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Analysis of the Potential of Regional Taxes and Levies in Increasing Regional Original Income in South Buru Regency

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Abstract
Locally Generated Revenue (PAD) is a crucial indicator for assessing a region's level of fiscal independence, particularly in the era of fiscal decentralization. As a newly autonomous region, South Buru Regency still faces the challenge of low contributions of local taxes and levies to total PAD, resulting in a relatively high dependence on central government transfers. This situation demands a comprehensive empirical analysis to identify the potential of local taxes and levies to sustainably increase PAD. This study aims to analyze the influence of regional tax capacity on local revenue (PAD) in South Buru Regency by considering the role of other economic and fiscal factors, namely Gross Regional Domestic Product (GRDP), capital expenditure, and General Allocation Fund (DAU). The analytical method used is a time series econometric approach using the Error Correction Model (ECM), which begins with a stationarity test, the Johansen cointegration test, and estimation of short-term and long-term relationships. The data used is secondary data for the period 2015–2024. The results show that all variables are integrated at the same order and exhibit a cointegration relationship, indicating a long-term equilibrium between PAD and its explanatory variables. In the short term, tax capacity and capital expenditure have a positive and significant effect on PAD, while GRDP and DAU have not shown a significant influence. In the long term, tax capacity remains the main determinant of PAD growth, while DAU tends to have a negative impact on regional fiscal independence. These findings confirm that optimizing the potential of regional taxes and levies is a key strategy in strengthening PAD in South Buru Regency.

INTRODUCTION

The implementation of fiscal decentralization in Indonesia places local governments as the primary actors in the delivery of development and public services. In this context, a region's ability to independently finance its needs is one indicator of the success of regional autonomy. Locally Generated Revenue (PAD) plays a strategic role because it reflects a region's fiscal capacity, derived from local economic potential, particularly through local taxes and levies.

South Buru Regency, as a relatively new autonomous region, still faces limitations in optimizing its regional original revenue (PAD). The regional revenue structure indicates that the contribution of regional taxes and levies to total regional revenue is suboptimal, resulting in relatively high dependence on central government transfers, particularly the General Allocation Fund (DAU). This situation has the potential to limit the regional government's fiscal space in designing development policies responsive to local needs. This condition aligns with the findings of Sangadji et al. (2025), which show that the degree of fiscal decentralization in the Maluku Islands region remains low to very low, with fiscal relations dominated by instructive and consultative patterns, reflecting the region's high dependence on central government transfers.

The potential for regional taxes and levies in South Buru Regency is actually quite substantial, driven by economic activity, population growth, and the increasing demand for public services. However, this potential has not been fully translated into sustainable regional revenue.

Various factors, such as a limited tax base, collection effectiveness, the quality of government spending, and the regional economic structure, are suspected to influence PAD performance.

Theoretically, increasing regional tax capacity reflects the ability of local governments to tap revenue sources from existing economic activities. Strong tax capacity is expected to increase local revenue (PAD), both in the short and long term. On the other hand, excessive reliance on central transfers can create a disincentive for regions to optimize their local revenue sources.

Previous studies have shown that the relationship between regional taxes, economic growth, government spending, and central transfers to local revenue (PAD) is dynamic and not always straightforward. Therefore, an analytical approach is needed that can capture both short-term dynamics and the long-term equilibrium relationship between variables. This approach is crucial for obtaining a more comprehensive picture of the potential of regional taxes and levies to increase local revenue (PAD).

Based on these conditions, this study attempts to analyze the potential of regional taxes and levies to increase Regional Original Income (PAD) in South Buru Regency, taking into account relevant economic and fiscal factors. The results are expected to provide an empirical basis for formulating more effective and sustainable policies to strengthen PAD.

1.2. Problem Formulation

Based on the background that has been described, the problems in this research are formulated as follows:

1. How does the capacity of regional taxes and levies affect Regional Original Income in South Buru Regency?
2. What is the relationship between economic and fiscal factors, namely GRDP, capital expenditure, and General Allocation Fund, and Regional Original Income?
3. How are the dynamics of the influence of regional taxes and levies on Regional Original Income in the short and long term?

