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Analysis the Relationship between Gross Regional Domestic Product and Original Local Government Revenue in Cities in Central Java Province

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Abstract

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This study aims to analyze the relationship between Gross Regional Domestic Product and Original Local Government Revenue in six cities in Central Java Province, namely Semarang, Surakarta, Salatiga, Magelang, Pekalongan, and Tegal. The approach used is a quantitative method with Pearson correlation analysis to determine the direction and strength of the relationship between the two variables. The results of the normality test showed that the Original Local Government Revenue variable was normally distributed, while the Gross Regional Domestic Product was not. The results of the correlation test showed a coefficient value of 0.188 with a significance of 0.721, which means that the relationship between Gross Regional Domestic Product and Original Local Government Revenue is positive but very weak and not statistically significant. These findings indicate that the increase in Gross Regional Domestic Product has not fully contributed to the increase in Original Local Government Revenue. Therefore, local government efforts are needed to optimize the potential of the local economy and strengthen fiscal policies so that economic growth can have direct implications for increasing regional fiscal independence.

1. Introduction

The implementation of regional autonomy requires local governments to be able to manage economic potential optimally to increase fiscal independence (Putri & Saputra, 2019). One of the main indicators used to assess regional economic performance is Gross Regional Domestic Product (GRDP). GRDP reflects the added value generated by all economic activities in a region and is often used as a measure of the success of regional economic development. The increase in GRDP shows the growth of production, consumption, and investment activities that have the potential to strengthen the financial capabilities of local governments.

In the context of regional finance, Original Local Government Revenue (*Pendapatan Asli Daerah*/PAD) has an important role as a source of financing for development and public services. PAD is sourced from regional taxes, regional levies, the results of segregated regional wealth management, and other legitimate regional revenues. The high and low PAD is greatly influenced by regional economic conditions, as increased economic activity will expand the tax and levy collection base. Therefore, the relationship between GRDP and PAD is an important issue in the study of regional economics and regional public finance.

A number of previous studies have shown that GRDP has a positive influence on PAD. Sania et al. (2018) found that the increase in GRDP contributes significantly to the increase in district/city PAD in Central Java. Similar findings were also conveyed by Wijaya and Yuliarmi (2019) who stated that GRDP is one of the main determinants of PAD in major cities in Indonesia. Vanomy (2019) through the panel data approach also proved that GRDP has a positive and significant effect on PAD in the framework of regional autonomy.

Another study developed an analysis by reviewing GRDP from a sectoral perspective. Gulo (2022) shows that the services and trade sectors in GRDP have a major contribution to increasing PAD. Anshory and Wijayanti (2022) who researched cities on the island of Java found that GRDP consistently has a positive effect on PAD, although the magnitude of the influence varies between regions. Furthermore, Vanomy (2019) used economic growth as a proxy for GRDP and found a positive relationship with PAD in Central Java. Ishak (2021) emphasized that the influence of GRDP on PAD is heterogeneous, depending on the economic characteristics of each region.

However, previous studies still leave some research gaps. First, most studies combine analyses between districts and cities, so they have not been able to capture specific urban economic characteristics. Second, many studies use a wide area coverage, such as the provincial level or the island of Java, so it does not highlight the fiscal dynamics between cities within a province. Third, there is still limited research that specifically compares the influence of GRDP on PAD in cities with medium and large economies in the same administrative area.

Central Java Province has six cities with diverse economic characteristics, namely Semarang City, Surakarta City, Salatiga City, Magelang City, Pekalongan City, and Tegal City. Differences in economic structure, business scale, and fiscal capacity in each city have the potential to cause differences in the relationship between GRDP and PAD.

Based on this description, this study aims to analyze the influence of GRDP on PAD specifically in cities in Central Java with a time limit until 2022. This research is expected to fill the existing research gap by providing a more specific empirical picture of the relationship between GRDP and PAD in urban areas, as well as being the basis for policy formulation to increase regional fiscal independence.

2. Literature Review

2.1. Effect of Gross Regional Domestic Product (GRDP) on Original Local Government Revenue (PAD)

GRDP is a key indicator used to measure the level of economic activity and the value added generated by a region within a specific period. GRDP reflects the production capacity of a region derived from various economic sectors, including industry, trade, services, and other productive activities. In a regional economic context, an increase in GRDP signifies economic growth, which generally leads to higher income levels, expanded business activities, and improved economic welfare for the community (Salendu, 2021).

