contribution formulation, the results indicate that the contribution level of Motor Vehicle Tax (PKB) to the Regional Own-Source Revenue (PAD) of Central Java Province is categorized as low, with an average contribution rate of 27.47% over the 2020–2024 period. The annual contribution of PKB to PAD during this period generally falls within the low-to-moderate contribution category. When this result is analyzed in conjunction with the percentage of target achievement, realization, and effectiveness levels of PKB toward PAD, several key findings emerge:

1. The realization of PKB revenue in Central Java Province generally shows a declining trend from year to year.
2. The growth rate of PKB targets over the past five years has been fluctuating and relatively modest (7–9%), with an average growth rate of 6.71%.
3. Although the real growth of PKB is positive, averaging 3.77%, the yearly increase remains relatively small. The lowest realization growth occurred in 2024, showing a negative rate of -0.63%.
4. The increase in PKB targets is not matched by a corresponding rise in actual realization, explaining the observed decrease in overall collection performance.
5. Based on the effectiveness analysis, the Regional Revenue Management Agency (Bapenda) of Central Java Province demonstrated a moderate level of effectiveness in realizing PKB revenues according to set targets during 2020–2022. However, effectiveness declined significantly in 2023–2024, falling into the low and ineffective categories.

Benchmarking these findings against previous studies and experiences in other provinces gives additional insight into Central Java's performance. For instance, in West Java, the implementation of e-Samsat by Bapenda has not significantly improved taxpayer compliance, partly due to system limitations and low adoption [39]. Meanwhile, in Bali, studies have shown that digital tax collection systems like e-Samsat can improve PKB effectiveness so the deployment of e-Samsat and progressive tax rates correlated with improved taxpayer compliance [40]. In contrast, national-level research reports that PKB effectiveness has a positive and statistically significant effect on PAD effectiveness in Subang City, but that the contribution of PKB to PAD may sometimes reduce overall PAD effectiveness [41].

When these descriptive findings are combined with the hypothesis-testing results, it is evident that Motor Vehicle Tax has a positive and significant effect on PAD in Central Java Province during 2020–2024. However, the magnitude of this effect remains relatively small, as reflected in the descriptive analysis. For instance, during 2020–2022, PKB contributed significantly to PAD (92–98% realization of targets), classified as moderately effective. Conversely, during 2023–2024, PKB contributions dropped (84–91% of targets), reflecting declining effectiveness in revenue realization. These findings highlight the dynamic relationship between fiscal targets, realization, and taxpayer behavior within the provincial taxation framework [19], [32]. Central Java's declining PKB effectiveness starting in 2023 may reflect underlying structural challenges: limitations in administrative capacity, weaker taxpayer engagement, and slower adoption of digital systems. These issues could inhibit Central Java from achieving the stable, high-performance tax collection observed in other regions that have embraced stronger digital integration.

4.2. Contribution of Vehicle Ownership Transfer Fee (BBNKB) to Regional Own-Source Revenue of Central Java Province

The contribution level of the Vehicle Ownership Transfer Fee (BBNKB) to PAD in Central Java Province averaged 14.78% from 2020 to 2024, indicating a low contribution. Because BBNKB is closely tied to PKB, changes in vehicle ownership transactions directly affect PKB payments. The decline in BBNKB revenues can therefore be attributed to reduced vehicle purchases and low public awareness regarding ownership transfer compliance. Year by year, BBNKB's share of PAD remains in the "low" to "very low" range. When analyzed alongside target, realization, and effectiveness percentages, several conclusions can be drawn:

1. Over the five years, revenue realization for BBNKB is volatile, and the target values notably declined during 2023–2024.
2. The sharp target reduction in 2023–2024 coincided with a slowdown in realization growth, reaching just 2.70 percent in 2023 (Table 4.8), while the five-year average target growth was only 1.16 percent.
3. The average growth rate for actual realization was 6.95 percent. Still, the weakest performance came in 2023, when growth slowed to 2.70%, these conditions mirroring the significant drop in target for the following year.
4. According to the effectiveness analysis, Central Java's BBNKB collection averaged 83.01 percent, a level that is categorized as "ineffective." Therefore, despite efforts from the regional revenue authority, the province has not been able to maintain its BBNKB collections at the targeted levels.