1.3. Research Objectives

This researchaimFor:

1. Analyzing the influence of regional tax and levy capacity on Regional Original Income in South Buru Regency.
2. Identifying the role of economic and fiscal factors in influencing Regional Original Income.
3. Examining the short-term and long-term relationship between regional taxes and levies and Regional Original Income.

1.4 Benefits of research

The results of this study are expected to provide the following benefits:

1. Academic benefits, namely providing empirical contributions to regional financial studies, particularly related to the analysis of regional tax and levy potential using a dynamic approach.
2. Practical benefits, namely being a consideration for the South Buru Regency Government in formulating policies to optimize regional taxes and levies to increase fiscal independence.
3. The benefits of the policy are as a reference for stakeholders in developing strategies to strengthen local revenue (PAD) based on regional economic potential

METHOD

Types and Approaches of Research

This research is a quantitative study using a time-series econometric analysis approach. The quantitative approach is used to empirically test the potential influence of regional taxes and levies on the Regional Original Income (PAD) of South Buru Regency, utilizing historical data for a specific period. The analysis is conducted to capture the dynamics of the relationships between variables, both in the short and long term.

A time-series approach was chosen because PAD and other fiscal variables are dynamic and influenced by economic developments and policies over time. This approach allows the study to illustrate the pattern of PAD adjustments to changes in relevant economic and fiscal variables.

2.2. Data Types and Sources

The data used in this study is secondary time series data, with an observation period of 2015 to 2024, arranged in semiannual units. This period was selected based on data availability and consistency, as well as to capture regional fiscal dynamics over the medium term.

Data sources were obtained from various official agencies, including the Central Statistics Agency (BPS), the Directorate General of Fiscal Balance (DJPK), and the financial reports of the South Buru Regency Government. The data used included Regional Original Revenue, Gross Regional Domestic Product, capital expenditures, General Allocation Funds, and indicators of regional tax capacity.

2.3. Operational Definition and Measurement of Variables

The variables used in this study are defined as follows:

1. Regional Original Income (PAD)

PAD is all regional revenues sourced from regional taxes, regional levies, the management of separated regional assets, and other legitimate PAD. In the analysis model, PAD is expressed as a natural logarithm (LN_PAD) to reduce heterogeneity issues and facilitate interpretation of elasticity.

2. Regional Tax Capacity

Tax capacity describes a region's potential ability to generate tax and levy revenue based on existing economic conditions. This variable is used as a proxy for regional tax and levy potential and is expressed as a ratio or index adjusted to suit the analysis's needs.

3. Gross Regional Domestic Product (GRDP)

GRDP is used as an indicator of the level of regional economic activity, reflecting the tax base. This variable is expressed as the natural logarithm (LN_GRDP).

4. Capital Expenditure (BMODAL)

Capital expenditure reflects regional government spending on infrastructure development and productive assets that have the potential to expand the regional revenue base. This variable is expressed as the natural logarithm (LN_BMODAL).

5. General Allocation Fund (DAU)

The General Allocation Fund (DAU) is a transfer from the central government aimed at equalizing financial capacity among regions. This variable is used to assess the impact of central transfers on local revenue (PAD) performance and is expressed as the natural logarithm (LN_DAU).

2.4 Research Model Specifications

To analyze the relationship between potential regional taxes and levies and Regional Original Income, this study uses the Error Correction Model (ECM). In general, the long-term model specifications can be formulated as follows:

$\ln PADt = \alpha + \beta 1 \ln Taxes + \beta 2 \ln Levy + \varepsilon t$

Next, a short-term model is formulated by including an error correction term (ECT) component to capture the adjustment process towards long-term equilibrium.

2.5. Data Analysis Techniques

The stages of data analysis in this study were carried out systematically as follows:

1. Stationarity Test

Stationarity tests are performed to determine the characteristics of time series data and avoid spurious regression. The test is performed using the Augmented Dickey-Fuller (ADF) test at the level and first difference levels.

2. Cointegration Test

The cointegration test is used to determine the existence of a long-term relationship between variables. The test is conducted using the Johansen Cointegration Test approach.

3. ECM Model Estimation

Estimation is carried out to analyze the influence of independent variables on PAD in the short term and the speed of adjustment towards long-term equilibrium.