Original Local Government Revenue (*Pendapatan Asli Daerah*/PAD) represents an essential component of regional income that originates from the region's own economic capacity. PAD is sourced from regional taxes, regional levies, the management of separated regional assets, and other legitimate local revenues. The level of PAD is closely linked to regional economic conditions, as its main sources depend directly on the intensity and scale of economic activities occurring within the region.

The theoretical relationship between GRDP and PAD can be explained through tax base theory. An increase in GRDP reflects higher economic transactions, growth in the number of business units, and increased purchasing power of the population. These conditions expand the local tax base, including taxes on hotels, restaurants, entertainment, advertising, and other taxable activities, which ultimately contribute to higher PAD. Therefore, regions with higher GRDP levels generally have greater potential to generate PAD through optimal tax and levy collection.

Empirical studies consistently support the existence of a positive relationship between GRDP and PAD. Sania et al. (2018) found that GRDP has a positive and significant effect on PAD in districts and cities in Central Java, indicating that regional economic growth plays a crucial role in strengthening fiscal independence. Similarly, Wijaya and Yuliarmi (2019) concluded that GRDP is the most dominant variable influencing PAD in major cities in Indonesia compared to other demographic factors.

Further evidence is provided by Vanomy (2019), who used panel data analysis and found that increases in GRDP consistently lead to higher PAD in the era of regional autonomy. Their findings confirm that regions with more dynamic economic activity tend to have a greater capacity to optimize local revenue sources. Gulo (2022) added that the contribution of GRDP to PAD is also shaped by sectoral composition, noting that the trade and services sectors have the strongest impact on increasing PAD.

However, the strength of the relationship between GRDP and PAD is not uniform across regions. Anshory and Wijayanti (2022) found that although GRDP positively affects PAD in cities on the island of Java, the magnitude of this effect varies depending on regional characteristics. This variation suggests that local economic structure and government capacity in managing economic potential influence how effectively GRDP translates into PAD. Ishak (2021) further emphasized differences in the strength of GRDP's influence on PAD between large cities and medium-sized cities.

Based on these theoretical perspectives and empirical findings, GRDP plays a strategic role in increasing PAD. Nevertheless, regional differences in economic characteristics highlight the need for more focused studies. Therefore, this research re-examines the influence of GRDP on PAD in cities within Central Java to provide more specific and relevant empirical evidence.

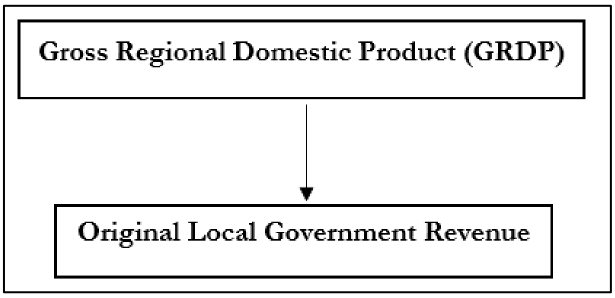

Figure.1 Conceptual Framework

Based on the figure 1 foundation of regional economic theory and previous research findings, the increase in Gross Regional Domestic Product (GRDP) reflects the increase in economic activity and added value generated by a region. This condition will expand the regional tax and levy base so that it has the potential to increase the ability of local governments to collect Original Local Government Revenue (PAD). Previous studies have also shown that areas with higher GRDP levels tend to have larger PADs. Therefore, in this study, the hypothesis is proposed that Gross Regional Domestic Product (GRDP) has a positive effect on Original Local Government Revenue (PAD).

3. Methods

This study uses a quantitative approach with a correlation method to test the relationship between Gross Regional Domestic Product (GRDP) and Original Local Government Revenue (PAD). The quantitative approach was chosen because the research focuses on empirically testing hypotheses through numerical measurements and statistical analysis. The correlation method is used to determine the direction and strength of the relationship between the GRDP variable as an independent variable and PAD as a dependent variable.

The object of this research is cities in Central Java Province, namely Semarang City, Surakarta City, Salatiga City, Magelang City, Pekalongan City, and Tegal City. The data used are secondary data obtained from official publications of the Central Statistics Agency (BPS) and local government financial statements, with a research time limit until 2022. The GRDP data used is GRDP on the basis of applicable prices, while PAD is measured based on the realization of each city's annual PAD.

The data collection technique is carried out through the documentation method, namely by collecting and recording GRDP and PAD data from relevant official sources. All data obtained were then processed and analyzed using the Statistical Package for the Social Sciences (SPSS) software. The use of SPSS aims to ensure the accuracy of statistical calculations and simplify the process of correlation analysis.

