



The Influence of Original Local Government Revenue (PAD), Population, and Gross Regional Domestic Product (GRDP) on Regional Expenditure in Kerinci Regency

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ABSTRAK

Regional Expenditure is a crucial component in regional budget planning, functioning to enhance public services and regional development. Regional Original Revenue (Pendapatan Asli Daerah or PAD) serves as one of the funding sources for the region, population size reflects the needs and distribution of resources, and the Gross Regional Domestic Product (GRDP) indicates the economic potential of the area. This study aims to examine the influence of Regional Original Revenue (PAD), population, and GRDP on regional expenditure in Kerinci Regency. Utilizing secondary data obtained from the Central Statistics Agency (BPS) of Kerinci Regency over the past ten years, from 2014 to 2023, this research employs a quantitative approach by applying a multiple linear regression model to identify the relationships between independent variables (PAD, population, and GRDP) and regional expenditure as the dependent variable. The results indicate that Regional Original Revenue, population, and GRDP have a significant impact on regional expenditure.

INTRODUCTION

Laws No. 17 of 2003 and No. 32 of 2004 of the Republic of Indonesia concerning Regional Government grant authority to Regional Heads (Governors, Regents, Mayors) to fully manage regional finances. Based on these laws, Provincial, Regency, and City Governments can allocate budgets and use them according to the needs and characteristics of each region as outlined in the Regional Revenue and Expenditure Budget (APBD). Regional governments have the authority to manage financial resources derived from various revenue sources, one of which is Original Local Government Revenue (PAD). PAD, recorded as one of the main funding sources for regional expenditure, functions to meet development needs and public services at the regional level. An important aspect of regional financial management is the ability of the region to optimally manage the expenditure budget, in line with economic development and population growth in the area.

Kerinci Regency, located in Jambi Province, has diverse economic potentials, including agriculture, tourism, and other natural resources. However, despite abundant resources, optimal regional financial management remains a challenge in efforts to improve community welfare. Therefore, it is essential to understand the factors influencing the allocation of regional expenditure to ensure more effective and efficient policy decisions.

In this context, Original Local Government Revenue (PAD), population size, and Gross Regional Domestic Product (GRDP) are three critical variables influencing the magnitude of the regional expenditure budget. PAD reflects the region's ability to generate income from its local resources, which can be used to finance development activities and enhance public services. Population size is directly related to the needs and demand for various basic services such as education, health, and infrastructure, requiring adequate budget allocation. Meanwhile, GRDP, which depicts the region's economic growth level, plays a role in determining the fiscal capacity of the region to provide funds for regional expenditure.

Consequently, this study aims to examine the influence of Original Local Government Revenue (PAD), population, and GRDP on regional expenditure in Kerinci Regency. This research is highly relevant as Kerinci Regency strives to improve community welfare through better and more efficient regional budget management. Understanding the factors affecting regional expenditure is expected to assist the regional government in formulating appropriate financial management policies. The findings are anticipated to provide clearer insights into the factors influencing regional budget allocation and offer inputs for better regional financial planning.

LITERATURE REVIEW

Original Local Government Revenue (PAD)

In managing or operating a governmental system, financial support is one of the most critical indicators for regional governments. This financial support can be obtained from Original Local Government Revenue (Pendapatan Asli Daerah or PAD). PAD is a benchmark for the level of independence of a region in managing or running its domestic affairs. Various policies implemented by

district/city governments in the era of fiscal decentralization in administering administration and development have not yet demonstrated independence in budget financing (Priyono & Handayani, 2021).

Original Local Government Revenue, known as PAD, is revenue obtained by regions from local sources within their own territory, collected based on regional regulations in accordance with applicable laws and regulations. It is income acquired by the regional government from managing economic resources in its area without relying on funds from the central government. The regional revenue sector plays a very important role because it indicates the extent to which a region can finance government activities and regional development (Siregar, 2017). PAD is regional income sourced from regional taxes, retributions, results from separated regional wealth management, and other legitimate regional income. PAD functions to fund various governmental and developmental activities carried out by regional governments, thereby increasing regional autonomy and fiscal capacity in implementing development programs. According to Law No. 23 of 2014 of the Republic of Indonesia, PAD includes:

1. Regional Taxes;
2. Regional Retributions;
3. Proceeds from Separated Regional Assets Management;
4. Other Legitimate PAD.

