DETERMINANTS OF MOTOR VEHICLE TAX (PKB) IMPOSITION IN CENTRAL JAVA PROVINCE (2003-2022)

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Abstract

Central Java Province has excellent potential to increase the realization of Motor Vehicle Tax (PKB) revenue, which positively impacts the increase in Regional Original Revenue (PAD). However, achieving PKB revenue realization in specific years is within the predetermined revenue realization target. Therefore, the Central Java Provincial Government must optimize PKB revenue. This study aims to determine the factors that affect the realization of PKB revenue, to determine the contribution of PKB revenue realization to the realization of local tax revenue, and to provide alternative policy recommendations to increase the realization of PKB revenue. This research method uses multiple linear regression analysis using time series data for 20 years, contribution analysis by calculating the proportion of realization of PKB revenue to the realization of local tax revenue, and qualitative descriptive method with a literature study. The results of this study show that population, Gross Regional Domestic Product (PDRB) in the transportation sector, and PDRB per capita have a positive and significant effect on PKB revenue. In contrast, the number of motor vehicles negatively and significantly affects PKB revenue. Then, the contribution analysis produces findings that the realization of PKB revenue in Central Java Province is still classified as quite adequate, and the realization of PKB revenue contributes moderately to the realization of local tax revenue.

Keywords: Motor Vehicle Tax, Factors, Contribution, Policy

INTRODUCTION

Regional Original Revenue (PAD) is the accumulation of tax revenue in the form of local taxes and local levies, non-tax revenue in the form of revenue from regionally owned companies, and investment revenue and natural resource management (Bastian, 2002, cited in Nasir, 2019). Local tax revenue in provinces throughout Indonesia is the most significant contributor to PAD, with an average contribution of 84.34% each year from 2016 to 2022. This realization is in line with the opinion conveyed by Asteria (2015) that local taxes are very dominant as a source of provincial revenue. Rukmana (2013) said that local taxes are the backbone of regional financing because of their significant contribution to PAD. The upward trend in local tax revenue is supported by the government's flexibility in collecting local taxes. Despite showing increasing achievements each year, the local tax ratio was depressed at 1.2% in 2020 due to the Coronavirus Disease (COVID-19) pandemic (Kemenkeu, 2022a). In addition, local taxation is one of the significant leaps of improvement towards equitable distribution of public services and community welfare on various economic and social indicators (Kemenkeu, 2022b). Therefore, this phenomenon has become the government's agenda-setting.

Motor Vehicle Tax (PKB) is a central tax delegated to the regions regulated by Law (UU) Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments or “HKPD Law” and Government Regulation (PP) Number 35 of 2023 concerning General Provisions of Regional Taxes and Regional Retribution. Prawita (2018) explains that every provincial-level region that has a potential source of revenue will compete to optimize this potential. According to data from the Central Statistics Agency (BPS), in 2022, four provinces in Java dominated the largest PAD in Indonesia, namely the Special Capital Region (DKI) Jakarta with IDR55.661 trillion, West Java with IDR21.362 trillion, East Java with IDR17.240 trillion and Central Java with IDR16.367 trillion. Data recapitulation from the Directorate General (Ditjen) of Regional Financial Development (BKD) of the Ministry of Home Affairs (Kemendagri) also shows that the four provinces consistently record enormous PAD realization each year. One of the main contributors to the high PAD revenue of each region is the revenue sourced from PKB (Prawita, 2018). Niayah

and Danisya (2022) revealed that Central Java Province still relies on PKB as a source of local taxes and has the potential to increase PAD in the next few years.

Utami (2014) revealed that Central Java Province is a province that has exemplary achievements in increasing the local tax sector. Central Java Province has excellent potential to increase the realization of PKB, which has a positive impact on the increase in PAD. This potential can continue to be explored and developed each year if it can be managed optimally by the Central Java Provincial Government. As a result, the realization of PKB can exceed the predetermined target. Furthermore, Wijaya et al. (2016) stated that the government must set a realization target as a reference to achieve the expected increase in revenue. In addition, the realization target is able to become an early warning and evaluation tool in the event that the realization of revenue does not reach the specified target.

Central Java Province is an area with positive population growth. Population data for 2022 from BPS shows that Central Java Province has the third largest population in Indonesia after West Java Province and East Java Province, which is 37.032 million people. With an area of 34,864 km^2, the population in Central Java Province is classified as dense. This demography certainly drives the regional economy. Maharani and Isroah (2019) argue that the need for transportation will increase as the population increases. Syafruddin (2003) found that the increase in population in DKI Jakarta Province was directly proportional to the increase in the number of motorized vehicles, making local tax revenue potential. Central Java Province experienced an increase of 11,612,617 units, or almost double the number of motorized vehicles in 2013. Research results from Ariasih et al. (2013) stated that the population variable has a significant influence on PKB revenue in Bali Province.