Data analysis begins with a descriptive statistical test to provide an overview of the characteristics of GRDP and PAD data, such as minimum, maximum, average, and standard deviation values. Furthermore, a Pearson correlation test was carried out to determine the relationship between GRDP and PAD. The Pearson correlation test was chosen because the data used is numerical and is assumed to have a linear relationship. The value of the correlation coefficient (r) is used to assess the strength of the relationship, while a positive or negative sign indicates the direction of the relationship between variables.

To test the research hypothesis, a significance level of 5 percent ($\alpha = 0.05$) was used. The hypothesis is accepted if the significance value (Sig.) of the correlation test results is less than 0.05 and the correlation coefficient shows a positive value. Thus, the results of the analysis are expected to provide empirical evidence on whether GRDP has a positive effect on PAD in cities in Central Java. This method was chosen because it is in accordance with the research objectives that focus on testing the relationship between variables and proving hypotheses statistically.

4. Results

The normality test is carried out to find out whether the data used in this study is normally distributed, so that the appropriate statistical analysis method can be determined for further hypothesis testing. This test is important because the normality of the data is one of the basic assumptions in the use of parametric statistical analysis such as:

Table 1. SPPS Normality Test Outpout Results

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Say.	Statistic	df	Say.
PAD	.179	6	.200*	.925	6	.546
PRDB	.415	6	.002	.572	6	.000
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Normality test results table 1 showed that the PAD variable had a significance value of 0.200 in the Kolmogorov-Smirnov test and 0.546 in the Shapiro-Wilk test. Since these two values are greater than 0.05, it can be concluded that the PAD data is normally distributed. In contrast, the PRDB variable had a significance value of 0.002 on the Kolmogorov-Smirnov test and 0.000 on the Shapiro-Wilk test. These two values are smaller than 0.05, so the PRDB data is not normally distributed. Thus, only the PAD variable meets the assumption of normality, while the PRDB does not, so for further analysis it is necessary to consider the use of non-parametric methods that do not require a normal distribution of data.

The correlation test was carried out to determine the direction and strength of the relationship between the variables of Gross Regional Domestic Product (GRDP) and Original Local Government Revenue (PAD). Through this test, it can be found whether the increase in GRDP is related to the increase in PAD, as well as the extent of the close relationship between the two variables as the basis for testing the research hypothesis.

Table 2. Results of SPPS Correlation Outpout

Correlations			
		PAD	PRDB
PAD	Pearson Correlation	1	.188
	Sig. (2-tailed)		.721
	N	6	6
PRDB	Pearson Correlation	.188	1
	Sig. (2-tailed)	.721	
	N	6	6

Based on the tabel 2 results of the Pearson correlation test above, the correlation coefficient value between PAD and PRDB was 0.188 with a significance value (Sig. 2-tailed) of 0.721. This positive correlation value shows that the relationship between PAD and PRDB is unidirectional, meaning that when PAD increases, PRDB tends to increase as well. Nevertheless, the strength of the relationship is very weak because the correlation value is close to zero. In addition, a significance value much greater than 0.05 indicates that the relationship between the two variables is not statistically significant. Thus, it can be concluded that there is no significant relationship between PAD and PRDB in this study sample.

Based on the results of the analysis that has been carried out, an overview of the relationship between Gross Regional Domestic Product (GRDP) and Original Local Government Revenue (PAD) in six cities in Central Java Province, namely Semarang City, Surakarta City, Salatiga City, Magelang City, Pekalongan City, and Tegal City. The analysis stage begins with a normality test to determine whether the data is distributed normally before the Pearson correlation test is carried out. The results of the normality test showed that the PAD variable had a significance value of 0.200 in the Kolmogorov-Smirnov test and 0.546 in the Shapiro-Wilk test. This value is greater than the significance limit of 0.05, so it can be concluded that the PAD data is normally distributed. In contrast, the GRDP variable had a significance value of 0.002 on the Kolmogorov-Smirnov test and 0.000 on the Shapiro-Wilk test, which means it is smaller than 0.05. This shows that the GRDP data is not distributed normally. Thus, only the PAD data meets the assumption of normality, while the GRDP data does not, so the results of the correlation analysis need to be interpreted with caution or a non-parametric approach can be considered in follow-up research.

Furthermore, the results of the Pearson correlation test showed that the value of the correlation coefficient between PAD and GRDP was 0.188 with a significance level of 0.721. The positive correlation value indicates that there is a unidirectional relationship between the two variables, where an increase in GRDP tends to be followed by an increase in PAD. Nevertheless, the strength of this relationship is very weak because the correlation value is close to zero, and it is statistically insignificant because the significance value is much greater than 0.05. This means that the relationship between GRDP and PAD is not strong enough to be said to have an empirically meaningful relationship in the observation period used.