Table 1: Original Local Government Revenue (PAD)
 of Kerinci Regency (2014–2023)

No.	Description	Year	Total Amount (in million IDR)
1	Regional Original Revenue (PAD)	2014	869.31
2	Regional Original Revenue (PAD)	2015	985.91
3	Regional Original Revenue (PAD)	2016	1,057.67
4	Regional Original Revenue (PAD)	2017	1,201.36
5	Regional Original Revenue (PAD)	2018	1,202.43
6	Regional Original Revenue (PAD)	2019	1,221.57
7	Regional Original Revenue (PAD)	2020	1,175.13
8	Regional Original Revenue (PAD)	2021	1,185.94
9	Regional Original Revenue (PAD)	2022	1,153.68
10	Regional Original Revenue (PAD)	2023	1,187.27

Source: Central Statistics Agency (BPS) of Kerinci Regency, 2024

Population

The existence of humanity today is inseparable from the history of human growth and development in the past. Over time, populations have always grown and developed, both globally and within individual countries, including Indonesia. Although initially, population growth and development progressed slowly, over time, they have accelerated. Population growth refers to the quantitative increase in the number of people, while population development

refers to the enhancement of abilities or quality of the population. Understanding these aspects is important to analyze trends in population growth and development in the future.

Population is the number of people who legally reside in a region or country and comply with the regulations of that region or country. Population is one of the objects in development; the number of inhabitants can influence economic development in a region if the increase in population is not supported by an increase in carrying capacity and population quality. Therefore, the target in population development is to improve the skills and quality of the population and its distribution so that there is no disparity and to enhance the welfare of the population (Saldi et al., 2021).

Table 2: Population of Kerinci Regency (2014-2023)

No.	Description	Year	Total Population
1	Population	2014	234,003
2	Population	2015	234,882
3	Population	2016	235,802
4	Population	2017	261,900
5	Population	2018	265,000
6	Population	2019	265,000
7	Population	2020	250,343
8	Population	2021	251,911
9	Population	2022	253,863
10	Population	2023	255,736

Source: Central Statistics Agency (BPS) of Kerinci Regency, 2024

Gross Regional Domestic Product (GRDP)

Gross Regional Domestic Product (GRDP) essentially provides basic data and information about the economic activities of a region. Definitively, GRDP is the value of goods and services produced in a region during a specific period. Currently, GRDP data is available for almost all provinces, regencies, and cities in Indonesia, published annually by BPS (Sjafrizal, 2015). GRDP represents the gross added value of all goods and services produced in a region within a certain period.

GRDP includes all goods and services resulting from economic activities operating within the domestic territory, plus income from production factors received from outside the region, minus income from production factors paid outside the region, regardless of whether the production factors originate from or are owned by residents of that region. Income arising from production activities is domestic income. There are four approaches to determining GRDP: the production approach, the income approach, and the allocation method.

According to Adam Smith, the essence of the economic growth process is divided into two main aspects: total output growth and population growth (Todaro, 2002). Capital and the ability of productive population growth will stimulate economic growth. The indicator used to measure economic growth is

the growth rate of Gross Domestic Product (GDP). Several reasons underpin the assessment of economic growth using GDP, including that GDP is the sum of the added value generated by all production activities in the economy (Mankiw, 2003).

Table 3: Gross Regional Domestic Product (GRDP)
 of Kerinci Regency (2014–2023)

No.	Description	Year	Total Amount (in million IDR)
1	Gross Regional Domestic Product	2014	62,397.55
2	Gross Regional Domestic Product	2015	7,067.75
3	Gross Regional Domestic Product	2016	8,052.84
4	Gross Regional Domestic Product	2017	13,587.20
5	Gross Regional Domestic Product	2018	14,837.40
6	Gross Regional Domestic Product	2019	14,837.40
7	Gross Regional Domestic Product	2020	10,447.13
8	Gross Regional Domestic Product	2021	11,237.96
9	Gross Regional Domestic Product	2022	12,225.62
10	Gross Regional Domestic Product	2023	13,405.35

Source: Central Statistics Agency (BPS) of Kerinci Regency, 2024

Regional Expenditure

Regional Expenditure includes all obligations of the region recognized as deductions from net assets within the relevant fiscal year (Law No. 33 of 2004 of the Republic of Indonesia). Indicators of regional expenditure consist of the total of direct expenditure and indirect expenditure. Regional expenditure is the spending by local governments listed in the Regional Revenue and Expenditure Budget (APBD). It is one of the fiscal policy instruments implemented by local governments to encourage regional economic growth. Types of regional expenditure include:

1. Operational Expenditure: Spending to fund daily operational activities;
2. Capital Expenditure: Expenditure with benefits exceeding one fiscal year and will increase regional assets;
3. Unexpected Expenditure;
4. Transfer Expenditure;
5. Grant Expenditure;
6. Social Assistance Expenditure.