These findings align with the hypothesis test, which indicates that BBNKB does not significantly affect PAD in Central Java during 2020–2024. The descriptive evidence supports this outcome, demonstrating low effectiveness and limited contribution of BBNKB to regional fiscal performance [32]. To determine whether this situation is unique to Central Java, we can examine comparable studies from other regions. In North Sumatra, both PKB and BBNKB achieved average effectiveness rates above 100 percent, placing them in the "very effective" category [42]. Meanwhile, research in East Java found that while PKB and BBNKB effectiveness had a significant impact on PAD, their contributions (i.e., the share of PAD) were not consistently statistically significant, suggesting that high collection efficiency does not automatically translate into a large fiscal contribution [43]. On a national scale, recent literature highlights that many regions struggle to contribute to BBNKB, often due to limited digital integration and public awareness. Thus, compared to these benchmarks, Central Java's relatively weak contribution and declining effectiveness suggest that the province may face structural challenges: its administrative capacity for BBNKB management, limited taxpayer engagement, and slower adoption of digital platforms could be hindering its performance relative to more dynamic regions [44].

4.3. Joint Contribution of Motor Vehicle Tax (PKB) and Vehicle Ownership Transfer Fee (BBNKB) to Regional Own-Source Revenue

The simultaneous test results reveal that PKB and BBNKB together exert a positive and significant effect on PAD in Central Java Province. This finding is consistent with the descriptive analysis, which shows that PKB was moderately effective and contributed meaningfully during 2020–2022, while BBNKB's contribution remained limited. However, in 2023–2024, both PKB and BBNKB experienced declining performance, reducing their combined impact on PAD. It can therefore be concluded that PKB has a greater influence on PAD than BBNKB. Further analysis suggests that fluctuations in target, realization, and effectiveness percentages, along with limited contributions of PKB and BBNKB, may stem from several contextual factors:

1. Economic downturn during and after the COVID-19 pandemic, where households prioritized basic needs over vehicle tax obligations [33]. Tax arrears reached IDR 440 billion in 2022 and rose to IDR 628 billion in 2023 [34].
2. Suspension of joint enforcement operations (raids) with the national police during the pandemic [35].

3. Limited tax collection efforts due to outdated Samsat databases and constrained door-to-door collection programs [36].
4. Technical issues with online payment systems, such as the New Sakpole application, which hindered taxpayer compliance [37].
5. Tax penalty relief programs intended to encourage post-pandemic recovery were not fully optimized by 2022 [38].
6. Implementation challenges in the SAMSAT BUDIMAN program, including internet instability, registration errors, limited public understanding, and insufficient outreach.
7. Diversified PAD components, consisting of local taxes, user charges, profit-sharing, and other legitimate revenues, may dilute PKB's relative contribution to total PAD.

5. CONCLUSION

The findings indicate that the Motor Vehicle Tax (PKB) has a positive and significant influence on the Regional Original Revenue (PAD) of Central Java Province. This suggests that, while PKB contributes meaningfully to PAD during the 2020–2024 period, its overall magnitude remains moderate in descriptive terms. Between 2020 and 2022, PKB revenue performance reflected a relatively stable fiscal capacity, with realization levels reaching 92–98% of annual targets, underscoring effective administrative coordination and taxpayer compliance even amid the lingering economic effects of the COVID-19 pandemic.

However, during 2023–2024, a gradual decline in PKB's contribution, achieving only 84–91% of its targets, indicates the emergence of new structural challenges. These include behavioral shifts in vehicle ownership trends, delayed tax payments, and the residual impact of post-pandemic consumption adjustments. Consequently, PKB's effectiveness during these years has been suboptimal, underscoring the need for enhanced monitoring systems, digital payment integration, and public awareness campaigns to sustain long-term compliance.

In contrast, the Transfer of Motor Vehicle Title Fee (BBNKB) shows no significant influence on PAD throughout the same longitudinal window. This result corresponds with its consistently weaker performance in revenue realization, mainly due to fluctuating vehicle ownership transfers, limited recovery of purchasing power, and uneven public engagement in vehicle documentation updates. The absence of a strong link between BBNKB and PAD underscores its sensitivity to broader economic cycles, particularly the post-pandemic downturn in household purchasing capacity.