The PDRB in the transportation sector in Central Java Province consists of all transportation modes and transportation service transactions. In 2022, the transportation sector contributed IDR59.26 trillion or 3.80% to the total PDRB in Central Java Province where the land transportation mode was the most significant contributor (BPS, 2023). In 2013 the total PDRB in the transportation sector in Central Java Province was IDR23,658,240.7 million, while in 2022 it will be IDR59,263,552.26 million. From 2019 to 2020, the PDRB in the transportation sector fell by IDR13,598,814.71 million or 31.02% due to the policy of limiting social activities during the COVID-19 pandemic. The most significant growth rate

occurred in 2021 to 2022, namely an increase of IDR27,186,212.14 million or 84.75%. The PDRB in the transportation sector has a direct relationship with PKB revenue. When the PDRB in the transportation sector increases, the realization of PKB revenue will automatically increase because there is an increase in the number of tax objects, which allows the opportunity for the tax yield obtained to increase (Prawita, 2018). It is also proven by Utami (2014) and Rizal (2016) that the PDRB in the transportation sector has a positive and significant effect on the increase in the realization of PKB revenue.

Furthermore, PDRB per capita also has a direct relationship with the realization of PKB revenue. According to BPS (2023), GRDP per capita in Central Java Province tends to show an increasing trend each year, but there was a decline in 2020 due to the COVID-19 pandemic. In the period from 2013 to 2022, PDRB per capita in Central Java Province increased by IDR17,197.41 thousand or 68.92%. Pratiwi (2018) states that population and PDRB per capita can affect the realization of PKB revenue. A large population and a high PDRB per capita enhance people's purchasing power, leading to increased motor vehicle consumption and a greater capacity to pay taxes. In line with this opinion, Agustiningtyas (2003) proved that per capita income has a positive and significant effect on local tax revenue. This finding is in accordance with the taxation theory that the development of per capita income and population will determine tax revenue (Musgrave, 1989, cited in Haniz & Sasana, 2014). Ariasih et al. (2013) examined the effect of population and PDRB per capita on PKB and BBNKB revenues and regional financial independence in Bali Province from 1991 to 2010. The study found that PDRB per capita indirectly affects regional financial independence through PKB revenue. However, research conducted by Iswandi (2014) and Rizal (2016) found different results. The results of these studies state that PDRB per capita actually has a negative and insignificant effect on PKB revenue. In addition to knowing what factors affect the realization of PKB revenue, this study also analyzes the contribution of the realization of PKB revenue to local tax revenue.

REVIEW OF LITERATURE

Hillman (2003) states that the government needs to collect taxes as a source of financing public expenditure. Basically, taxes are said to be optimal if a tax system in place

is able to maximize social welfare over existing constraints (Mankiw et al., 2009). With limited revenue, local governments need to make various efforts to meet the demands of the increasing responsibilities of the central government. Stallmann (2007) explains that local governments will look for better resolution mechanisms and make institutional changes to overcome financing efficiency problems. Regional financial independence is a benchmark for the successful implementation of fiscal decentralization as an implementation of regional autonomy policies. Ering et al. (2016) explained that any significant expenditure as a result of decentralization of expenditure should be followed by decentralization of revenue through government efforts to collect more significant tax revenue. All sources of regional revenue are levied based on regional regulations that refer to applicable laws and regulations. The presence of the HKPD Law is expected to be a solution to optimize the imposition of local taxes through the restructuring of local taxes and the provision of local taxation sources.

Based on the HKPD Law, local taxes are divided into two, namely provincial taxes and regency/city taxes. This division is carried out in accordance with the authority to impose and collect types of local taxes in provincial or regency/city administrative areas. The taxes that are the right of the Provincial Government (Pemprov) are Motor Vehicle Tax (PKB), Motor Vehicle Title Transfer Fee (BBNKB), Heavy Equipment Tax (PAB), Motor Vehicle Fuel Tax (PBBKB), Surface Water Tax (PAP), Cigarette Tax and Non-Metal Mineral and Rock Opsen (MBLB). Kurniawan and Azmi (2019) suggest that the type of tax that has the potential to increase along with technological developments and the increase in the standard of secondary to primary needs is PKB. A study conducted by Fristylia (2015) found that PKB revenue was more significant than the revenue of other types of provincial taxes. That is due to the increasing demands and necessity of the community to have a mode of transportation to support their daily activities. It is not surprising that PKB makes a significant contribution to provincial tax revenue (Yanti, 2015).