Table 4: Regional Expenditure of Kerinci Regency (2014–2023)

No.	Description	Year	Total Amount (in million IDR)
1	Regional Expenditure	2014	837.72
2	Regional Expenditure	2015	918.02
3	Regional Expenditure	2016	882.46
4	Regional Expenditure	2017	883.18
5	Regional Expenditure	2018	892.57
6	Regional Expenditure	2019	1,262.63
7	Regional Expenditure	2020	1,190.82
8	Regional Expenditure	2021	1,143,50
9	Regional Expenditure	2022	1,133,29
10	Regional Expenditure	2023	1,193,33

Source: Central Statistics Agency (BPS) of Kerinci Regency, 2024

Conceptual Framework and Hypotheses

Sugiyono (2017) states that a conceptual framework theoretically connects various research variables, namely the dependent variable with independent variables that will be measured and observed through the research process. The conceptual framework is a visual representation or diagram illustrating the relationships among the variables studied in research. This framework aims to clarify how each variable interacts and influences one another. Understanding these relationships is essential for designing effective and efficient regional financial management policies and enhancing community welfare through sustainable development. Below is the conceptual framework depicting the influence of Original Local Government Revenue (PAD), Population, and Gross Regional Domestic Product (GRDP) on Regional Expenditure in Kerinci Regency.

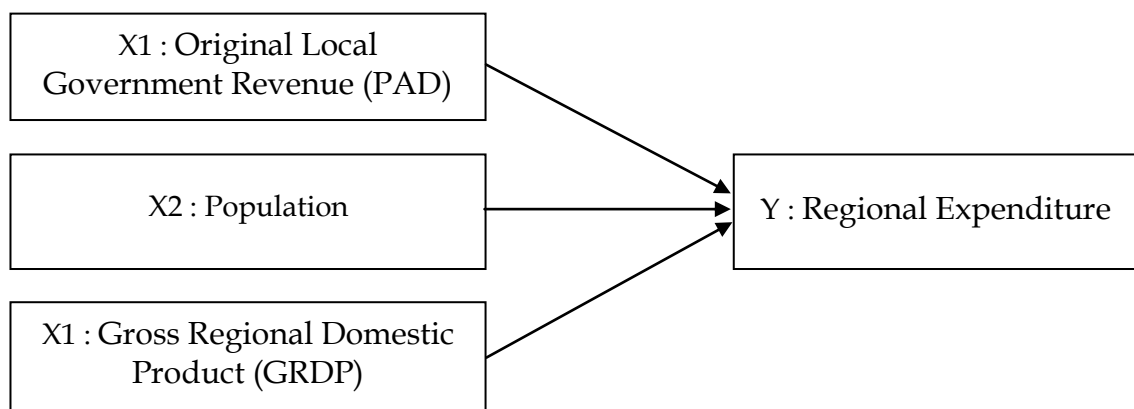


Figure 1: Conceptual Framework

Based on the developed research model, the hypotheses of this study can be formulated as follows:

H1 : Original Local Government Revenue (PAD) affect Regional Expenditure in Kerinci Regency

- H2 : Population affect Regional Expenditure in Kerinci Regency
H3 : Gross Regional Domestic Product (GRDP) affect Regional Expenditure in Kerinci Regency

METHODOLOGY

Research Design

This study employs a quantitative approach by applying a multiple linear regression model to identify the relationships between independent variables (Original Local Government Revenue, Population, and Gross Regional Domestic Product) and the dependent variable (Regional Expenditure). Analysis is conducted using SPSS software.

Population and Sample

According to Rani et al. (2021), a population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and conclusions drawn. Therefore, the population is not only people but also other natural objects. It encompasses all the characteristics or properties possessed by the object or subject.

The population includes all data or units of analysis relevant to the research topic, encompassing the variables to be studied. The sample is a subset of the population; there will be no sample without a population. The population and sample of this study are:

- a. Kerinci Regency as the unit of local government consisting of several districts.
- b. Annual data related to Original Local Government Revenue (PAD), Population, Gross Regional Domestic Product (GRDP), and Regional Expenditure in Kerinci Regency over a ten-year period from 2014 to 2023.

Data Collection Technique

Data collection techniques can be carried out in various settings, sources, and methods. Regarding the setting, data can be collected in natural settings, laboratories using experimental methods, at home with respondents, seminars, discussions, on the street, etc. In terms of data sources, data collection can use primary and secondary sources. Primary sources directly provide data to data collectors, while secondary sources do not directly provide data to collectors, such as through other people or already compiled documents (Rani et al., 2021).