When both PKB and BBNKB are analyzed simultaneously, their joint effect on PAD remains positive and significant, implying that fiscal synergy, rather than individual tax performance, has been pivotal in maintaining regional revenue stability during the 2020–2024 period. These longitudinal trends suggest a shifting fiscal landscape in which dependence on a single tax source becomes increasingly vulnerable to external economic shocks.

From a five-year perspective, the trends from 2020 to 2024 provide valuable insight into Central Java's fiscal trajectory. The initial years (2020–2022) illustrate resilience and effective budgetary management amid pandemic disruptions, whereas the subsequent period (2023–2024) reflects transitional fiscal pressures and the urgent need for adaptive reform. These trends underscore that post-pandemic fiscal recovery should not rely solely on traditional revenue instruments such as PKB and BBNKB. Still, they should instead evolve through modernization, transparency, and taxpayer-engagement initiatives.

In the context of post-pandemic fiscal reform, these findings highlight three essential implications. First, tax digitalization and data integration between PKB and BBNKB systems are critical to reducing leakages and enhancing real-time monitoring of vehicle-based revenues. Second, behavioral fiscal

policies—including tax incentives, flexible payment schemes, and educational outreach—can strengthen compliance and broaden the tax base. Third, strategic diversification of PAD sources is necessary to reduce fiscal dependence on motor-vehicle–based taxes and to build resilience against cyclical shocks in consumer behavior and mobility trends.

Ultimately, the longitudinal evidence from 2020–2024 reflects both progress and vulnerability within Central Java’s fiscal structure. Strengthening PKB performance, revitalizing BBNKB mechanisms, and embedding adaptive fiscal reforms can collectively support a more equitable, sustainable, and self-reliant regional revenue system in the post-pandemic era.