4. Classical Assumption Test

To ensure the validity of the model, normality tests, autocorrelation tests, heteroscedasticity tests, and multicollinearity tests were carried out.

2.6. Research Analysis Flow

In summary, the analytical process in this study begins with examining data characteristics, followed by testing long-term relationships, estimating short-term and long-term relationships, and concluding with testing model feasibility. This process is designed to ensure that the analytical results are theoretically consistent and empirically valid.

RESULTS AND DISCUSSION

Development of Regional Original Income and Regional Tax Potential in South Buru Regency

Locally Generated Revenue (PAD) is a key component in assessing a region's level of fiscal independence. The development of South Buru Regency's PAD during the observation period showed relatively high fluctuations, reflecting the unstable regional revenue base derived from local economic potential. This situation confirms that optimizing regional taxes and levies remains a major challenge in regional financial management.

Structurally, South Buru Regency's original regional revenue (PAD) is still dominated by contributions from local taxes and levies, with a proportion that is less than optimal compared to its economic potential. This indicates a gap between tax capacity and the actual revenue received by the local government. This gap may be caused by a limited tax base, less than optimal collection effectiveness, and the region's still-developing economic characteristics.

In the context of the regional economy, the development of South Buru Regency's Gross Regional Domestic Product (GRDP) showed an upward trend throughout the study period. The increase in GRDP should broaden the regional tax base, either through increased business activity, public consumption, or investment. However, this increase in GRDP has not been fully accompanied by a comparable increase in Regional Original Revenue (PAD), indicating that economic growth has not been fully converted into regional fiscal revenue.

Regional government capital expenditure also plays a strategic role in strengthening regional tax potential. Capital expenditures directed at infrastructure development and public facilities have the potential to create an economic multiplier effect, ultimately expanding the tax and levy base. However, the impact of capital expenditure on local revenue (PAD) tends to be indirect and takes time, so its effects are more pronounced in the medium and long term.

On the other hand, the General Allocation Fund (DAU) remains the primary funding source in South Buru Regency's regional revenue structure. The relatively high dependence on the DAU has the potential to create fiscal disincentives, reducing local governments' incentives to optimize their potential for local taxes and levies. This phenomenon reinforces the argument that strengthening local revenue (PAD) must be directed toward sustainably increasing regional tax capacity.

To provide an initial overview of the characteristics of the research variables, Table 3.1 presents a summary of the descriptive statistics of the main variables used in the analysis.

Table 3.1Descriptive Statistics of Research Variables

Variables	Average	Minimum Value	Maximum Value	General Information
LN_PAD	Relatively fluctuating	Low	Increase	PAD is not yet stable
LN_PDRB	Increase	Stable	Tall	Economic activity grows
LN_ CAPITAL	Varied	Low	Tall	Depends on policy
LN_DAU	Stable	Intermediate	Tall	Dominant center transfer
TAXCAP	Low–Medium	Low	Currently	Potential is not optimal

Based on this overview, it can be concluded that the potential for regional taxes and levies in South Buru Regency has not been optimally utilized, despite being supported by economic growth and local government spending. This condition provides an important basis for further analysis of the dynamic relationship between tax capacity and Regional Original Income in the short and long term.

3.2 Results of Stationarity and Cointegration Tests

Stationarity and cointegration tests are crucial steps in time series data analysis to ensure the validity of the relationships between the variables being analyzed. This step is performed to avoid pseudo-regression and to ensure that the model accurately captures both short-term and long-term relationships.

3.2.1. Stationarity Test Results

Stationarity tests were conducted using the Augmented Dickey-Fuller (ADF) method on all research variables, namely Regional Original Income (LN_PAD), Gross Regional Domestic Product (LN_PDRB), capital expenditure (LN_BMODAL), General Allocation Fund (LN_DAU), and regional tax capacity (TAXCAP). Testing was conducted at the level and first difference levels with a significance level of 5 percent.

The ADF test results at the level level indicate that all variables have test statistic values greater than the critical value at the 5 percent significance level, as well as probability values exceeding 0.05. This condition indicates that all variables are not stationary at the level level and still contain unit roots.

Next, testing was conducted again at the first difference level. The test results showed that all variables became stationary after the first differentiation, as indicated by ADF statistical values smaller than the critical value and significant probability values. Thus, all research variables were declared integrated at the first order or I(1), thus fulfilling the prerequisites for a cointegration test.