The data used in this study are secondary data. The data collection technique involves documents, specifically catalogs from the Central Statistics Agency (BPS) of Kerinci Regency titled "Kerinci Regency in Figures," which contain various information about Kerinci Regency, including Original Local Government Revenue (PAD), Population, Gross Regional Domestic Product (GRDP), and Regional Expenditure within the specified period from 2014 to 2023.

Multiple Linear Regression Data Analysis

Multiple linear regression is intended to test the effect of two or more independent (explanatory) variables on one dependent variable. This model assumes a linear relationship between the dependent variable and each of its predictors (Arumi, 2012). In the context of research on the influence of Original Local Government Revenue (PAD), Population, and Gross Regional Domestic Product (GRDP) on Regional Expenditure in Kerinci Regency, a multiple linear regression model can be used to determine the extent to which these three independent variables affect the dependent variable, namely Regional Expenditure. The multiple linear regression model for this study can be expressed in the following equation:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon \quad (1)$$

Where:

- Y = Regional Expenditure
- X1 = Original Local Government Revenue (PAD)
- X2 = Population
- X3 = Gross Regional Domestic Product (GRDP)
- α = Intercept (constant term, the value of Regional Expenditure when all independent variables are zero)
- $\beta_1, \beta_2, \beta_3$ = Regression coefficients for each independent variable, indicating the extent to which the independent variables influence Regional Expenditure
- ϵ = Error term (model error that cannot be explained by the independent variables)

Multicollinearity Test

One of the assumptions in multiple regression using the Ordinary Least Squares (OLS) method is that there is no linear relationship among the independent variables. If a linear relationship exists among the independent variables in a regression, it is called multicollinearity (Zahriyah et al., 2022). The multicollinearity test is one of the feasibility tests (using Variance Inflation Factor or VIF) for multivariate models used to determine whether multicollinearity exists among the independent variables. This test is conducted by examining the VIF and Tolerance values of each independent variable relative to the dependent variable.

Multicollinearity occurs when predictor variables are highly correlated, violating the assumption of independence among variables. This violation can inflate the coefficient estimates, potentially producing statistically significant but misleading results. To detect multicollinearity, the VIF value can be used:

- c. If the VIF value exceeds 10, multicollinearity is a definite problem among independent variables.
- d. If the VIF is between one and five, the variables are moderately correlated.
- e. If the VIF equals one, the variables are not correlated.

To address multicollinearity, methods such as Ridge Regression and Principal Component Analysis (PCA) can be used. The formulas for the multicollinearity test are:

$$\text{VIF} \pm 1, \text{Tolerance} \pm 1, \text{Tolerance} = 1/\text{VIF} \text{ dan } \text{VIF} = 1/\text{Tolerance} \quad (2)$$

In addition to using formulas, multicollinearity can also be tested by examining the correlation matrix of the independent variables. If the correlation coefficient exceeds 0.80, multicollinearity exists.

Multivariate Test

Multivariate statistical analysis is a statistical method that allows researchers to study more than two variables simultaneously. By using this analytical technique, researchers can analyze the influence of several variables on other variables at the same time. Multivariate analysis is used because, in reality, problems cannot be solved by merely linking two variables or examining the influence of one variable on another. Multivariate analytical techniques are fundamentally classified into two types: dependency analysis and interdependency analysis. Dependency Analysis functions to explain or predict the dependent variable using two or more independent variables. Included in this classification are multiple linear regression analysis, discriminant analysis, multivariate analysis of variance (MANOVA) and canonical correlation analysis (Wijaya & Budiman, 2016).

RESEARCH RESULTS

The analysis of the effect of Original Local Government Revenue (PAD), Population, and Gross Regional Domestic Product (GRDP) on Regional Expenditure in Kerinci Regency is presented in the test results table below:

Table 5: Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	0	0.00411	0	1	
X1 (PAD)	0.97009	0.00891	108.86	0	1
X2 (Population)	-0.1184	0.027	-4.38	0.022	28.07
X3 (GRDP)	0.1104	0.0235	4.69	0.018	28.07

Source: Processed from secondary data, 2024

Table 5 shows that all independent variables – Original Local Government Revenue (PAD), Population, and Gross Regional Domestic Product (GRDP) – have significant effects on Regional Expenditure (p-value < 0.05). However, the high Variance Inflation Factor (VIF) values for Population (X2) and GRDP (X3) indicate the presence of multicollinearity, which requires resolution to ensure the validity of the regression model.

Table 6: Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
0.0108770	99.99%	99.99%	99.97%

Source: Processed from secondary data, 2024

The model summary indicates that the independent variables collectively explain 99.99% of the variation in Regional Expenditure. This demonstrates the model's strong explanatory power. Despite this, multicollinearity detected in the coefficients table must be addressed for the model to remain reliable.