PKB is a tax levied on the ownership and/or control of motorized vehicles registered in the region (Fristylia, 2015). Furthermore, Suparmoko (2002) states that individuals or entities as owners of motorized vehicles are motor vehicle taxpayers (WP). Motorized vehicles are all-wheeled vehicles and their trailers that are used on all types of land roads and are driven by technical equipment in the form of motors or other equipment that functions to

convert specific energy into motion energy for the motorized vehicle concerned, including heavy equipment and large equipment which in its operation uses wheels and motors that are not permanently attached and motorized vehicles operated on water.

The basis for the imposition of PKB is determined by the Minister of Home Affairs (Mendagri), who will consider it with the Minister of Finance (Menkeu). The imposition base is reviewed periodically every year. The decision regarding the basis for the imposition of PKB is then stipulated through a Governor's decree. The Governor can also determine the basis for the imposition of PKB for motor vehicles that have not been listed in the Minister of Home Affairs decision. The imposition of PKB in a province is based on a Provincial Regulation (Perda) as the operational basis for its technical implementation and the Governor's decree as the implementing regulation of the provincial regulation (Utami, 2014). Furthermore, the PKB collection mechanism is implemented through the Single Administration System under One Roof, better known as SAMSAT.

Previous research conducted by Prawita (2018) related to factors affecting PKB revenue in Yogyakarta Special Region (DIY) Province for the period 1999 to 2016 stated that population, number of motorized vehicles, PDRB in the transportation sector had a positive and significant effect on PKB revenue, while PDRB per capita had a negative and significant effect on PKB revenue. Furthermore, research conducted by Rizal (2016) with the title "Analysis of Factors Affecting Motor Vehicle Tax Revenue in Central Java Province in 1999-2013" shows that population and PDRB in the transportation sector have a positive and significant effect on PKB revenue. Furthermore, the number of motorized vehicles has a positive and insignificant effect on PKB revenue. Meanwhile, PDRB per capita has a negative and insignificant effect on PKB revenue.

RESEARCH METHOD

This research was conducted through a quantitative approach that emphasizes numerical data. The numerical data used is time series data with 20 years of observation from 2003 to 2022. This study applies the central limit theorem because the sample size is limited, namely $n < 30$ (Triola, 2021, cited in Masruri, 2021). The locus of this research is Central Java Province. The variables used are independent variables or variables that provide

influence, including population, number of motorized vehicles, PDRB in the transportation sector, and PDRB per capita, while the dependent variable or variable influenced by the independent variable is PKB revenue. The type of data used is secondary data sourced from the Directorate General of BKD and BPS, as well as from various journals, books, and other references that become research references. The definition and operationalization of research variables are as follows:

Table 1.
Variable Definitions and Operationalization

Variable	Variable Code	Operational Definition	Data Source
PKB revenue	(PKB)	The amount of tax on ownership and/or control of motor vehicles.	Directorate General of BKD
Population	(PEND)	All individuals residing in the geographical area of Indonesia for six months or more, and those residing for less than six months to settle permanently.	BPS
Number of motorized vehicles	(KEND)	Any vehicle propelled by mechanical equipment in the form of an engine, other than a vehicle running on rails.	BPS
PDRB in the transportation sector	(TRANS)	Public transportation activities for goods and passengers by land, sea, river, lake, and air, as well as supporting transportation and communication services.	BPS
PDRB per capita	(KAPT)	The average income of a country's population.	BPS

Source: Processed by the author (2025)

According to Sihombing (2021), to see the relationship between variables in time series data, the appropriate regression for this study is time series regression analysis assisted by data processing applications, namely Eviews 10.0 and Microsoft Excel (Ms. Excel).

Based on the variables and hypotheses that have been explained, the research model is formed as follows:

$$(\mathbf{PKB})_t = \boldsymbol{\alpha} + \boldsymbol{\beta 1}(\mathbf{PEND})_t + \boldsymbol{\beta 2}(\mathbf{KEND})_t + \boldsymbol{\beta 3}(\mathbf{TRANS})_t + \boldsymbol{\beta 4}(\mathbf{KAPT})_t + \mathbf{e}$$

Description:

α = constant

β1, β2, β3 and β4	=	regression coefficient
PKB	=	PKB revenue
PEND	=	population
KEND	=	number of motorized vehicles
TRANS	=	PDRB in the transportation sector
KAPT	=	PDRB per capita
e	=	error term