REFERENCES

- [1] D. Ariyanti and Ach. Yasin, “The Effectiveness of Motor Vehicle Tax Reduction Program in Increasing Local Revenue,” *EKSYAR: Ekonomi Syaria’ah dan Bisnis Islam (e-Journal)*, vol. 11, no. 2, pp. 122–132, Nov. 2024, doi: 10.54956/EKSYAR.V11I2.631.
- [2] “Pemutihan Pajak Kendaraan Jateng Berakhir, Sumbang PAD Rp300 Miliar Lebih – Pemerintah Provinsi Jawa Tengah.” Accessed: July. 02, 2025. [Online]. Available: <https://jatengprov.go.id/publik/pemutihan-pajak-kendaraan-jateng-berakhir-sumbang-pad-rp300-miliar-lebih/>
- [3] “Pendapatan Pajak Jateng Tembus Rp 3,77 Triliun, Lampau Target Kuartal Pertama 2025 - semarangnews.id.” Accessed: Apr. 30, 2025. [Online]. Available: <https://semarangnews.id/2025/05/14/pendapatan-pajak-jateng-tembus-rp-377-triliun-lampau-target-kuartal-pertama-2025/>
- [4] “Realisasi Pajak Daerah di Provinsi Jawa Tengah Menurut Kabupaten/Kota - Tabel Statistik - Badan Pusat Statistik Provinsi Jawa Tengah.” Accessed: July. 02, 2025. [Online]. Available: <https://jateng.bps.go.id/id/statistics-table/2/MjQ5NCMy/realisasi-pajak-daerah-di-provinsi-jawa-tengah-menurut-kabupaten-kota.html>
- [5] R. D. Lestari, R. Mudjiyanti, and I. Hapsari, “Effectiveness of Motor Vehicle Tax Revenue and Contribution to Local Revenue in District X,” *Proceedings Series on Social Sciences & Humanities*, vol. 26, pp. 125–131, Sep. 2025, doi: 10.30595/PSSH.V26I.1816.
- [6] M. S. Hermawan, P. Abigail, Y. H. Martowidodjo, and V. Tohang, “Understanding Tax Amnesty and Tax Compliance in Indonesia: an Institutional Approach,” *Journal of Economics, Business, and Accountancy Ventura*, vol. 22, no. 3, pp. 424–434, Mar. 2020, doi: 10.14414/JEBAV.V22I3.1810.
- [7] N. Djazuli, N. L. Azizah, R. A. Renata, N. G. Putri, M. F. Shidqiyah, and A. Amrulloh, “Amnesty’s theory and practice study on income and political effectiveness,” *Jurnal Inovasi Pajak Indonesia*, vol. 1, no. 3, pp. 142–151, Oct. 2024, doi: 10.69725/JIPI.V1I3.207.
- [8] A. A. Silamukti, V. Mayastinasari, and E. Aminanto, “National Digital Samsat (SIGNAL) Program Effectiveness by the System Perspective in the Jurisdiction of Polda Metro Jaya, Indonesia,” *International Journal of Multicultural and Multireligious Understanding*, vol. 9, no. 5, pp. 369–379, May 2022, doi: 10.18415/IJMMU.V9I5.3825.
- [9] A. Arif, G. Susanti, and M. Rusdi, “Digital Transformation in Motor Vehicle Tax Administration: Evaluation of the e-Samsat System and its Impact on Taxpayer Compliance in Indonesia,” *KnE Social Sciences*, vol. 10, no. 18, pp. 1010–1022, Sep. 2025, doi: 10.18502/KSS.V10I18.19521.
- [10] J. W. . Creswell and J. David. Creswell, “Research design : qualitative, quantitative, and mixed methods approaches,” 6th ed. Thousand Oaks, CA: SAGE Publications, 2023.
- [11] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, 1st ed. Bandung: Alfabeta, 2020.
- [12] D. A. Saputri and R. D. Harahap, “Analisis Efektivitas Dan Kontribusi Penerimaan PKB Dan BBNKB Terhadap Pendapatan Asli Daerah Provinsi Sumatera Utara,” *Jurnal Akuntansi dan Keuangan Kontemporer (JAKK)*, vol. 5, no. 1, pp. 19–25, May 2022, doi: 10.30596/JAKK.V5I1.9994.
- [13] I. Ghozali, *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 26 Edisi 10*, 10th ed. Semarang: Universitas Diponegoro, 2021.
- [14] S. Pal and Z. Wahhaj, “Fiscal decentralisation, local institutions and public good provision: evidence from Indonesia,” *J Comp Econ*, vol. 45, no. 2, pp. 383–409, May 2017, doi: 10.1016/J.JCE.2016.07.004.
- [15] A. A. Mebratu, “Tax revenue inefficiency and political risk factors: The Hen or The egg?,” *Cogent Business & Management*, vol. 10, no. 1, Dec. 2023, doi: 10.1080/23311975.2023.2167546.
- [16] B. A. Wiryawan and C. Otchia, “The legacy of the reformasi: the role of local government spending on industrial development in a decentralized Indonesia,” *J Econ Struct*, vol. 11, no. 1, pp. 1–19, Dec. 2022, doi: 10.1186/S40008-022-00262-Y.
- [17] A. Effendi, “The effect of local tax relief (PKB) and incentive for elimination of tax fines on regional tax during the COVID-19 pandemic in Java Province,” *Ekonomi*, vol. 11, no. 3, 2022.