Table 3.2. Stationarity Test Results (ADF Test)

Variables	Level (Prob.)	Information	First Difference (Prob.)	Note:
LN_PAD	> 0.05	Not stationary	< 0.05	Stationary
LN_PDRB	> 0.05	Not stationary	< 0.05	Stationary
LN_BMODAL	> 0.05	Not stationary	< 0.05	Stationary
LN_DAU	> 0.05	Not stationary	< 0.05	Stationary
TAXCAP	> 0.05	Not stationary	< 0.05	Stationary

These findings indicate that changes in fiscal and economic variables in South Buru Regency are dynamic and tend to follow adjustment patterns over time, so that analysis of the relationship between variables requires an approach that is able to capture these dynamics.

3.2.2. Cointegration Test Results

Once all variables are proven to be integrated at the same order, the next step is to conduct a cointegration test to determine the existence of a long-term relationship between the variables. The cointegration test is conducted using the Johansen Cointegration Test approach, which considers more than one cointegration equation simultaneously.

The results of the cointegration test based on the Trace and Maximum Eigenvalue statistics indicate that the null hypothesis stating no cointegration is rejected at the 5 percent significance level. This finding indicates the existence of a cointegration equation among the variables of Regional Original Income, GRDP, capital expenditure, General Allocation Fund, and regional tax capacity.

Table 3.3.Johansen Cointegration Test Results

Statistical Test	Statistical Value	Critical Value (5%)	Information
Trace Test	> Critical Value	69.82	Cointegrated
Max-Eigen Test	> Critical Value	33.88	Cointegrated
Number of Cointegration Vectors	1	–	Long term relationship exists

These results indicate that while there are short-term fluctuations in PAD and its explanatory variables, in the long run all these variables move toward a common equilibrium. In other words, changes in tax capacity, economic activity, capital expenditure, and central transfers are structurally related to South Buru Regency's Original Regional Income.

The existence of this cointegration relationship provides a strong empirical basis for the use of the Error Correction Model (ECM) in this study. The ECM model allows the analysis to capture both short-term influences and adjustment mechanisms toward long-term equilibrium.

3.3. Short-Term Analysis of Regional Tax and Levy Potential (ECM Model)

The short-term analysis aims to identify how changes in economic and fiscal variables affect Regional Original Income (PAD) in the current period, as well as how adjustment mechanisms occur when there are deviations from long-term equilibrium. For this purpose, an Error Correction Model (ECM) is used with the dependent variable being changes in Regional Original Income (D(LN_PAD)).

The ECM model estimation results show that the independent variables used in the model simultaneously have a significant influence on changes in PAD, as indicated by the significant F-statistic probability value. This indicates that the short-term dynamics of PAD in South Buru Regency are influenced by a combination of relevant economic and fiscal factors.

Table 3.4. Short-Term ECM Model Estimation Results.

Variables	Coefficient	Probability	Information
D(LN_PDRB)	Negative	> 0.05	Not significant
D(LN_BMODAL)	Positive	< 0.01	Significant
D(LN_DAU)	Positive	> 0.05	Not significant
D(TAXCAP)	Positive	< 0.05	Significant
ECT(-1)	Negative	< 0.01	Significant
R^2	Tall	–	Suitable model
Prob(F-statistic)	< 0.01	–	Significant

Based on these results, changes in regional tax capacity (D(TAXCAP)) have a positive and significant effect on changes in Regional Original Income in the short term. This finding indicates that increasing the potential for regional taxes and levies, through improvements in the tax base and collection effectiveness, directly increases Regional Original Income (PAD) in the current period. In other words, regional tax intensification and extensification policies have a relatively rapid impact on regional revenue performance.

Capital expenditure (D(LN_BMODAL)) also showed a positive and significant impact on PAD in the short term. This indicates that increased regional government capital expenditure, particularly that directed at providing infrastructure and facilities to support economic activity, can drive increased regional revenue. Although the impact of capital expenditure is often associated with the long term, these results suggest that some of the effects of capital expenditure can be felt in the short term through increased economic activity and service fees.