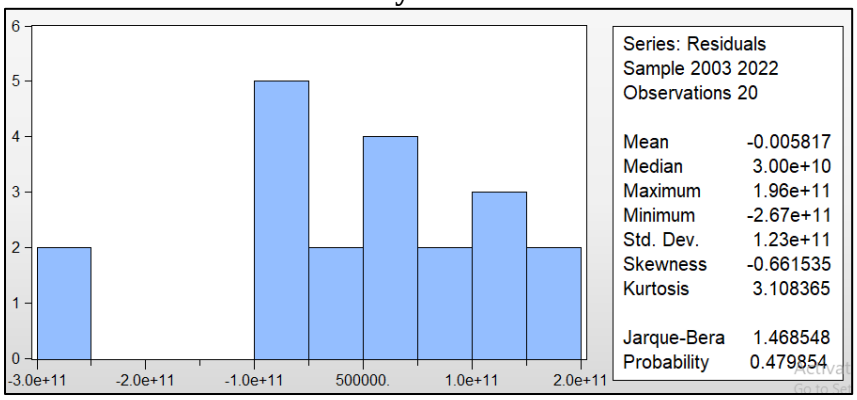
In this study, several stages begin with testing to ensure that the data and the resulting model are correct and meet the requirements of the Best Linear Unbiased Estimator (BLUE), namely the first Descriptive Statistical test, the second Classical Assumption test which includes Normality Test (Jarque-Bera Test), Autocorrelation Test (Breusch-Godfrey Serial Correlation LM Test), Heteroscedasticity Test (White Test) and Multicollinearity Test (Partial Correlation Approach). Furthermore, the Goodness of Fit Test is carried out based on the results of multiple linear regression, including the explanation of the Coefficient of Determination (R^2), the Model Reliability Test (F-test), and the Regression Coefficient Test (t-test) (Abdullah, 2015).

RESULTS AND DISCUSSION

Classical Assumption Test

In order to fulfill the BLUE assumption, the classical assumption test is used to determine whether the linear regression model is feasible (Abdullah, 2015).

Figure 1.
Normality Test Results



Source: Processed by the author (2025)

The first classic assumption test is the Normality Test. The Normality Test is carried out on the regression model to determine whether the data in the variables used is normally distributed. Data that is suitable for use in research has a normal distribution. If the Jarque-Bera probability value > 0.05, the data is declared normally distributed (Anshori & Iswati, 2019). As shown in Figure 1, the Normality Test results show that the Jarque-Bera probability value of 1.468548 is greater than the alpha value or the significance value of 5%, so the data is normally distributed. Second, the equation must be tested for autocorrelation to determine the correlation between times in the multiple regression model (Anshori & Iswati, 2019). Autocorrelation quickly occurs in multiple linear regression with time series data. The regression model is good if it is free from intertemporal correlation. The test used is the Breusch-Godfrey Serial Correlation LM Test. If the chi-squared probability value is greater than the specified significance value, it can be concluded that the model does not exhibit autocorrelation.

Based on Table 2, it can be seen that the Chi-Square probability value of 0.1778 is greater than the significance level of 5%, so it can be concluded that the regression model does not have autocorrelation symptoms.

Table 2.
Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.356795	Prob. F(2,13)	0.2916
Obs*R-squared	3.453812	Prob. Chi-Square(2)	0.1778

Source: Processed by the author (2025)

The third test conducted is the Heteroscedasticity Test. This test is used to determine whether there is a correlation between confounding error in period t and confounding error in period t-1 or the previous period in the linear regression model used (Anshori & Iswati, 2019). The regression model is considered good if it is free from heteroscedasticity. The test used is the White Test. If the probability Chi-Square value is greater than the specified error rate, it can be concluded that the model does not have heteroscedasticity in the residuals.

The Heteroscedasticity Test results in Table 3 show that if the probability Chi-Square value of 0.1914 is greater than the 5% error rate. Thus, the regression model used is homoskedasticity or free from symptoms of heteroscedasticity.

Table 3.
Heteroscedasticity Test Results

Heteroskedasticity Test: White

F-statistic	3.967298	Prob. F(14,5)	0.0682
Obs*R-squared	18.34826	Prob. Chi-Square(14)	0.1914
Scaled explained SS	10.88011	Prob. Chi-Square(14)	0.6954

Source: Processed by the author (2025)

Furthermore, the last classic assumption test is the Multicollinearity Test. The Multicollinearity Test aims to determine whether there is a linear relationship between the dependent variables in one regression (Ghozali, 2011). A good regression model is free from multicollinearity symptoms or has no high correlation between the independent variables (Anshori & Iswati, 2019). Apart from testing the Variance Inflation Factor (VIF) value, the Multicollinearity Test can be done with partial correlation. The testing stages are as follows:

1. Regression test with PKB as the dependent variable:

   (1) $(\mathrm{PKB})_t = \alpha 0 + \alpha 1(\mathrm{PEND})_t + \alpha 2(\mathrm{KEND})_t + \alpha 3(\mathrm{TRANS})_t + \alpha 4(\mathrm{KAPT})_t$

2. Regression test with PEND as the dependent variable, then KEND, TRANS, and KAPT:

   (2) $(\mathrm{PEND})_t = \beta 0 + \beta 1(\mathrm{KEND})_t + \beta 2(\mathrm{TRANS})_t + \beta 3(\mathrm{KAPT})_t$

   (3) $(\mathrm{KEND})_t = \beta 0 + \beta 1(\mathrm{PEND})_t + \beta 2(\mathrm{TRANS})_t + \beta 3(\mathrm{KAPT})_t$

   (4) $(\mathrm{TRANS})_t = \beta 0 + \beta 1(\mathrm{PEND})_t + \beta 2(\mathrm{KEND})_t + \beta 3(\mathrm{KAPT})_t$

   (5) $(\mathrm{KAPT})_t = \beta 0 + \beta 1(\mathrm{PEND})_t + \beta 2(\mathrm{KEND})_t + \beta 3(\mathrm{TRANS})_t$

Based on the regression results, with each variable being the dependent variable, the R^2 value is obtained as follows:

Table 4.
Multicollinearity Test Results

No.	Regression Equation	R^2 Value	Description
1	Dependent variable PKB	0.993996	Comparator
2	Dependent variable PEND	0.882564	R^2 (PKB) > R^2 (PEND)
3	Dependent variable KEND	0.982273	R^2 (PKB) > R^2 (KEND)

4	Dependent variable TRANS	0.899571	R^2 (PKB) > R^2 (TRANS)
5	Dependent variable KAPT	0.958052	R^2 (PKB) > R^2 (KAPT)

Source: Processed by the author (2025)

The regression model is considered free from multicollinearity if it satisfies the condition where R^2 (PKB) > R^2 (PEND), R^2 (KEND), R^2 (TRANS) dan R^2 (KAPT). Based on the regression results in Table 4, the values are 0.993996 > 0.882564, 0.982273, 0.899571, and 0.958052. These comparisons indicate that the regression model is free from multicollinearity. Following a series of tests, it can be concluded that the research model successfully meets the classical assumption test criteria.

Multiple Linear Regression Analysis

Multiple linear regression was conducted to determine the effect of population, number of motor vehicles, PDRB in the transportation sector, and PDRB per capita on PKB revenue. Based on the multiple linear regression test results shown in Table 5, the regression equation obtained is as follows:

(PKB) = -1.56E+13 + 490492.4(PEND) + -16362.4(KEND) + 32615503(TRANS) + 92135829(KAPT) + e

From the above equation, it can be explained that the constant value is -1.56E+13; this explains that if all independent variables are zero or constant, then the PKB revenue generated is IDR-1.56E+13. Then, the population (people) has a regression coefficient of 490492.4; this value provides information that for every increase in population by one unit, assuming other independent variables are constant, PKB revenue will increase by IDR490,492.4. It means that every addition of one population will increase PKB revenue by IDR490,492.4. The number of motorized vehicles (units) itself has a regression coefficient of -116362.4; this value illustrates that if the increase in the number of motorized vehicles by one unit with the assumption that other independent variables are constant, PKB revenue will decrease by IDR116,362.4. It means that every addition of one motorized vehicle unit will reduce PKB revenue by IDR116,362.4.

The PDRB in the transportation sector (million) has a regression coefficient of 32615503; this value means that with every increase in PDRB in the transportation sector by one unit with the assumption that other independent variables are constant, PKB revenue will

increase by IDR32,615,503. It means every addition of one million PDRB in the transportation sector will increase PKB revenue by IDR32,615,503. Furthermore, PDRB per capita (thousand) has a regression coefficient of 92135829; this value states that for every addition of one unit of PDRB per capita, assuming other independent variables are constant, PKB revenue will increase by IDR92,135,829. Every thousand additional PDRB per capita will increase PKB revenue by IDR92,135,829.

The coefficient of determination or R-squared in this study is 0.993996 or 99.40%, which can be concluded that the variables of population, number of motorized vehicles, PDRB in the transportation sector, and PDRB per capita can explain 99.40% of the PKB revenue variable. Other variables outside this research model explain the remaining 0.60%. After that, the F-test is carried out to determine whether the study's independent variables simultaneously influence the dependent variable. As the Prob(F-statistic) value presented in Table 5 of 0.000000 is smaller than the significance level of 5%, this value illustrates that all independent variables, including population, number of motor vehicles, PDRB in the transportation sector, and PDRB per capita together have a significant effect on the dependent variable, namely PKB revenue.