- [18] H. Kaldha and Y. Triwidatin, "The Influence of the Tax Penalty Bleaching Program, Exemption of Transfer of Title Fees and Exemption of Motor Vehicle Tax Arrears for the 5th Year on Motor Vehicle Taxpayer Compliance," *Indonesian Journal of Applied and Industrial Sciences (ESA)*, vol. 2, no. 4, pp. 391–410, Jul. 2023, doi: 10.55927/ESA.V2I4.4965.
- [19] "Kinerja Fiskal Jawa Tengah di Januari 2024 Tumbuh Positif | Direktorat Jenderal Pajak." Accessed: May. 09, 2025. [Online]. Available: <https://www.pajak.go.id/id/siaran-pers/kinerja-fiskal-jawa-tengah-di-januari-2024-tumbuh-positif>
- [20] N. P. V. S. Rahayuni, N. A. S. Darmawan, and I. P. Y. P. Putra, "Pengaruh Penerapan Samsat Digital Nasional dan Samsat Kerti terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor di Kabupaten Buleleng," *Vokasi : Jurnal Riset Akuntansi*, vol. 14, no. 1, pp. 134–143, Sep. 2025, doi: 10.23887/VJRA.V14I1.100640.
- [21] M. Diana, S. Luju, and R. Fibriani, "The influence of transparency and accountability on taxpayer trust in motor vehicle tax at the Ketintang Samsat, South Surabaya," *International Journal of Applied Finance and Business Studies*, vol. 13, no. 1, pp. 96–103, Jun. 2025, doi: 10.35335/IJAFIBS.V13I1.365.
- [22] L. D. Apriyani and R. . Tresnawati, "Pengaruh Kebijakan Pemutihan Pajak Kendaraan Bermotor, Pembebasan BBNKB dan Sosialisasi Perpajakan Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor Pada Kantor SAMSAT Kota Bandung I Pajajaran," *Gema Wiralodra*, vol. 14, no. 1, pp. 280–292, Apr. 2023, doi: 10.31943/GW.V14I1.379.
- [23] M. Muchtar, M. F. Abdullah, and D. Susilowati, "Analisis kontribusi pajak kendaraan bermotor terhadap pendapatan asli daerah kabupaten barito utara," *Jurnal Ilmu Ekonomi JIE*, vol. 1, no. 3, pp. 385–399–385 – 399, Sep. 2017, doi: 10.22219/JIE.V1I3.6165.
- [24] Sukaryo and S. Hariyanto, "Impact of automotive tax incentives during Covid-19: Evidence From Indonesia," *Scientax*, vol. 6, no. 1, pp. 17–29, Oct. 2024, doi: 10.52869/ST.V6I1.598.
- [25] A. H. Saragih, A. Hendrawan, and N. Susilawati, "Implementasi Electronic SAMSAT untuk Peningkatan Kemudahan Administrasi dalam Pemungutan Pajak Kendaraan Bermotor," *Jurnal ASET (Akuntansi Riset)*, vol. 11, no. 1, pp. 85–94, Jun. 2019, doi: 10.17509/JASET.V11I1.16420.
- [26] H. Hermawan, "Implementasi Mesin Samsat Digital Mandiri Dan Samsat Drive Thru Sebagai Bentuk Inovasi Dari Pelayanan Pembayaran Pajak Kendaraan Bermotor," *Jurnal Mirai Management*, vol. 9, no. 3, pp. 89–107, Sep. 2024, doi: 10.37531/MIRAI.V9I3.7392.
- [27] D. N. Gujarati and D. C. Porter, *Basic Econometrics*, 6th ed. New York, NY: McGraw-Hill Education, 2020.
- [28] K. A. Pratama, D. Mustika, and K. Wardani, "Determinants of Motor Vehicle Tax (PKB) Imposition in Central Java Province (2003-2022)," *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, vol. 8, no. 2, pp. 4639–4659, Apr. 2025, doi: 10.31538/IIJSE.V8I2.6242.
- [29] A. Y. Damayanti, A. N. Afifah, S. N. Sunaningsih, F. Ekonomi, and U. Tidar, "Analisis kontribusi pemungutan pajak kendaraan bermotor (pkb) terhadap peningkatan pendapatan asli daerah (PAD) di kota magelang tahun 2018 - 2021," *Jurnal Maneksi (Management Ekonomi Dan Akuntansi)*, vol. 12, no. 2, pp. 241–245, Jun. 2023, doi: 10.31959/JM.V12I2.1476.
- [30] E. Jayanti *et al.*, "Pemanfaatan Aplikasi Smart Tax Dalam Meningkatkan Efisiensi Pelayanan Pajak di Badan Pendapatan Daerah Kota Pekanbaru," *Jurnal Pemerintahan dan Politik*, vol. 10, no. 3, pp. 505–521, Aug. 2025, doi: 10.36982/JPP.V10I3.5589.
- [31] A. Prasiwi, G. L. Faradhila, M. Z. Dewi, and A. Z. P. Rahmandhani, "Analisis Kontribusi Pajak Daerah terhadap Peningkatan Pendapatan Asli Daerah Provinsi Jawa Timur 2020 – 2024," *Jurnal Ilmiah Ekonomi, Akuntansi, dan Pajak*, vol. 2, no. 2, pp. 292–303, 2025, [Online]. Available: <https://ejournal.areai.or.id/index.php/JIEAP/article/view/1144>
- [32] A. F. Putra, I. Syahid, and R. L. Riantika, "Optimizing regional tax revenue with taxpayer compliance as a moderating variable in Yogyakarta," *Journal of Contemporary Accounting*, vol. 6, no. 3, pp. 151–171, Feb. 2024, doi: 10.20885/JCA.VOL6.ISS3.ART2.
- [33] E. D. Sartika, N. Afifah, and S. N. Sari, "Pengaruh insentif pajak kendaraan bermotor selama pandemi covid 19 terhadap kepatuhan wajib pajak kendaraan bermotor di sulawesi selatan," *Jurnal Analisa Akuntansi dan Perpajakan*, vol. 5, no. 2, pp. 144–159, Oct. 2021, doi: 10.25139/JAAP.V5I2.4144.
- [34] "Badan Pengelola Pendapatan Daerah Provinsi Jawa Tengah." Accessed: July. 09, 2025. [Online]. Available: https://website.bapenda.jatengprov.go.id/p/2798/target_dan_realisasi_pendapatan_daerah_tahun_anggaran_2024
- [35] "Polri Tiadakan Razia Kendaraan, Penindakan Jalan Terus | tempo.co." Accessed: June. 10, 2025. [Online]. Available: <https://www.tempo.co/arsip/polri-tiadakan-razia-kendaraan-penindakan-jalan-terus-528459>
- [36] F. D. Pratiwi, "Alur Penagihan Pajak Kendaraan Bermotor pada kegiatan Door to Door di Kantor Unit Pengelola Pendapatan Daerah Kabupaten Pematang," 2022, , Laporan Magang STIE YKPN Yogyakarta.