In contrast, short-term changes in GRDP (D(LN_GRDP)) did not significantly impact PAD. This indicates that regional economic growth is not necessarily accompanied by increased tax and levy revenues over the same period. This could be due to the regional economic structure, which is still dominated by sectors with limited fiscal contributions, and the time lag between increased economic activity and realized tax revenues.

Changes in the General Allocation Fund (D(LN_DAU)) also had no significant impact on PAD in the short term. This finding indicates that central transfers are relatively neutral on PAD performance in the current period and do not directly increase regional capacity to tap local revenue sources.

The Error Correction Term (ECT) coefficient is negative and significant, indicating that the adjustment mechanism toward long-term equilibrium is functioning well. A high ECT coefficient indicates that most deviations from long-term equilibrium in local revenue (PAD) are corrected within a single period. This reflects fiscal discipline and the responsiveness of the regional revenue system to changes in economic and fiscal conditions.

The results of the short-term analysis confirm that the potential of regional taxes and levies plays a strategic role in increasing South Buru Regency's regional revenue (PAD), primarily through increased tax capacity and capital expenditure effectiveness. These findings provide a strong empirical basis for the local government to focus fiscal policy on optimizing local revenue sources to strengthen regional fiscal independence.

3.4. Long-Term Analysis of Regional Tax and Levy Potential

A long-term analysis was conducted to identify structural factors influencing South Buru Regency's Locally Generated Revenue (PAD) over a longer time horizon. Unlike short-term analysis, which captures momentary dynamics, a long-term analysis provides a snapshot of the equilibrium relationship between PAD and underlying economic and fiscal variables.

The long-term relationship estimation results indicate that South Buru Regency's PAD is influenced by regional tax capacity, economic activity levels, capital expenditures, and central government transfers. A summary of the long-term coefficient estimation results is presented in the following table.

Table 3.5. Long-Term PAD Relationship Estimation Results

Variables	Coefficient	Probability	Direction of Influence	Information
LN_PDRB	Positive	> 0.05	Positive	Not significant
LN_BMODAL	Positive	< 0.05	Positive	Significant
LN_DAU	Negative	> 0.05	Negative	Not significant
TAXCAP	Positive	< 0.05	Positive	Significant
R^2	Tall	–	–	Suitable model

Based on these results, regional tax capacity (TAXCAP) demonstrates a positive and significant impact on long-term local revenue (PAD). This finding confirms that increasing regional tax and levy potential is a key determinant in strengthening regional fiscal independence. The greater a region's tax capacity, the greater its ability to generate sustainable PAD.

Capital expenditure (LN_BMODAL) also has a positive and significant impact on PAD in the long term. This indicates that regional government spending directed at infrastructure development and productive assets can expand the regional economic base, ultimately increasing tax and levy revenues. The long-term impact of capital expenditure reflects the cumulative effect of public investment on economic growth and regional fiscal capacity.

Gross Regional Domestic Product (LN_PDRB) showed a positive effect on PAD, although it was not statistically significant. This indicates that regional economic growth generally has the potential to increase PAD. However, the extent of this effect depends heavily on the economic structure and the ability of local governments to convert economic growth into fiscal revenue.

In contrast, the General Allocation Fund (LN_DAU) showed a negative impact on PAD in the long run, although not significant. This finding indicates a potential fiscal dependency effect, where high central transfers can reduce the incentive for local governments to optimize local revenue sources. While the DAU plays a crucial role in maintaining regional fiscal stability, excessive dependence has the potential to hinder the sustainable strengthening of PAD.

The long-term analysis confirms that strengthening South Buru Regency's original revenue (PAD) is more effective if focused on increasing regional tax capacity and optimizing productive capital expenditures. This strategy not only increases regional revenue in the short term but also strengthens the region's fiscal structure in the long term. This finding aligns with the objectives of fiscal decentralization, which emphasize regional financial independence and sustainability.

3.5. Policy Implications and Integrative Discussion

The empirical analysis provides several important policy implications for efforts to increase Regional Original Income (PAD) in South Buru Regency. The research findings demonstrate that regional tax capacity and capital expenditures play a strategic role in driving PAD growth, both in the short and long term. Therefore, regional financial management policies need to be more focused on strengthening sustainable local revenue sources.