These results show that in the context of six cities in Central Java, the increase in GRDP has not been fully reflected in the increase in PAD. This condition can be caused by various factors, such as the regional economic structure which is still dominated by sectors with low contributions to regional taxes and levies, the effectiveness of regional tax collection that is not optimal, and the limitations in managing the potential of the local economy to be a significant source of income. (Pitaloka & Fatimah, 2022) Thus, although theoretically GRDP plays an important role in PAD as described in the literature review, the empirical results of this study show that the relationship is not statistically significant in the region and period studied.

Overall, the results of this study indicate that regional economic growth, which is reflected through an increase in GRDP, has not directly implicated the increase in the fiscal independence of local governments through PAD. Therefore, local government policies need to be focused on strengthening fiscal capacity through optimizing regional taxes and levies, improving the efficiency of asset management, and empowering potential economic sectors that can contribute more to PAD in the future.

5. Discussion

Based on the results of the research that has been conducted, the analysis of the relationship between Gross Regional Domestic Product (GRDP) and Original

Local Government Revenue (PAD) in six cities in Central Java Province shows interesting findings. The normality test conducted using the Kolmogorov-Smirnov and Shapiro-Wilk methods showed that the PAD variables had significance values of 0.200 and 0.546, which were greater than 0.05. This indicates that the PAD data is distributed normally. On the other hand, the GRDP variables have significance values of 0.002 and 0.000 which are smaller than 0.05, so that the GRDP data is not normally distributed. This condition indicates that only PAD meets the assumption of normality, while GRDP does not, so the correlation analysis used needs to be interpreted carefully (Feriyantoa, 2020).

The results of the Pearson correlation test showed that the relationship between GRDP and PAD had a correlation coefficient of 0.188 with a significance level of 0.721. A positive correlation value indicates that the direction of the relationship between GRDP and PAD is unidirectional, where an increase in GRDP tends to be followed by an increase in PAD. However, the strength of the relationship is very weak because the correlation value is close to zero, and it is statistically insignificant because the significance value is much greater than 0.05. This means that the economic growth reflected through GRDP has not shown a significant influence on the increase in PAD in six cities in Central Java.

These results are not entirely in line with the basic theory of the relationship between GRDP and PAD which states that regional economic growth will increase the regional tax and levy base (Sania et al., 2018). In the theory of the tax base, the increase in economic activity measured through GRDP should expand the source of regional revenue through an increase in taxes on hotels, restaurants, entertainment, and the trade sector (Wijaya and Yuliarmi, 2019). However, the results of this study show that despite the direction of the relationship between the two positive variables, the effect is not significant.

Several factors can explain the weakness of this relationship. First, the economic structure of cities in Central Java is still dominated by the service and small trade sectors which are not optimal in contributing to PAD (Gulo, 2022). Second, there are still limitations in the effectiveness of regional tax and levy collection, so that the increase in economic activity has not fully translated into an increase in fiscal revenue (Anshory and Wijayanti, 2022). Third, variations in fiscal capacity and economic independence between cities cause the relationship between GRDP and PAD to be heterogeneous (Ishak, 2021).

Thus, the results of this study provide empirical evidence that economic growth does not automatically increase regional fiscal independence. Local governments need to strengthen fiscal policies by optimizing the potential of regional taxes, improving the collection system, and increasing transparency and accountability in regional financial management. Efforts to strengthen productive sectors such as industries and services that have high added value are also important to increase the contribution of GRDP to PAD. With these measures, it is hoped that the relationship between regional economic growth and fiscal independence can be realized more significantly in the future.

6. Conclusion

Based on the results of the analysis that has been carried out, it can be concluded that the relationship between Gross Regional Domestic Product (GRDP) and Original Local Government Revenue (PAD) in six cities in Central Java Province shows a positive direction, but the strength is very weak and not statistically significant. This means that the increase in GRDP has not been significantly followed by an increase in PAD. This condition illustrates that regional economic growth has not fully impacted the increase of fiscal independence of local governments. Differences in economic structure between cities, the effectiveness of tax collection, and the management of local economic potential are suspected to be factors causing the weak linkage. Therefore, local governments need to strengthen fiscal strategies through optimizing local sources of revenue and developing productive economic sectors so that economic growth can make a greater contribution to improving PAD and community welfare in the future.

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