Table 7: Analysis of Variance (ANOVA)

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	3	5.99965	1.99988	16904.02	0.000
X1 (PAD)	1	1.40189	1.40189	11849.47	0.000
X2 (Population)	1	0.00227	0.00227	19.19	0.022
X3 (GRDP)	1	0.00261	0.00261	22.02	0.018
Error	3	0.00035	0.00012		
Total	6	6.00000			

Source: Processed from secondary data, 2024

Table 7 confirms the overall significance of the regression model, with a p-value of 0.000. Each independent variable also exhibits a significant effect on Regional Expenditure (p-value < 0.05). Nevertheless, multicollinearity issues identified earlier necessitate further analysis.

Table 8: Eigenanalysis of the Correlation Matrix

Eigenvalue	Proportion	Cumulative
2.2943	0.765	0.765
0.6909	0.230	0.995
0.0149	0.005	1.000

Source: Processed from secondary data, 2024

The eigenanalysis shows that the first principal component (PC1) explains 76.5% of the variance among the independent variables, while the second principal component (PC2) adds another 23%. This demonstrates that PCA effectively reduces multicollinearity while preserving most of the information in the data.

Regression Equation (Post-PCA):

$$Y = -0.00000 - 0.45561 \times PC1 - 0.87063 \times PC2 \quad (3)$$

Table 9: Coefficients (Post-PCA)

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	-0.00000	0.00426	0.00	1.000	-
PC1	-0.45561	0.00304	-149.97	0.000	1.00
PC2	-0.87063	0.00554	-157.26	0.000	1.00

Source: Processed from secondary data, 2024

The regression coefficients post-PCA show that both principal components (PC1 and PC2) have significant effects on Regional Expenditure, with p-values of 0.000. The VIF values of 1.00 confirm that the multicollinearity issue has been successfully resolved.

Table 10: Model Summary (Post-PCA)

S	R-sq	R-sq(adj)	R-sq(pred)
0.0112719	99.99%	99.99%	99.96%

Source: Processed from secondary data, 2024

The post-PCA model retains high explanatory power, with an R-squared value of 99.99%, indicating that the principal components adequately represent the original variables.

Table 11: ANOVA (Post-PCA)

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	3	5.99965	1.99988	16904.02	0.000
X1 (PAD)	1	1.40189	1.40189	11849.47	0.000
X2 (Population)	1	0.00227	0.00227	19.19	0.022
X3 (GRDP)	1	0.00261	0.00261	22.02	0.018
Error	3	0.00035	0.00012		
Total	6	6.00000			

Source: Processed from secondary data, 2024

The final ANOVA table confirms the significance of the revised model, with p-values of 0.000 for both PC1 and PC2, indicating that the model is robust and reliable after addressing the multicollinearity issue.

CONCLUSION

This study investigated the impact of Original Local Government Revenue (PAD), Population, and Gross Regional Domestic Product (GRDP) on Regional Expenditure in Kerinci Regency. The findings indicate that all independent variables significantly influence Regional Expenditure, as evidenced by p-values below the threshold of 0.05. However, the presence of multicollinearity between Population (X2) and GRDP (X3), as shown by high Variance Inflation Factor (VIF) values, necessitated the use of Principal Component Analysis (PCA) to address the issue.

The application of PCA successfully resolved the multicollinearity problem, and the revised regression model confirmed that the principal components derived from the independent variables retained significant explanatory power for Regional Expenditure. The final model exhibited high reliability and robustness, with an R-squared value of 99.99%, indicating a strong relationship between the predictors and the dependent variable.

Despite the robustness of the results, this study has several limitations. First, the study is restricted to Kerinci Regency, limiting the generalizability of the findings to other regions. Second, the analysis relied solely on secondary

data from official statistical reports, which might not capture real-time fluctuations or external factors affecting regional expenditure. Finally, the study focused on a linear regression approach and PCA, which may not fully account for non-linear relationships or other advanced econometric considerations.

ADVANCED RESEARCH

For future research, it is recommended to expand the scope of the study to include multiple regions to enhance the generalizability of the findings. Additionally, incorporating primary data, such as surveys or interviews, could provide more comprehensive insights into the determinants of regional expenditure. Researchers could also explore the use of advanced econometric models, such as non-linear regression or machine learning techniques, to capture complex relationships among variables and improve predictive accuracy. These efforts would contribute to a deeper understanding of the factors driving regional expenditure and support more effective fiscal policy-making.

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