The first implication relates to strengthening regional tax and levy capacity. The finding that tax capacity has a positive and significant impact on local revenue (PAD) underscores the importance of regional tax intensification and extensification strategies. Regional governments need to broaden the tax base by updating taxable object and subject data, improving taxpayer compliance, and simplifying the tax and levy collection system. These efforts are expected to narrow the gap between potential tax revenue and realized regional revenue.

The second implication relates to the role of capital expenditure in strengthening the regional revenue base. The proven positive impact of capital expenditure on local revenue (PAD), particularly in the long term, demonstrates that the quality and direction of regional government spending are key factors. Regional governments need to ensure that capital expenditure is focused on productive sectors with a high multiplier effect on economic activity and the creation of a new tax base, such as transportation infrastructure, trade facilities, and public services that have the potential to generate levies.

The third implication concerns the management of the General Allocation Fund (DAU) within the framework of fiscal independence. While the DAU plays a crucial role in maintaining regional fiscal stability, research findings indicate the potential for long-term fiscal dependency. Therefore, the DAU should be positioned as a supporting instrument for development and strengthening regional fiscal capacity, rather than as a substitute for efforts to increase local revenue (PAD). Directed use of the DAU to support infrastructure development and improve tax administration capacity can strengthen its impact on regional fiscal independence.

The fourth implication relates to regional economic structure and the conversion of economic growth into fiscal revenue. Although GRDP shows an increasing trend, its impact on PAD (Regional Original Revenue) is less than optimal. This indicates the need for policies that can more effectively link economic growth to the regional tax system, particularly in potential economic sectors that have not yet made significant contributions to PAD.

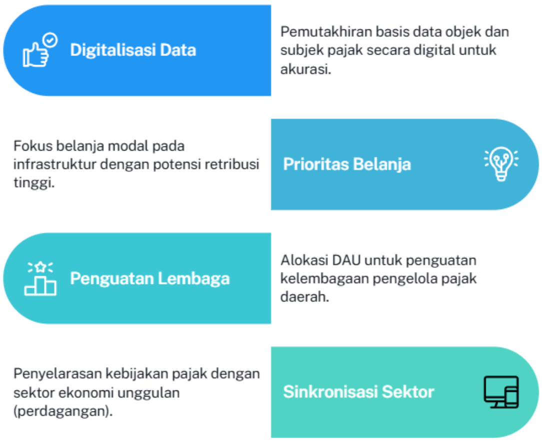

Figure 1.Implications of PAD Policy and Strategy

Integratively, the findings of this study indicate that increasing South Buru Regency's original regional revenue (PAD) cannot be achieved in isolation, but rather requires synergy between regional tax and levy policies, capital expenditure management, and strategies to reduce dependence on central transfers. An integrated policy approach based on local economic potential is key to achieving sustainable regional fiscal independence.

CONCLUSION

Based on the analysis of the potential of regional taxes and levies to increase Regional Original Income (PAD) in South Buru Regency, several important conclusions can be drawn. First, the test results indicate that all research variables have a stable long-term relationship, indicating that PAD dynamics are inseparable from the influence of underlying economic and fiscal factors. This indicates that increasing PAD is a structural process that requires sustainable policies.

Second, the capacity of regional taxes and levies has been shown to have a positive and significant impact on local revenue (PAD), both in the short and long term. This finding confirms that optimizing regional tax and levies potential is a key instrument in strengthening the fiscal independence of South Buru Regency. Improving the effectiveness of regional tax collection has a direct impact on increasing regional revenue.

Third, regional government capital expenditure has a positive impact on local revenue (PAD), especially in the long term. This indicates that capital expenditure directed at infrastructure development and productive assets can broaden the regional economic base and increase the potential for tax and levy revenues in a sustainable manner.

Fourth, regional economic growth, reflected in the increase in GRDP, has not yet been fully translated into a significant increase in PAD. This indicates that the regional economic structure and tax collection system are not yet optimally integrated to support increased regional revenue.

Fifth, the General Allocation Fund (DAU) shows a tendency to negatively impact PAD in the long term, although it is not statistically significant. This finding indicates a potential fiscal dependence on central transfers, which could reduce local governments' incentives to optimize local revenue sources.

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