Table 5.
Multiple Linear Regression Test

Dependent Variable: PKB
Method: Least Squares
Date: 25/01/25 Time: 15:25
Sample: 2003 2022
Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.56E+13	1.85E+12	-8.422678	0.0000
PEND	490492.4	60525.57	8.103888	0.0000
KEND	-116362.4	41607.70	-2.796657	0.0136
TRANS	32615503	7976531.	4.088933	0.0010
KAPT	92135829	12160192	7.576840	0.0000

R-squared	0.993996	Mean dependent var	2.50E+12
Adjusted R-squared	0.992396	S.D. dependent var	1.59E+12
S.E. of regression	1.38E+11	Akaike info criterion	54.35636

Sum squared resid	2.87E+23	Schwarz criterion	54.60530
Log likelihood	-538.5636	Hannan-Quinn criter.	54.40496
F-statistic	620.8834	Durbin-Watson stat	2.460427
Prob(F-statistic)	0.000000		

Source: Processed by the author (2025)

The t-test is used to determine how much the influence of an independent variable partially explains the variation of the dependent variable. It compares the probability value with a significance value of 5%. If the probability value is smaller than the significance value, it can be said that the independent variable has a significant effect on the dependent variable.

Table 6.
T-Test Results

Variable	Coeffecient	Prob.	α	Significance
PEND	490492.4	0.0000	0.05	Significant
KEND	-116362.4	0.0136	0.05	Significant
TRANS	32615503	0.0010	0.05	Significant
KAPT	92135829	0.0000	0.05	Significant

Source: Processed by the author (2025)

The Effect of Population on PKB Revenue

The total population has a positive and significant effect on PKB revenue. That is evidenced by the coefficient value of 490492.4 and a probability value of 0.0000, less than the 5% significance level. The results of this study support the results of research from Prawita (2018), which proves that population has a positive and significant effect on PKB revenue in DIY Province. Likewise, Ariasih et al. (2013) conducted research using a case study in Bali Province. The study also found that population positively and significantly affects PKB revenue in Bali Province. Previous research with the same locus, namely Central Java Province, but with a sample period of 1999 to 2013 was also conducted by Rizal (2016). The study's results also showed similar results, namely, the population had a positive and significant effect on PKB revenue in Central Java Province.

In theory, population can influence economic growth in a region (Ariasih et al., 2013). The population density of a region will drive the economy of the region (BPS, 2023). When associated with PKB revenue, Syafruddin (2003) argues that an increase in the number of

motorized vehicles will accompany an increasing population. That is due to the increasing consumption of motorized vehicle products, which is in line with the high mobility of the community to carry out daily activities. According to Halim (2001, cited in Prawita, 2018), the population affects the amount of income; the higher the community's income, the higher the ability of the community, especially motor vehicle owners, to pay tax levies set by the government. If the population increases, the regional revenue obtained will increase (Haniz & Sasana, 2014).

The Effect of Number of Motorized Vehicles on PKB Revenue

The number of motorized vehicles has a negative and significant effect on PKB revenue. That is evidenced by the coefficient value of -116362.4 and a probability value of 0.0136, which is smaller than the 5% significance level. The results of this study are exciting to explore because they are not in line with the hypothesis and previous studies. Supposedly, an increase in the number of motorized vehicles increases PKB revenue. Various previous studies have also proven that the number of motorized vehicles has a positive effect on PKB revenue, such as research conducted by Heryza (2011), Ariasih et al. (2013), Hasnuri (2015), and Rizal (2016).

Yanti (2015) stated that the increasing number of motorized vehicles balanced with the increasing awareness of taxpayers in paying PKB and the suitable collection mechanism carried out by government officials would increase PKB revenue. Tania (2022) emphasized that the number of motorized vehicles in circulation must be accompanied by compliance and obedience of taxpayers in paying PKB. In their research, Kurniawan and Azmi (2019) also mentioned that the level of tax compliance is fundamental to increasing regional revenue. Various regulations regarding local tax collection straightforwardly regulate that everyone owning a motorized vehicle must pay the tax. The rise in the number of motorized vehicles, when not accompanied by increased taxpayer compliance and awareness in fulfilling tax obligations, leads to a negative relationship between the number of motorized vehicles and PKB revenue. This finding is supported by research conducted by Natalia (2017). A study entitled “The Effect of the Number and Type of Vehicles on Motor Vehicle Tax (PKB) and Regional Original Revenue (PAD) in West Kalimantan Province” shows that the number of motorized vehicles has a negative effect on PKB revenue occurs because the

development of PKB is not by the number of motorized vehicles each year. The number of vehicles as PKB objects is an important variable that can affect revenue in the tax sector of the Local Government (Pemda). So, the greater the number of motorized vehicles, the more excellent the opportunity to increase tax revenue. Therefore, local governments must improve services, transparency, facilities, and infrastructure for tax payments.