- [37] "Cara Membayar Pajak Kendaraan Lewat Aplikasi New Sakpole." Accessed: June. 11, 2025. [Online]. Available: <https://otomotif.kompas.com/read/2025/01/16/081200815/cara-membayar-pajak-kendaraan-lewat-aplikasi-new-sakpole>
- [38] S. M. Naufal, "Efektivitas penerimaan pajak kendaraan bermotor, bea balik nama kendaraan bermotor dan kontribusinya terhadap pendapatan asli daerah provinsi jawa tengah tahun 2018-2022," Aug. 2023. Skripsi, Universitas Diponegoro, Semarang.
- [39] S. A. Maghfira, N.I. Sagita, J. Sutisna, "Efektivitas penerapan layanan e-Samsat oleh Bapenda Provinsi Jawa Barat dalam upaya meningkatkan kepatuhan masyarakat membayar Pajak Kendaraan Bermotor," *Janitra: Jurnal Ilmu Akuntansi*, vol. 3, no.1, pp. 75-86, Apr. 2023, doi: <https://doi.org/10.24198/janitra.v3i1.49057>.
- [40] I. G. A. M. R. Dewi and K. Waluyo, "Efektivitas e-Samsat, Pajak Progresif dan kualitas pelayanan terhadap kepatuhan wajib pajak kendaraan bermotor," *Jurnal Ilmiah Akuntansi & Bisnis*, vol. 4, no. 1, pp. 50-61, June, 2019.
- [41] W. S. Utami, "Pengaruh efektivitas dan kontribusi Pajak Kendaraan Bermotor terhadap efektivitas pendapatan asli daerah (studi di Kota Subang)," *Jurnal Riset Akuntansi (JRA)*, vol. 4, no. 1, pp. 15-22, July. 2024.
- [42] D.A. Saputri, R.D. Harahap, "Analisis Efektivitas Dan Kontribusi Penerimaan PKB Dan BBNKB Terhadap Pendapatan Asli Daerah Provinsi Sumatera Utara," *Jurnal Akuntansi Keuangan dan Kontemporer (JAKK)*, vol. 5, no. 1, July. 2022, doi: <https://doi.org/10.30596/jakk.v5i1.9994.g7196>
- [43] M. R. Putri, F. Fauziah, and S. Srikalimah, "Pengaruh Tingkat Efektivitas Dan Kontribusi PKB Dan BBNKB Terhadap Pendapatan Asli Daerah", *Musytari*, vol. 8, no. 11, pp. 101-110, Oct. 2024.
- [44] A. Tsaniyeh, I. Nurdiana, S. Rahmawati, N. Aini, M. Djazuli, "Pemetaan Penelitian PKB Dan BBNKB di Indonesia", *Jurnal Maneksi*, vol. 14, no. 2, pp. 389-399, June. 2024.