The Effect of PDRB in the Transportation Sector on PKB Revenue

PDRB in the transportation sector has a positive and significant effect on PKB revenue. That is evidenced by the coefficient value, namely 32615503, and the probability value of 0.0010, which is smaller than the 5% significance level. This research is in line with research from Utami (2014) entitled "Analysis of Motor Vehicle Taxes and Factors Affecting and Contributing to Local Revenue in Central Java Province," which shows that the PDRB in the transportation sector shows a positive and significant relationship to PKB revenue. Research from Rizal (2016) also supports these findings, stating that PDRB in the transportation sector had a positive and significant effect in Central Java Province from 1999 to 2013. This positive relationship can occur because any increase in domestic product value in the transportation sector will automatically increase PKB revenue. An increase in the number of tax objects in the transportation sector allows the opportunity for PKB results to increase (Prawita, 2018).

The Effect of PDRB per Capita on PKB Revenue

PDRB per capita has a positive and significant effect on PKB revenue. That is evidenced by the coefficient value, namely 92135829, and the probability value of 0.0000 is smaller than the significance level of 5%. The results of this study are based on research from Ariasih et al. (2013), which shows that PDRB per capita has a positive and significant effect on PKB revenue in Bali Province. The two proofs explain that the value of local tax revenue will increase in line with the increase in PDRB per capita. Haniz and Sasana (2014) argue that the positive relationship between PDRB per capita and PKB revenue is caused by the community's average income, indicating the ability to pay expenses, including taxes. The community uses the addition of PDRB per capita for spending on the transportation sector, especially PKB payments.

Analysis of PKB Contribution to Local Tax in Central Java Province

The contribution of local taxes is one factor in increasing a region's PAD. PKB is one of the potential sources of local revenue, so its contribution significantly influences local tax revenue. Utami (2014) also emphasized that the great potential of PKB collection will affect the amount of PAD. Therefore, this type of tax needs to be optimized so that local revenue can increase, especially in Central Java Province.

During the period 2013 to 2022, the realization of PKB revenue in Central Java Province showed an upward trend from year to year, but the achievement of the realization of PKB revenue during this period experienced fluctuations. In specific years, the realization of PKB revenue could not reach the predetermined target. The years in question are 2015, with an achievement of 89.23%; 2017 with an achievement of 94.22%; 2020 with an achievement of 97.15%; 2021, with an achievement of 92.32%; and 2022, with an achievement of 98.39%. Although five years from 2013 to 2022 did not reach the target, the average achievement of PKB revenue realization during that period was 99.41%. Maharani and Isroah (2019) mentioned that the calculation between the realization and the revenue target to describe the ability of the region to realize local taxes is called the effectiveness of local taxes. So, the effectiveness value of PKB in Central Java Province from 2013 to 2022 is 99.41%. According to Mahmudi (2016), if the effectiveness value of local taxes is 90% to 99%, the effectiveness of local taxes is in the moderately effective category. Hence, the effectiveness of PKB in Central Java Province is still quite effective.

In order to assess the contribution of PKB revenue realization in Central Java Province to the overall realization of local tax revenue, the following formula must be calculated:

$$\frac{\text{Realization of PKB Revenue}}{\text{Realization of Local Tax Revenue}} \text{ x } 100\%$$

Based on Table 7, the period from 2013 to 2019 shows that almost every year, the contribution of PKB revenue realization is in the range of 30%. During this period, the average contribution of PKB revenue realization to local tax revenue realization was 35.63%. The contribution percentage of 30% to 40% is included in the medium criteria (Halim, 2004). During the last three years, the proportion of the realization of PKB revenue to the realization

of local tax revenue obtained an average amount of 40.67%. According to Halim (2004), if the contribution of the realization of local tax revenue to the realization of local tax revenue is 40% to 50%, it can be concluded that the contribution is included in the suitable criteria. So, the contribution of PKB revenue to the realization of local tax revenue in Central Java Province from 2020 to 2022 is classified as good. However, the overall average contribution rate from 2013 to 2022 was only 37.14% or included in the contribution rate with moderate criteria. The following results of the calculation of the contribution of PKB revenue to the realization of local tax revenue from 2013 to 2022 are presented in Table 7.

Table 7.
Contribution of PKB Revenue Realization to the Realization of Local Tax Revenue in Central Java Province for the Period of 2013 to 2022

Year	PKB	Local Tax	Contribution
2013	2,343,509,483,110	6,716,170,095,203	34.89%
2014	2,587,269,029,100	8,213,117,977,940	31.50%
2015	2,944,639,939,900	7,515,078,178,624	39.18%
2016	3,417,260,595,050	9,672,518,189,424	35.33%
2017	3,486,112,941,500	10,572,698,332,610	32.97%
2018	4,248,132,806,425	11,507,119,643,262	36.92%
2019	4,618,521,099,425	11,951,939,138,789	38.64%
2020	4,579,535,646,300	11,139,173,309,780	41.11%
2021	4,758,837,286,600	11,718,378,824,580	40.61%
2022	5,432,537,592,000	13,484,851,151,740	40.29%

Source: Ditjen BKD Kemendagri, processed by the author (2025)

Alternative Recommended Policies

Based on the analysis of factors affecting the realization of PKB revenue in Central Java Province, this study found that the number of motor vehicles has a negative and significant effect on PKB revenue. Any increase in the number of motorized vehicles should increase PKB revenue. Various previous studies also support that an increase in the number of motor vehicles will affect the increase in the realization of PKB revenue. However, research conducted by Natalia (2017) proved that the negative relationship between the number of motorized vehicles and PKB revenue was caused by non-compliance and lack of awareness of taxpayers in paying PKB. The taxpayer compliance level is fundamental to increasing PKB revenue. Furthermore, the level of effectiveness of PKB revenue realization

in Central Java Province from 2013 to 2022 is still included in the moderately effective category. Likewise, the proportion of the realization of local tax revenue to the realization of local tax revenue is still classified as moderate criteria. Therefore, the Central Java Provincial Government needs to make policies to optimize PKB revenue.

Efforts that the Central Java Provincial Government can make to motivate people to pay taxes and increase the level of compliance in paying taxes to optimize PKB revenue, such as increasing public awareness through socialization activities on social media using the help of influencers or socialization activities packaged with entertainment, arts or even religious agendas. In addition, a Door to Door (D2D) arrears collection system or direct WP visits and Collection Room (CR) via telephone or instant messaging applications to remind WP can be a policy option. The Central Java Provincial Government can emulate several innovations in PKB collection efforts made by other provincial governments. For example, the Lampung Provincial Government works with 500 Village-Owned Enterprises (BUMDes) in 15 regencies/cities to collect PKB from the community. It will make it easier for people to pay PKB without coming to the SAMSAT office. This policy impacts the public interest in paying PKB with the convenience provided (Kurniati, 2022). In addition, the Bali Provincial Government provides free health check-up services for people who pay PKB (Bali Tribune, 2022).

CONCLUSION

PKB is one type of provincial tax levied on the ownership and/or control of motor vehicles registered in the region. This type of tax has the potential to increase along with technological developments and the increase in the standard of secondary to primary needs. So, it is not surprising that PKB revenue is greater than the revenue of other types of provincial taxes.

Central Java Province has excellent potential to increase the realization of PKB, which has a positive impact on the increase in PAD. This potential can continue to be explored and developed each year if it can be managed optimally by the Central Java Provincial Government. The realization of PKB revenue in Central Java Province has increased every year from 2013 to 2022. However, the achievement of the realization of PKB

revenue in a particular year did not exceed the predetermined revenue realization target. It shows that the Central Java Provincial Government is still considered not optimal in its efforts to explore the potential of PKB.

With regard to these problems, this study takes the following steps: first, analyzing the factors that affect the realization of PKB revenue; second, analyzing the contribution of PKB revenue realization to the realization of local tax revenue and providing alternative policy recommendations that can be used as a policy option to optimize PKB revenue in Central Java Province. Furthermore, the research analysis that focuses on the influence of population, number of motor vehicles, PDRB in the transportation sector, and PDRB per capita found that population, PDRB in the transportation sector, and PDRB per capita have a positive and significant effect on PKB revenue. In contrast, the number of motor vehicles has a negative and significant effect on PKB revenue. Then, the contribution analysis produces findings that the effectiveness of the realization of PKB revenue in Central Java Province is still classified as quite adequate, and the realization of PKB revenue contributes moderately to the realization of local tax revenue.

After knowing the results of each analysis, this study recommends several alternative policies for the Central Java Provincial Government to optimize PKB revenue, including increasing socialization activities to taxpayers, simplifying PKB payment mechanisms, eliminating extortion practices in the PKB payment process, implementing fast and friendly services and adopting best practice innovations from other provincial governments to increase local tax revenue, especially PKB.

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